DALHOUSIE UNIVERSITY

CALENDAR 2016/2017

Graduate Studies

DAL.CA

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Calendar 2016/2017

Graduate Calendar

Faculty of Graduate Studies

Important Notices

Students are advised that the matters dealt with in this Calendar are subject to continuing review and revision. 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 said 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.

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
Canada B3H 4R2
Telephone: (902) 494-2450
Fax: (902) 494-1630
Email: Registrar@dal.ca

Other Programs

Information on programs offered by the Faculties of Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering, Health Professions, Management, and Science can be found in the Undergraduate Calendar. Information on programs offered by the Faculties of Dentistry, Law, and Medicine can be found in the Dentistry, Law, Medicine Calendar. Information on Graduate programs can be found in the Graduate Studies Calendar.

Academic Dates 2016/2017

ACADEMIC CLASS ADD/DROP DATES (For financial deadlines and refund dates, visit www.moneymatters.dal.ca.)

Term Identifier	Part of Term Description	Duration of Classes	Last Day to Change and Add Classes for registered students	Last Day to Drop without "W" Last Day to Change from Audit to Credit and Vice Versa	Last Day to Drop with "W"
Summer Term 2016					
1(UG), 2(GR)	Full Term	May 2 - July 29, 2016	May 13, 2016	May 27, 2016	June 24, 2016
A	7-week Term	May 9 - June 24, 2016	May 13, 2016	May 20, 2016	June 6, 2016
D	3-week Term	May 9 - May 31, 2016	May 11, 2016	May 13, 2016	May 20, 2016
9	12-week Term	June 1 - August 23, 2016	June 10, 2016	June 28, 2016	July 25, 2016

E	3-week Term	June 1 - June 23, 2016	June 3, 2016	June 7, 2016	June 13, 2016
B	7-week Term	July 4 - August 19, 2016	July 8, 2016	July 20, 2016	August 5, 2016
F	3-week Term	July 4 - July 26, 2016	July 8, 2016	July 11, 2016	July 15, 2016
G	3-week Term	July 27 - August 18, 2016	July 29, 2016	August 2, 2016	August 8, 2016

Fall Term 2016

X/Y	Full Year Class	September 6, 2016 - April 10, 2017	September 19, 2016	November 4, 2016	February 10, 2017
1 (UG), 2(GR)	Full Term	September 6 - December 6, 2016	September 19, 2016	October 7, 2016	November 14, 2016

Winter Term 2017

1(UG), 2(GR)	Full Term	January 9 - April 10, 2017	January 20, 2017	February 10, 2017	March 17, 2017
Q	4th-year Nursing	January 9 - March 16, 2017	January 20, 2017	February 15, 2017	February 18, 2017

Summer Term 2017

1(UG), 2(GR)	Full Term	May 1 - July 28, 2017	May 12, 2017	May 29, 2017	June 26, 2017
A	7-week Term	May 8 - June 23, 2017	May 12, 2017	May 22, 2017	June 9, 2017
D	3-week Term	May 8 - May 30, 2017	May 10, 2017	May 15, 2017	May 22, 2017
9	12-week Term	June 1 - August 25, 2017	June 7, 2017	June 30, 2017	July 28, 2017
E	3-week Term	June 1 - June 23, 2017	June 5, 2017	June 9, 2017	June 19, 2017
B	7-week Term	July 4 - August 18, 2017	July 10, 2017	July 21, 2017	August 4, 2017
F	3-week Term	July 4 - July 26, 2017	July 6, 2017	July 10, 2017	July 17, 2017
G	3-week Term	July 27 - August 18, 2017	July 31, 2017	August 4, 2017	August 11, 2017

Other Academic Dates

2016

May

Friday, 13	Convocation (Faculty of Agriculture)
Monday, 23	Victoria Day - University closed
Monday, 30 - Saturday, June 4	Spring Convocations

July

Friday, 1	Canada Day - University closed
Saturday, 2	Last day to apply to graduate in October without paying a fee

August

Monday, 1	Halifax/Dartmouth Natal Day - University closed
Friday, 26	Last day for those expecting to receive graduate degrees in October to make electronic submission to FGS http://www.dal.ca/faculty/gradstudies/currentstudents/thesisanddefences.html
Friday, 26	Last day to have Leave of Absence or change of student status approved by Graduate Studies for September

September

Monday, 5	Labour Day - University closed
Tuesday, 6	Classes begin, fall term

October

Monday, 3 - Tuesday, 4	Fall Convocations
Monday, 10	Thanksgiving Day - University closed

November

Friday, 11	Remembrance Day - University closed
Monday, 7 - Friday, 11	Study Break (except students in Co-op Clinicals, or Internships)

December

Thursday, 1	Last day to apply to graduate in May without paying the late fee
Tuesday, 6 *	Classes end, fall term *
Thursday, 8	Examinations begin
Friday, 16	Last day to make electronic submission to FGS for those convocating in May and only registering in the fall term http://www.dal.ca/faculty/gradstudies/currentstudents/thesisanddefences.html
Friday, 16	Last day to have Leave of Absence or change in student status approved for winter term
Sunday, 18	Examinations end

2017

January

Monday, 2	University closed in lieu of New Year's Day
Monday, 9	Classes begin, winter term

February

Friday, 3	Munro Day - University closed
Monday, 20 - Friday, 24	Study break

April

Friday, 7	Last day for those expecting to receive graduate degrees in May to make electronic submission to FGS http://www.dal.ca/faculty/gradstudies/currentstudents/thesisanddefences.html
Monday, 10 **	Classes end, regular session **
Wednesday, 12	Examinations begin, regular session
Friday, 14	Good Friday - University closed
Wednesday, 26	Examinations end, regular session
Friday, 28	Last day to have Leave of Absence or change in student status approved for summer term

May

Friday, 12	Convocation (Faculty of Agriculture)
Monday, 22	Victoria Day - University closed
Monday, 29 - Saturday, **June 3**	Spring Convocations

July

Sunday, 2	Last day to apply to graduate in October without paying a fee
Monday, 3	University closed in lieu of Canada Day

August

Monday, 7	Halifax/Dartmouth Natal Day - University closed
Friday, 25	Last day to have Leave of Absence or change of student status approved by Graduate Studies for September

*** Tuesday, December 6, 2016 - Monday classes will be held**
**** Monday, April 10, 2017 - Friday classes will be held**

Admission Dates 2016/2017

Final Dates for Receipt of Applications for Admission

Regular Session - September Start Date

- **Graduate Studies**[1,2] (except as below) June 1
- Non-Canadian Students (Graduate Studies) April 1

Several programs have different application deadlines. **Please refer to the specific departmental sections in the calendar for these dates**

[1]All supporting documentation must be submitted by the appropriate deadline.

[2]For **Graduate Studies Scholarship** consideration applications must be complete (including application, fee and all supporting documents) by **March 1**. For consideration for **Killam and other University scholarships**, complete applications must be received by **January 31**.

Admission in January or May

Some programs allow for a student to start either January 1 or May 1. Check the detailed program descriptions or with the department directly to see if such start dates are permitted. See Faculty Regulation 4.2, for appropriate application deadlines.

General Application Deadlines	Canadian Applicants	Non-Canadian Applicants
For September Admission	June 1	April 1
For January Admission	October 31	August 31
For May Admission	February 28	December 31

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

A 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 credit hours 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 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 requirements but have yet to complete all their degree requirements. See Faculty of Graduate Studies Regulations.

Co-operative Education

A program where academic study is combined with career related work experience.

Co-requisite

Requirement which can be fulfilled concurrently with the course being considered.

Course

A unit of study in a subject area. Such a course is identified by a course/subject label, number, credit value and title (e.g. ENGL 1000.06: Introduction to Literature).

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 GPA 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 registered in a level of study.

In the case of a course that has been repeated, only the highest grade is included.

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.

Letter of Permission

A Letter of Permission authorizes a Dalhousie student to take a course(s) at another institution for credit towards a Dalhousie qualification. Such permission must be obtained in advance of taking the course(s).

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
Science

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 courses) 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 academic program. Students who have not completed their program after the specified number of years are required to pay a continuing fee.

Qualifying Students (Master's only)

A full-time or part-time student with a Bachelor's degree or its equivalent in whom a department has expressed an interest as a potential graduate student, but who is without a sufficient GPA or academic background in a particular discipline to be enrolled directly in a Master's program.

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.

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 exams are scheduled and held in accordance with Faculty of Graduate Studies and Departmental regulations, and reviewing the thesis both in draft and in final forms.

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. A person permitted to take courses at Dalhousie for transfer of credit to another university (Letter of Permission required).
b. A person permitted to work with a Dalhousie researcher for thesis work at another university (Research).

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 those 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.

Course Codes

Numbers

0010-0099 pre university preparation courses
0100-0300 technology level courses
1000 level courses are introductory
2000-4000 level courses are advanced
5000-9000 level are Graduate level (with some exceptions)

Credit Hours—examples only

.06 credit hours = 6 credit hours = 1 full credit UG, AC, HP level
.03 credit hours = 3 credit hours = ½ credit UG, AC, HP level
.02 credit hours = 2 credit hours = ½ credit TC level

Subject Codes

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

ACAD - Academic
ACSC - Actuarial Science
AGRI - Agriculture
AGRN - Agronomy
ANAT - Anatomy & Neurobiology
ANSC - Animal Science
APSC - Applied Science
AQUA - Aquaculture
ARBC - Arabic
ARCH - Architecture
ARTC - Applied Health Services Research
ARTS - Art
ASSC - Arts and Social Sciences Interdisciplinary
BCBD - Community Building and Design
BIOA - Biology (Faculty of Agriculture)
BIOC - Biochemistry and Molecular Biology
BIOE - Biological Engineering
BIOL - Biology
BIOT - Bioethics
BMNG - Biomedical Engineering
BUSI - Business Administration
CANA - Canadian Studies
CBBI - Computational Biology and Bioinformatics
CH&E - Community Health & Epidemiology
CHEE - Chemical Engineering
CHEM - Chemistry
CHIN - Chinese
CHMA - Chemistry (Faculty of Agriculture)
CIVL - Civil Engineering
CLAS - Classics
CMMT - Communications
CNLT - Centre for Learning and Teaching
COMM - Commerce
CPST - Complimentary Studies
CRNF - Creative Non-Fiction
CRWR - Creative Writing
CSCA - Computer Science (Faculty of Agriculture)
CSCI - Computer Science
CTMP - Contemporary Studies
DCYT - Diagnostic Cytology
DEHY - Dental Hygiene
DENQ - Dentistry Qualifying
DENT - Dentistry
DISM - Disability Management
DMUT - Diagnostic Medical Ultrasound Technology
ECED - Electrical and Computer Engineering
ECMM - Electronic Commerce

ECOA - Economics (Faculty of Agriculture)
ECON - Economics
EDUC - Education
EGLA - English (Faculty of Agriculture)
EMSP - Early Modern Studies
ENGI - Engineering
ENGL - English
ENGM - Engineering Math
ENGN - Engineering (Faculty of Agriculture)
ENSL - English Language (CE)
ENVA - Environmental Sciences (Faculty of Agriculture)
ENVE - Environmental Engineering
ENVI - Environmental Studies
ENVS - 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
GEOA - Geography (Faculty of Agriculture)
GEOG - Geography
GENE - Genetics
GERM - German
GWST - Gender and Women's Studies
HAHP - Health and Human Performance
HEED - Health Education
HESA - Health Administration
HINF - Health Informatics
HISA - History (Faculty of Agriculture)
HIST - History
HLTH - Health Professions
HORT - Horticulture
HPRO - Health Promotion
HSCE - Health Sciences Education
HSTC - History of Science and Technology
HUCD - Human Communication Disorders
IAGR - International Development (Faculty of Agriculture)
IDIS - Interdisciplinary Studies
IENG - Industrial Engineering
INFB - International Food Business
INFO - Information Management
INFX - Informatics
INTA - Internship (Faculty of Agriculture)
INTD - International Development Studies
INTE - Interdisciplinary Studies (Graduate)
INWK - Engineering Internetworking
IPHE - Interprofessional Health Professions
ITAL - Italian
JOUR - Journalism
KINE - Kinesiology
KING - King's Foundation Year Programme
LAWS - Law
LEIS - Leisure Studies
MARA - Marine Affairs
MARI - Marine Biology
MATH - Mathematics
MATL - Materials Engineering
MCRA - Microbiology (Faculty of Agriculture)
MDLT - Medical Lab Technology
MECH - Mechanical Engineering
MEDI - Medicine
MEDS - Medical Science
MGMT - Management
MGTA - Management (Faculty of Agriculture)
MICI - Microbiology & Immunology
MINE - Mineral Resource Engineering
MTHA - Mathematics (Faculty of Agriculture)
MUSC - Music
NESC - Neuroscience
NUMT - Nuclear Medicine Technology
NURS - Nursing
NUTR - Nutrition

OCCU - Occupational Therapy
OCEA - Oceanography
ORAL - Oral & Maxillofacial Surgery
PATH - Pathology
PEAS - Process Engineering and Applied Science
PERI - Periodontics
PETR - Petroleum Engineering
PGMD - Post-Graduate Medicine
PGPH - Post-Graduate Pharmacy
PHAC - Pharmacology
PHAR - Pharmacy
PHAS - Pharmaceutical Sciences
PHDP - PHD Program
PHIL - Philosophy
PHLA - Philosophy (Faculty of Agriculture)
PHYC - Physics and Atmospheric Science
PHYL - Physiology
PHYS - Physics (Faculty of Agriculture)
PHYT - Physiotherapy
PLAN - Planning
PLSC - Plant Science
POLI - Political Science
POLS - Political Science (Faculty of Agriculture)
PORT - Portuguese Studies
PROS - Prosthodontics
PSYC - Psychology (Faculty of Agriculture)
PSYO - Psychology
PUAD - Public Administration
RADT - Radiological Technology
REGN - Registration Course- Graduate
RELS - Religious Studies
RESM - Research Methods/Project Seminars
RSCH - Research Class for PDF's
RSPT - Respiratory Therapy
RURS - Rural Studies
RUSN - Russian Studies
SCIE - Science
SLWK - Social Work
SOCI - Sociology (Faculty of Agriculture)
SOIL - Soils
SOSA - Sociology and Social Anthropology
SPAN - Spanish
SPEC - Special Topics
SPNA - Spanish (Faculty of Agriculture)
STAA - Statistics (Faculty of Agriculture)
STAT - Statistics
SUST - Sustainability
THEA - Theatre
TYPR - Transition Year Program
VISC - Vision Science
VTEC - Veterinary Technology

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 a historic, tree-lined urban campus and a rural agricultural campus, located about an hour from the city in Truro/Bible Hill. 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 features 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 to 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.

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

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Richard Florizone, BSc, MSc (Saskatchewan), PhD (MIT)

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Finance and Administration

Ian Nason, BComm

Advancement

Peter Fardy, BA (Toronto), MBA (Dalhousie)

Research

Martha Crago, BA, MSc (A), PhD

Vice-Provosts

Planning
Susan Spence-Wach, MHA

Student Affairs *(effective April 1, 2016)*
Arig al Shaibah, MPA, PhD

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Associate Vice-President, Research

Mark Filiaggi, BSc, MASc, PhD

Associate Vice-President, Research

John Newhook, PhD, Peng

Assistant Vice-Provost, Student Academic Success Services

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Assistant Vice-President, Communications and Marketing

Catherine Bagnell Styles, BA, ABC

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Assistant Vice-President, Facilities Management

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Assistant Vice-President, Financial Services (Acting)

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Karen Crombie, BA (Hon), JD

Assistant General Counsel

John Hope, BA (Hons), LLB (Dalhousie)

University Librarian

Donna Bourne-Tyson, BA, MA, MLIS

Deans of Faculties

Agriculture

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

Architecture and Planning

Christine Macy, BA (Arch) (California at Berkeley), MArch (MIT), Reg. Arch. (WA)

Arts and Social Sciences (Acting)

Jure Gantar, BA, MA, PhD

Computer Science

Andrew Rau-Chaplin, BCS (York), MCS, PhD (Carleton)

Dentistry

Thomas Boran, DDS, MEd (Dalhousie)

Engineering

L. Joshua Leon, BSc, MSc, PhD (Dalhousie), PEng

Graduate Studies

Marty Leonard, BSc (Guelph), MSc (Carleton), PhD (Ottawa)

Health Professions

William G. Webster, BSc (Hon), MA, PhD

Law

Camille Cameron, BA, LLB, LLM

Management (Interim)

Bertrum H. MacDonald, PhD

Medicine

David Anderson, MD, FRCPC, FACP

Science (Acting)

Ian Hill, BSc, PhD (Queen's)

College of Continuing Education

Andrew Cochrane, BPER, MBA

College of Arts and Science, Provost (Acting)

Jure Gantar, BA, MA, PhD

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Centre for Learning and Teaching

Brad Wuetherick, BA, MA

DalAnalytics (Acting)

Donald K. Fiander, BEng

Diversity and Inclusiveness

Norma M. Williams, BA (Dalhousie) MEd (MSVU)

Office of International Relations

Alain Boutet, PhD

Directors

Arts Centre

Peter Dykhuis, BFA

Environmental Health and Safety

Jerry Aguinaga, MSc (ohs), CRSP, CHRP

Health Services

Glenn Andrea, MD (Dalhousie)

Human Rights, Equity and Harassment Prevention

Lisa Delong, LLB, LLM

Internal Audit Services

Margaret Sterns, BBA, CA

Sustainability Office

Rochelle Owen, BSc (He-Ed), MES

Board of Governors

The Board of Governors of Dalhousie University is responsible for the overall conduct, management, administration and control of the property, revenue, business and affairs of the University. The basic responsibility of the board is to represent the interests of the university in directing its affairs and to do so within the statutes relating to Dalhousie University. The Board consists of representatives named by the Government of Nova Scotia, Senate, the alumni, and students.

Chancellor

Ms. Anne McLellan

Chancellor Emeriti

Dr. Rueben Cohen
Sir Graham Day
Dr. Richard Goldbloom
Dr. Frederick Fountain

Officers

Mr. Lawrence Stordy, Chair, Board of Governors
Ms. Sherry Porter, Vice-Chair
Ms. Joyce Carter, Honorary Secretary
Ms. Michelle Awad, Honorary Treasurer
Dr. Richard Florizone, President and Vice-Chancellor

Members

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Mr. Ian Bezanson
Ms. Joyce Carter
Ms. Cassandra Dorrington
Mr. Jody Forsyth
Mr. Wadih Fares
Ms. Elaine Gibson
Mr. Robert Hanf
Ms. Rebecca Haworth
Mr. Kevin Hewitt
Mr. Laurie Jennings
Ms. Courtney Larkin
Ms. Lori MacLean
Ms. Naiomi Metallic
Mr. Daniel Nicholson
Mr. Aubrey Palmeter
Ms. Sherry Porter
Mr. Anthony Saikali
Ms. Paula Simon
Mr. Rob Sobey
Ms. Candace Thomas
Dr. Gail Tomblin Murphy
Ms. Michele Williams

University Secretary

Ms. Susan Brousseau

Observer for Faculty Association

Dr. David Mensink, PhD, RPsych
President, Dalhousie Faculty Association

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, Centres 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 79 members - 3 Executive Officers; namely, Chair of Senate, Vice-Chair (Academic Programs) and Vice-Chair (Student Affairs), 51 elected Faculty representatives, 17 academic administrators (President, Provost and Vice-President Academic, 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 - 6:00pm

Chair of Senate (Acting)

KevinHewitt, PhD, PPhys

Vice-Chair (Academic Programs) (Acting)

David Burton, PhD, PAg

Vice-Chair (Student Affairs)

Katherine Harman, PT, PhD

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 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.
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 crops and products, tissues, fluids, wastes, 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 arranged with 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 provision 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 the 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. Candidates may not leave the examination room during the last 15 minutes of the examination.

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 end of the examination, but prorated 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 (see link below).
3. 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 in writing and in a timely fashion. If the appeal is granted, arrangements for such a makeup examination will be made between the student and the course professor.
4. 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 rewrites will normally take place within the regular examination period.

http://www.dal.ca/exams

Policy for the Scheduling of Courses/Examinations

Normally, the University schedules and conducts courses on weekdays (e.g. 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 5 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 that request only in exceptional circumstances. Such circumstances include illness (with medical certificate) 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 changes 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 executed by students as part of their academic programs 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 through http://dalonline.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 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.
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 (FOIPOP) 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 not 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 other information placed in a student file will be used in conjunction with university practices for internal university use and will not be disclosed to third parties except in compliance with the FOIPOP Act or as otherwise required by law.

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. 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 appropriate, 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, or to business organizations, etc. The University will not release copies of transcripts if students owe monies to the University.
4. If transcripts are issued for a student while a senate 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, Diplomas, Degrees awarded
   - Field of Study (as relates to degree awarded)
   - Hometown and Awards/Distinctions*

   *As indicated in the convocation 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 national personal identification number assigned by the university or college first attended will routinely 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: PSIS-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's database.
Further information on the use of this information can be obtained from the Statistics Canada Website 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, or 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 bureaus and police.

Student Accommodation Policy

E. Administrative Structure

1. Authority: This Policy and Procedures falls under the authority of the Vice-President Academic and Provost. The Centre is responsible for the day to day administration of this Policy and Procedures.
2. Guidelines and Protocols: Guidelines and Protocols published by the Centre will support the Policy and Procedures and facilitate the Centre's responsibility to administer the Policy.
3. Record-keeping: The Centre shall track and monitor data relating to accommodation requests, accommodation appeals, accommodation plans, and other matters relating to student accommodation.
4. Reporting: The Centre shall deliver an annual report to the Vice-Provost, Student Affairs and the Senate Committee on Learning and Teaching which will include:
   a. Number of accommodation requests;
   b. Representation of the nature of the requests and program of study;
   c. Number of appeals and summary of decisions; and
   d. Any service challenges or other issues presented.
5. Ongoing Training: Employees involved in administering this Policy and Procedures will participate in regular training on applicable human rights issues by the Human Rights and Equity Advisor, a minimum of once annually.

F. Procedures

1. Request for Accommodation: A request for accommodation shall be made by the student to the Centre prior to the University activity in question in accordance with Guidelines and Protocols established by the Centre.
2. Preliminary Assessment: The Centre shall make a preliminary assessment of the request to determine the nature of the barrier experienced by the student and the connection of that barrier to a characteristic protected by human rights legislation. If both cannot be established then the request shall be denied.
3. Factors to be Considered: Where an accommodation is to be provided, it must be reasonable, up to the point of undue hardship. The relevant factors to be taken into account in determining a reasonable accommodation will include, but are not limited to, the following:
   a) Linkage – whether the proposed accommodation will have the practical effect of eliminating or reducing the identified barrier;
   b) Safety – whether the proposed accommodation would pose a safety risk to faculty, staff or other students or to the student seeking accommodation;
   c) Financial Cost – whether the anticipated expenses (estimated out-of-pocket expenses to put the accommodation in place together with any long-term expenses to sustain the proposed accommodation), are likely to be cost-prohibitive;
   d) Size and nature of the program or service – whether the proposed accommodation would be exceedingly disruptive to the program or service, taking into consideration the number of students, faculty, staff and others affected as well as the nature and inter- relationships of their roles;
   e) Impact on academic requirements – whether the proposed accommodation will substantially undermine the academic requirements of the program; and
   f) Alternatives – where a requested accommodation appears to create an undue hardship based on the above factors, whether an alternative accommodation may be available.
4. Consultation and Decision: Having regard for the factors set out in section F.3, and following consultation, as appropriate to the circumstances, with:
   a. the student;
   b. the course instructor in the case of an academic accommodation;
   c. the clinical coordinator in the case of an accommodation in a clinical placement;
   d. the administrator responsible for the University activity in question;
   e. administrators responsible for coordinating accommodations in professional Faculties; and/or
   f. others that may be warranted by the circumstances; the Centre will decide what accommodation will be provided.
5. Objection to decision: If a student disagrees with the accommodation decision, the student should attempt to resolve the matter through informal discussions with the Centre.
6. Appeal: If the student's objection cannot be resolved, the student may appeal the decision by filing a written appeal to the Vice-President Academic and Provost within 10 calendar days of the date that the Centre made its final decision in accordance with the Guidelines or Protocols established by the Centre. The Vice-President Academic and Provost may designate an Associate Vice-President Academic to act in his or her place. The Vice-President Academic and Provost or designate may uphold the initial accommodation decision, or may determine that an alternative form of accommodation should be provided. This decision is final, and cannot be appealed further.

B. Application

This policy applies to academic and non-academic activity engaged in by students at, on behalf of, in connection with or under the auspices of the University.

Affirmative Action measures and programs aimed at correcting historic disadvantage for designated groups fall under distinct programs and do not form part of this policy.

Allegations of discrimination are addressed under the Statement on Prohibited Discrimination and the applicable procedures.

D. Policy

1. Students experiencing barriers to participation in a University activity due to a characteristic protected under human rights legislation are entitled to accommodation to reduce or eliminate such barriers up to the point of undue hardship, as set out in this Policy.
2. All members of the University community share in the responsibility for compliance with this policy.
3. Students are encouraged to seek accommodation where they believe that they are experiencing a barrier to participation in a University activity, due to a characteristic protected under human rights legislation, which may be reduced or eliminated through accommodation.
4. All requests for accommodation shall be made by the student to the Centre in accordance with the Procedures and with all Guidelines and Protocols

published by the Centre.

5. Accommodation requests shall be made prior to the University activity in question. There shall be no "after-the-fact" accommodation except in rare circumstances where significant psychological or mental health issues arise coincident with the activity in question.
6. Accommodation decisions will be reviewed on a regular basis and adjusted to the student's then current circumstances where necessary.
7. Accommodation decisions may be appealed by the student to the Vice-President Academic and Provost or delegate in accordance with the Procedures, and with the Guidelines and Protocols established by the Centre.
8. All documentation relating to a request 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 the accommodation, except to the extent that such disclosure is necessary for the effective implementation of the accommodation decision or appeal of that decision.
9. Nothing in this Policy or Procedures shall take away from the student's right to seek the assistance of the applicable Human Rights Commission.

C. Definitions

In this Policy:

"Centre" means the Advising and Access Service Centre, Student Services;

"Student" means an individual registered in a course at the University, including the College of Continuing Education, but excluding residents in postgraduate medical or dental education programs;

"University activity" means an academic or non-academic activity conducted at, on behalf of, in connection with, or under the auspices of the University.

A. Background and Purpose

This policy forms part of a broader, ongoing commitment to create a fully accessible university community, and acknowledges that, through dialogue, the university can better understand the nature and extent of campus barriers to accessibility. It is the responsibility of every member of the Dalhousie University community to be knowledgeable on institutional policies related to prohibited grounds for discriminatory practices and accessibility.

Pursuant to our obligations under human rights legislation, the purpose of this Policy is to affirm that Dalhousie University will make reasonable efforts to provide accommodations, up to the point of undue hardship, for students experiencing a barrier due a characteristic protected by human rights legislation, and to establish a framework for managing requests by students for accommodation in an appropriate and timely manner.

Accommodations are intended to reduce or eliminate barriers to participation in academic and student life experienced by individual students due to characteristics protected under human rights legislation.

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 of 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; and

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.

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 the information used and to contribute knowledge that can in turn, be trusted 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 codes/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and 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 as 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 writingcentre.dal.ca or the Dalhousie Libraries at www.library.dal.ca/services/infolit.

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 building knowledge in and across fields of study. Therefore, the falsification of data in reports, theses, dissertations and other presentations is a serious academic offence, equivalent in degree to plagiarism, for which the penalties may include the assignment of a failing grade, suspension or expulsion from the University or the withdrawal of a degree previously awarded.

C. Other Irregularities

Dalhousie University strives to provide equal opportunities for learners to demonstrate and to be recognized for their abilities. Any behaviour intended to gain unearned advantage over another person violates this principle. A member of the University who attempts, or who assists any other person in an attempt, to fulfill, 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 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 allowing 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 the 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 offenses, see examples above, as well as with certain other offenses 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. Preamble

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 Officers 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 Appeals Board to present the case against the student.
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. Annually 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:
   1) notation of the fact of discipline on the offender's transcript for a period of one or more years, but not exceed five years;
   2) repeat of the assignment that triggered the discipline;
   3) a failing grade or mark or assessment in the piece of work triggering the discipline;
   4) failure of the course or seminar or program;
   5) failure of the academic year;
   6) suspension for an academic term or year (to a maximum suspension of three academic years);
   7) expulsion from the University;
   8) loss of a current or continuing scholarship, or both, or loss of eligibility to receive or to maintain scholarships or prizes or bursaries; and 9) 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, within 10 working days of becoming aware of the alleged offence, but in any event no later than the deadline for submission of final grades to the Registrar, except in extraordinary circumstances, as determined by the Academic Integrity Officer.
7. Upon receipt of the material from the instructor, the Academic Integrity Officer shall determine whether or not the material supports a *prima facie* case that the student has committed an academic offence. If no *prima facie* case is made out, no further steps are taken in relation to the allegation, and the instructor and student will be so advised in writing.
8. If a *prima facie* case is established, then the Academic Integrity Officer will take the following further steps:
   a) Check the academic discipline database maintained by the Senate Office to determine if the student(s) has a record of prior academic offence(s);
   b) With the exception of cases involving two or more students facing allegations arising from the same fact situation ("common allegation") which shall proceed in accordance with paragraph 9, if the student(s) has a record of prior academic offence(s), forward the allegation to the Senate Discipline Committee;
   c) If the allegation appears to be a first offense, and in all cases of two or more students facing a common allegation, inform the student(s) in writing of the nature of the allegation, the instructor's statement, the evidence, the procedures to be followed, the possible penalties, and possible sources of advice and support (will be a standard document);
   d) Convene a meeting with the student(s), the student(s)'s advisor, if any, and the instructor within five working days upon receipt of the allegation by the student, which time may be extended at the request of the student, instructor, or Academic Integrity Officer, in appropriate circumstances.;
   e) If the meeting does not take place within the time set out above, the Academic Integrity Officer has the discretion to convene another meeting with the student(s), the student(s)'s advisor, if any, and the instructor. The Academic Integrity Officer also 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 refer the allegation to the Senate Discipline Committee.
9. Notwithstanding paragraph 8b, 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 8d and 8e 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 a student facing a common allegation has committed an academic offence, for any such student who has no record of prior academic offence(s), subject to paragraph 14, 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.
10. 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.
11. 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, s/he shall inform the student in writing with a copy to the Instructor within five working days of the meeting. This does not preclude an Academic Integrity Officer from proceeding with the allegation at a later date, should new evidence become available.

12. 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 the Academic Integrity Officer shall provide the student with the option of accepting the finding and 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).
13. 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), or in his or her absence, the Chair or Vice-Chair (Academic Programs), and a student Senator appointed by the Dalhousie Student Union 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 ratify the matter on behalf of Senate and the Vice-Chair shall notify the student and the Academic Integrity Officer of such ratification. For ratification to occur, the decision must be unanimous. The finding and agreed penalty shall stand, despite possible insubstantial 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 student Senator have any material concerns about the process, the Vice-Chair (Student Affairs) shall consult with the Academic Integrity Officer to determine whether the 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 (Academic Administration) and a student Senator shall jointly re-consider ratification. Should ratification still not occur, the matter shall be referred to the Senate Discipline Committee for a hearing.
14. 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, but that the appropriate penalty for the student's conduct is one of those listed in subparagraphs 5 to 9 of paragraph 5 of these Procedures, the Academic Integrity Officer shall, within five working days of the meeting, notify the student in writing, with a copy to the instructor, that the matter will be forwarded to the Senate Discipline Committee for a full hearing.
15. Should a student request that an allegation be referred back to the Academic Integrity Officer after it has been forwarded to the Senate Discipline Committee, the Academic Integrity Officer has the discretion to grant such a request. A student's request shall be in writing, and delivered to the Vice-Chair (Student Affairs) within five working days of the date the allegation letter is sent to the student by the Vice-Chair (Student Affairs).
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 6 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 meeting(s) did occur pursuant to paragraph 8d or 8e, 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 prior 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, then 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 offence is suspected and the instructor submits an allegation to the Academic Integrity Officer, except as is reasonably necessary to implement the finding and agreed penalty or as required in subsequent disciplinary proceedings 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 offences referred to the Senate Discipline Committee under the Faculty Discipline Procedures Concerning Allegations of Academic Offences ("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 designate 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:

i) been compelled to withdraw academically;
ii) chosen to withdraw from the course, the program, or the University prior to being disciplined, or;
iii) 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) notation of the fact of discipline on the offender's transcript for a period of one or more years, but not exceeding five years;

ii) repeat of the assignment that triggered the discipline;
iii) a failing grade or mark or assessment in the piece of work triggering the discipline;
iv) an imposed limit on the grade that can be given for the assignment or course;
v) failure of the course;
vi) suspension for an academic term or year (to a maximum suspension of three academic years);
vii) expulsion from the University;
viii) any other remedy of an academic nature that is within the power of Senate to grant.

5. In the case of a Code Complaint, a Hearing Panel of the Senate Discipline Committee may:

a) dismiss the complaint; or
b) impose any of the penalties set out under the Code of Student Conduct

6. In the case where an Allegation is proven and is not dismissed under section 4(a) or 5(a), the Hearing Panel of the Senate Discipline Committee may consider any mitigating or aggravating circumstances in its determination of the appropriate penalty.

Initiating a Hearing/Pre-Hearing Procedures

7. To initiate a hearing of the Senate Discipline Committee the University Representative shall submit a written request to the Senate Vice-Chair (Student Affairs), or designate. The request shall include a written submission outlining the Allegation together with all supporting evidence, documentation and a list of the witnesses on which the University Representative intends to rely.
8. The Senate Vice-Chair (Student Affairs) shall provide the student with a notice of the Allegation that shall include:

a) The material filed by the University Representative under section 7;
b) Notice of the deadline for the student to submit a written defence, any supporting evidence and a list of individuals who will attend at the hearing on the student's behalf; and
c) Notification of the student's right to be represented.

9. The student shall provide the Senate Vice-Chair (Student Affairs) with a written defence, supporting evidence and a list of the individuals who will also be attending, as well as their capacity (e.g. witness, support person, advocate) no later than the date specified in the notice of allegation. Any evidence or documentation provided after the deadline for submission may be ruled inadmissible by the Hearing Panel at the hearing.

10. The Chair of the Senate Discipline Committee shall constitute a Hearing Panel in a timely manner comprising three faculty and two students. No faculty member who is a current instructor of the accused student may serve as a member of the Hearing Panel. The student member of a Hearing Panel shall not be a member of the course from which the complaint originates. In the event that no student members of the Committee are able to participate on a Hearing Panel due to the provisions of this paragraph, the Dalhousie Student Union shall appoint an ad hoc member to the applicable Hearing Panel. The Committee Chair or an alternate faculty member shall chair the hearing.

11. The Student and University Representative shall be notified of the date, time and location of the hearing, as well as the names of all individuals who will be in attendance, no less than 10 working days in advance of the hearing.

12. Preliminary objections or issues must be raised as far in advance of the hearing as reasonably possible. The Chair of the Hearing Panel has sole discretion to rule on any preliminary issues or objections raised by either party that must be dealt with prior to the commencement of the hearing. The Hearing Panel may rule on any preliminary issues or objections raised at the commencement of the hearing.

Hearing Procedures

13. The Chair of the Hearing Panel shall determine procedures for the hearing in a manner that is consistent with the principles of natural justice and these Procedures.

14. In extenuating circumstances, the Chair of the Hearing Panel may decide to proceed with the hearing in the absence of one faculty member of the Hearing Panel.

15. In the event that the student fails to appear at the hearing, the Hearing Panel shall satisfy itself that reasonable efforts were made to notify the student and may proceed in the student's absence.

16. The student may participate at an oral hearing in person, by way of teleconference, or by such other means approved in advance by the Hearing Panel. The student may waive the right to an oral hearing and choose to proceed solely by written submissions.

17. Hearings shall be in camera.

18. At the commencement of the hearing, the Chair of the Hearing Panel shall explain the procedures to be followed and provide an opportunity for introductions as well as any questions, objections, or opening statements.

19. The University Representative shall present the Allegation and witnesses, if any. The student and any members of the Hearing Panel may question the University Representative 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 Representative'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 writing or in some 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 Representative.

26. An audio recording of each oral hearing shall be made. The recording and all correspondence and documentary evidence relating to appeal 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 Senate 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.

University of King’s College

The University of King’s College Registrar shall notify the Dalhousie Registrar in the event that academic discipline proceedings have been commenced in relation to a Dalhousie student, and shall advise the Dalhousie Registrar of the outcome of such proceedings, including any sanctions imposed against the student. Where the student has been previously sanctioned for academic misconduct, the Dalhousie Registrar will provide the University of King’s College Registrar with particulars of the offence and the sanction imposed.

Commentary on Penalties

A. Proactive Measures

Dalhousie University emphasizes education and proactive engagement, therefore a Proactive Measure, which is a form of recommendation, may be prescribed as an educational aid in addition to a Penalty. It may include but not necessarily be restricted to suggesting that the student seek some form of professional help from the Advising and Access Services Centre or Counseling Services or elsewhere which, for example may be time management or stress management, etc., and/or an apology for the infraction. The main purpose of a Proactive Measure is to help the student learn how to reduce the likelihood of future violations of academic integrity. It is important to note that it is the student’s responsibility to decide whether or not to follow the Proactive Measure since it is not a formal Penalty but rather a recommendation. Therefore, there is normally no oversight by the University (AIO or SDC) to ensure that a Proactive Measure is followed.

B. Consequence

A Consequence is an outcome of the application of a Penalty. A Consequence is not imposed by the University's academic integrity policies but arises from the University’s academic policies. For example the consequences of the Penalty of a failing grade may include but not necessarily be limited to: failure in a program, delay of graduation, loss of full-time student status, change in visa status (for a visa student), loss of eligibility for student aid, removal from the Dean’s list. Similarly a notation on a transcript may have serious unforeseen consequences for future opportunities, etc. This list is not intended to be exhaustive. Therefore, while the

university's academic integrity procedures (AIO or SDC) may foresee some consequences, ultimately the student bears the responsibility for any consequences of a Penalty.

Code of Student Conduct

I. Background

Dalhousie University is a community of faculty, staff and students, involved in teaching, research, learning and other activities. Students are members of the University for the period of their registration in an academic program and are subject to the disciplinary authority of the University during that time.

The University does not stand in loco parentis to its students. In the exercise of its disciplinary authority, the University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect:

- the integrity and proper functioning of the academic and non-academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members.

Other than this, regulation of student behaviour by the University is neither necessary nor appropriate.

Members of the University, including students, are not immune from the criminal and civil law. Provisions for non-academic discipline should not attempt to shelter students from the normal responsibilities of adult citizens nor add unnecessarily to these responsibilities. Thus, conduct that violates the Criminal Code or other statute should ordinarily be dealt with by the police and criminal courts. In cases, however, in which criminal or civil proceedings would not adequately protect the University's interest and responsibilities as defined above, proceedings may be brought under the Code of Student Conduct.

The University may also define standards of professional conduct for students in programs where these are appropriate, and this Code is not intended to replace or supersede such standards.

II. Code of Conduct

A. DEFINITIONS

1. In this Code, the word "premises" includes lands, buildings and grounds of the University, or other places or facilities used for the provision of the University's programs or services or for University-approved events and activities.
2. In this Code, "student" means a person:
   (i) engaged in any academic work or placement which leads to the recording and/or issue of a mark, grade or statement of performance by the appropriate authority in the University or another institution; and/or
   (ii) registered in, enrolled in, or attending any course or class, or otherwise participating as a learner in any activity which entitles the person to the use of a University library, library materials, library resources, computer facility or dataset.
3. In this Code, the words "Dalhousie University" refer to Dalhousie University and include any institutions affiliated with it, where such inclusion has been agreed upon by the University and the affiliated institution, with respect to the premises, facilities, equipment, services, activities, students and other members of the affiliated institution.
4. Unless otherwise stated, a student will only be liable for conduct that she or he knew or ought reasonably to have known would constitute conduct prohibited under this Code.
5. Nothing in this Code shall be construed to prohibit peaceful assemblies and demonstrations, or lawful picketing, or to inhibit freedom of speech.

B. APPLICATION

Conduct shall be deemed to be an offence under this Code, when committed by a student of Dalhousie University, provided that such conduct:

(a) occurs on the premises of Dalhousie University;

(b) occurs elsewhere in the course of activities sponsored by Dalhousie University (or by any of its faculties, schools or departments), or where the conduct is alleged to adversely affect, disrupt or interfere with another person's reasonable participation in Dalhousie University programs or activities; or

(c) occurs in the context of a relationship between the student and a third party and involves the student's standing, status or academic record at the University.

However, this Code will not apply to conduct that:

(i) is specifically assigned to another disciplinary body within the University; or

(ii) is subject to action as an alleged failure to meet standards of professional conduct as required by a college, faculty or school; or

(iii) is subject to action under a residence discipline policy unless some non-residence University interests are deemed to be involved, in which case the President may specifically authorize proceedings under this Code; or

(iv) is committed by a student in her or his capacity as an employee of the University unless some non-employment University interests are deemed to be involved, in which case the President may specifically authorize proceedings under this Code;

(v) is subject to the disciplinary authority of the Dalhousie Student Union.

C. OFFENCES

1. **Offences Against Persons**
   (a) No student shall assault another person sexually, or threaten any other person with sexual assault or commit an act of sexual harassment toward another person.
   (b) No student shall otherwise assault another person, threaten any other person with bodily harm, or cause any other person to fear bodily harm.
   (c) No student shall create a condition that unnecessarily endangers the health or safety of other persons.
   (d) No student shall threaten any other person with damage to such person's property, or cause any other person to fear damage to her or his property.
   (e) No student shall engage in a course of vexatious conduct, harassment or discrimination that is directed at one or more specific persons and that is based on the age, race, colour, religion, creed, sex, sexual orientation, physical disability, mental disability, an irrational fear of contracting an illness or disease, ethnic or national or aboriginal origin, family status, marital status, source of income, political belief or affiliation or activity of that person or of those with whom he or she associates.
   (f) No student shall engage in unwelcome or persistent conduct that the student knows, or ought to reasonably know, would cause another person to feel demeaned, intimidated or harassed. Examples of such conduct include, but are not limited to:
   (i) following another person, or anyone known to that person;
   (ii) unwanted communication with another person or anyone known to that person;
   (iii) watching the residence or place of work of another person or anyone known to that person;
   (iv) threatening another person or any member of the family, friends or colleagues of the other person;
   (v) coercing, enticing or inciting a person to commit an act that is humiliating or demeaning to that other person or to others.
2. **Disruption** No student shall, by action, threat or otherwise, disrupt, obstruct or adversely affect any activity organized by Dalhousie University or by any of its faculties, schools or departments, or the right of other persons to carry on their legitimate activities, to speak or to associate with others.
3. **Offences Involving Property** (a) No student shall take without authorization, misuse, destroy, deface or damage the property of Dalhousie University, or property that is not her or his own, or information or intellectual property belonging to Dalhousie University or to any of its members. (b) No student shall possess the property of Dalhousie University, property in the custody of Dalhousie University, or property that is not her or his own, if the student knows that property to have been taken without authorization. (c) No student shall create a condition that unnecessarily endangers or threatens destruction of the property of Dalhousie University or of any of its members.
4. **Unauthorized Use of University Facilities, Equipment or Services**
   (a) No student shall use any facility, equipment or service of the University, or enter or remain on any premises, to which he or she does not have 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 Guide to Responsible Computing. 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) disclosing 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, abusive, 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;
   (viii) using the University's computing equipment, facilities, networks and systems for profit or commercial gain.
   (c) No student shall destroy, misplace, misfile, or render inoperable any stored information such as books, film, 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 behaviour 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. **Contravention 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. Any person may make a complaint under this Code against any student for misconduct. A complaint must be addressed in writing to Vice-Provost, Student Affairs and shall contain:
   a. the basis for the allegation;
   b. relevant supporting documents, evidence and details (e.g. time and date(s) of the offence);
   c. any other individual(s) with knowledge; and
   d. names of witnesses, if any.
2. Whenever possible and appropriate, reasonable and informal measures shall be used to resolve issues of individual behaviour. The Vice-Provost, Student Affairs, or designate, may recommend to a complainant that other avenues of resolution be pursued before resort is made to formal disciplinary measures pursuant to this Code.
3. All complaints shall be submitted within 30 calendar days of the date that the offence is alleged to have occurred. An extension of time to submit a complaint may be permitted by the Vice-Provost, Student Affairs, or designate, where there is a bona fide reason to do so and where those affected by the allegation will not be unduly prejudiced.
4. Upon receipt of a complaint, the Vice-Provost, Student Affairs, or designate shall determine whether or not the complaint has been properly brought under the Code or whether the material supports a prima facie case that an offence has been committed under the Code. The Vice-Provost, Student Affairs, or designate, may request more information from the complainant before any further steps are taken. If no prima facie case is made out, no further steps are taken in relation to the complaint, and the complainant will be so advised in writing.
5. In the event that the Vice-Provost, Student Affairs, or designate, determines that the material supports a prima facie case, the following steps shall be taken:
   a. The Vice-Provost, Student Affairs, or designate shall inform the respondent in writing of the nature of the allegation, the complaint, the evidence, the procedures to be followed, the possible penalties, and possible sources of advice and support. Along with notice of the complaint, the respondent shall be advised of her/his right to be represented throughout the process, including by a Student Advocate.
   b. If deemed necessary, an investigation will be conducted by the Vice-Provost, Student Affairs, or designate, which may include meetings with the complainant, respondent, and witnesses.
   c. The Vice-Provost, Student Affairs, or designate shall convene a meeting with the respondent(s) to discuss the complaint and their response to the allegations.
6. Where there are criminal or civil proceedings pending against the student for conduct related to the complaint, the Vice-Provost, Student Affairs may defer investigation of the complaint on such terms and conditions as are appropriate in the circumstances (including an interim suspension) until 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 this Code.
7. Following the investigation, the Vice-Provost, Student Affairs, or designate shall determine whether there is sufficient evidence to support a finding that the student has committed an offence, and if so, will determine which disposition will be most appropriate in the circumstances:
   a. Informal Resolution (resolution of the complaint is mutually agreed upon among the Vice-Provost, Student Affairs, or designate, the complainant and the respondent); or
   b. Referral to the Senate Discipline Committee for a disciplinary hearing.
8. If an informal disposition of the complaint results, such disposition shall be final, and there shall be no subsequent proceedings. An agreement that a student will voluntarily withdraw from the University for a period of time, or not re-register, may be part of an informal resolution of a complaint. In such instances, this will not be recorded on the student's academic record, but a 'block' on further registration may be imposed.
9. Where the parties attempt to resolve the complaint through an informal resolution, but in the opinion of Vice-Provost, Student Affairs, or designate, an informal resolution cannot be reached, the Vice-Provost, Student Affairs, or designate, shall refer the complaint to the Senate Discipline Committee for a formal hearing.
10. Notwithstanding paragraph 7, the Vice-Provost, Student Affairs, or designate, may determine at any time that the case is serious enough that a suspension or expulsion may be required, in which case the matter shall be referred to the Senate Discipline Committee for a disciplinary hearing (See Section E – Sanctions). The Vice-Provost, Student Affairs, or designate, shall notify the student in writing, with a copy to the complainant, that the matter will be forwarded to the Senate Discipline Committee.
11. Hearings conducted by the Senate Discipline Committee shall be according to procedures determined by the Committee. The President, or designate, shall appoint a University Representative to present the complaint.
12. Any statements a respondent makes to the Vice-Provost, Student Affairs, or designate in the course of an attempt to resolve a complaint through informal or formal dispositions may not be submitted to the Senate Discipline Committee as evidence in a subsequent hearing.
13. The Vice-Provost, Student Affairs, shall report annually to Senate regarding the number and nature of all complaints, including the manner in which they are disposed of or resolved.

E. SANCTIONS

1. In each case in which the Senate Discipline Committee determines that a student has violated this 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 this 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 regulation(s) 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 appropriate service and/or monetary or material replacement.
   e. Discretionary Sanctions – Work assignments, service to the University or other such discretionary assignments that are considered appropriate.
   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.

F. INTERIM SUSPENSION

In the following circumstances, the President of the University, or a designate, 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 classes) 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 submissions 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.

Hazing Policy

A. Background & Purpose

Members of the University community share values that are at the center of campus life. Members of the University community are expected to aspire to the highest standards of campus community life based on common principles, including:

- Community
- Respect
- Accountability
- Diversity
- Safety

To help ensure the best possible student experience, University community members share the responsibility for welcoming and orienting new members of the University community in a positive way.

The purpose of this Policy is to identify activities that breach generally accepted standards of conduct when participating in student group activities and provide a process for dealing with allegations of Hazing in an appropriate and timely manner.

B. Application

This Policy applies to participation in Hazing by a member of the University community that occurs:

(a) on the premises of Dalhousie;

(b) off of Dalhousie premises in the course of activities sponsored by Dalhousie (or any of its Faculties, Schools, Departments or administrative units) or the Dalhousie Student Union or Dalhousie Student Union societies; or

(c) where the conduct is alleged to adversely affect, disrupt or interfere with a student’s reasonable participation in Dalhousie programs or activities.

C. Definitions

1. In this Policy:
   a. "Complainant" means an individual who makes an allegation of Hazing under this Policy.
   b. "Respondent" means an individual against whom an allegation of Hazing is directed or who becomes the subject of an investigation. Respondents may include individuals who planned, implemented or participated (actively, passively or as a bystander) in Hazing.
   c. "Hazing" means any activity expected of a student wishing to join a group (or of a student wishing to gain or maintain full status in a group) which humiliates, degrades, abuses, endangers, or subordinates that student, regardless of his or her apparent willingness to engage in the activity.
   d. "Student Leaders" means students involved in a leadership position with a group, which students are not acting as Employees of Dalhousie
   e. "Employee(s)" means any person employed by the University and may include students.
   f. "Restorative process" refers to processes designed to create meaningful reflection and interaction between respondents and complainants (or others impacted by a Hazing incident) for educational and healing purposes. Use of restorative processes does not preclude other remedies or sanctions.

g. "Unit Head" means:

a. For Varsity Athletics, the Athletics Director.
b. For residences, the applicable Residence Life Manager.
c. For Dalhousie Student Union societies and clubs, the Vice President (Internal) of the Dalhousie Student Union.
d. For intramurals and clubs, the Student Life Manager.
e. For academic student activities, the Dean of the Faculty connected with the impugned activity.
f. For all other student activities not specifically addressed in this definition, the Executive Director, Student Life.

D. Policy

1. No member of the University community shall be involved in planning, implementing, or participating (actively, passively or as a bystander) in Hazing.
2. It is no defence to an allegation of Hazing that:
   a. Express or implied consent of the student was obtained or participation was voluntary;
   b. The conduct or activity was not part of an official group or was otherwise sanctioned or approved; or
   c. The conduct was not an explicit condition or affiliation of membership with the organization or group.
3. Where a member of the University community has reasonable grounds to believe that Hazing is occurring or has occurred, he or she is under a positive obligation to take all reasonable steps to stop the Hazing and report Hazing promptly under this Policy.
4. All members of the University community shall cooperate in any investigation process initiated under this Policy.
5. There will be no retaliation against any person on account of an allegation or an expressed intention to make an allegation under this Policy or on account of evidence or assistance given in relation to a proposed allegation under this Policy. Disciplinary action in response to retaliation will be addressed in accordance with applicable disciplinary processes.
6. Any communication or information gathered in any case is confidential except to the extent that disclosure is necessary to effectively implement this Policy or to undertake any disciplinary or remedial steps arising from a decision made under this Policy. Disciplinary action in response to a breach of confidentiality will be addressed in accordance with applicable disciplinary processes.
7. An allegation made in bad faith (with a conscious design to mislead or deceive, or with a malicious or fraudulent intent) may constitute grounds for disciplinary action against the Complainant, which will be addressed in accordance with applicable disciplinary processes.
8. All allegations of Hazing shall be reported in accordance with the terms of this Policy.

E. Administrative Structure

1. Authority: This Policy falls under the authority of the Provost.
2. Executive Director, Student Life: The Executive Director, Student Life is responsible for promoting the objectives of this Policy, receiving allegations of Hazing and determining the appropriate process for investigating allegations of Hazing.
3. Hazing Allegation Investigators: There shall be three Hazing Allegation Investigators who shall be responsible for conducting investigations into allegations of Hazing referred to the Investigation Committee. All Hazing Allegation Investigators shall be appointed by the Vice-Provost, Student Affairs. The Hazing Allegation Investigators shall include the Manager of Student Conflict Resolution, a representative from Security Services and an individual not from those offices who has investigative experience.
4. Hazing Committee: There shall be a Hazing Committee comprising the three Hazing Allegation Investigators, the Executive Director, Student Life, the Manager of Student Conflict Resolution, a representative from Security Services and a representative from Legal Counsel Office who shall meet at least once a year to discuss any issues arising out of this Policy.
5. Conflicts of Interest: Where the Vice-Provost, Student Affairs is unable to discharge his or her responsibilities under this Policy in relation to a particular allegation due to a potential conflict of interest, as defined by the University Policy on Conflict of Interest, his or her responsibilities under this Policy shall be assigned to the Vice-President Academic or designate. Where the Executive Director, Student Life is unable to deal with an allegation of Hazing, his or her responsibility under this Policy for the purpose of the allegation in question shall be assigned to the Vice-Provost, Student Affairs.
6. Record-keeping: Records of all allegations, investigations, and decisions made under this Policy will be kept separate from all other university records and will be maintained and stored securely and confidentially under the care and control of the Executive Director, Student Life.
7. Annual Reporting to the Vice-Provost, Student Affairs: At the end of each academic year, the Executive Director, Student Life will deliver an annual report to the Vice-Provost, Student Affairs which will include
   a. The number of allegations received under this Policy;
   b. A representation of the allegations by kind of outcomes (e.g. dismissal of allegations, departmental resolution, investigation through Code of Student Conduct, etc);
   c. A representation of the outcomes applied as a result of a finding of Hazing.

F.1 Reporting Procedures

1. Safe Reporting: There may be exceptional situations where an individual has a reasonable concern that his or her personal safety may be compromised by raising an allegation of Hazing. Such persons may initiate a confidential conversation with the Executive Director, Student Life or submit an anonymous written allegation to the Executive Director, Student Life. Where considered appropriate, the Executive Director, Student Life may accept unwritten anonymous complaints in a form the Executive Director, Student Life, deems appropriate. Whether or not an anonymous allegation can proceed in the absence of an identified Complainant will be determined by the Executive Director, Student Life, in his or her sole discretion, having regard to all of the circumstances of the case and the evidence available. If the individual does not feel safe reporting to the Executive Director, Student life they may file an allegation through the Office of Human Rights, Equity and Harassment Prevention.
2. Confidential Consultation: If a person is uncertain whether an activity or activities constitute Hazing, he or she may contact the Executive Director, Student Life to discuss the matter on a confidential basis.
3. Who may make allegations: Allegations of Hazing may be made by any member of the University community who has reasonable grounds to suspect that Hazing is occurring or has occurred.

4. Filing Allegations of Hazing: Other than complaints arising from Varsity Athletics as set out in Section F.2 of this Policy, allegations of Hazing must be made in writing to the Executive Director, Student Life as promptly as possible upon becoming aware of the alleged Hazing. Allegations should include supporting documentation and information where available.
5. Process advice: The Executive Director, Student Life will provide any Complainant with a copy of this Policy and will explain the processes for dealing with allegations under this Policy.
6. Initial Assessment: Within 10 business days of receipt of the allegation, the Executive Director, Student Life shall make an initial assessment of the allegation. The Executive Director, Student Life may request further information from the Complainant or others if required to assist in the assessment. The Executive Director, Student Life may:
   a. Conclude that the allegation does not establish sufficient evidence to warrant further consideration, and advise the Complainant that the matter will be discontinued.
   b. Conclude that there is sufficient evidence of possible Hazing to warrant further consideration; or
   c. Conclude that the allegation(s) may raise an issue of illegal activity and notify the appropriate authorities.
7. Process Determination: In the event the Executive Director, Student Life concludes that there is sufficient evidence of possible Hazing to warrant further consideration he or she will refer the matter to one of the following processes:
   a. Allegations shall be referred to the Unit Head in accordance with the terms of this Policy where the alleged Hazing involved no more than one Respondent and where the remedies and sanctions available to a Unit Head are sufficient for a reasonable resolution given the impact of the hazing.
   b. Allegations shall be referred to the Code of Student Conduct in accordance with the terms of this Policy where the alleged Hazing involved no more than two Respondents and where the remedies and sanctions available to a Unit Head are insufficient for a reasonable resolution given the impact of the hazing.
   c. Allegations shall be referred to the Investigation Committee where the alleged Hazing involved more than two Respondents.
8. Extraordinary Interim Remedies: In extraordinary circumstances, where the Executive Director, Student Life has reasonable basis to believe that evidence necessary to assess the allegation of Hazing will not be appropriately preserved or that there is a risk of significant continuing harm, the Executive Director, Student Life may, with or without notice to the Respondent(s), cause the appropriate administrative officers to locate, collect, inventory and secure all of the relevant original records, or copies if the originals are unavailable, to prevent the loss, alteration or fraudulent creation of records.
9. Extension of Time Limits: Any time limit set out in this Policy may be extended at the discretion of the Executive Director, Student Life where there is a bona fide reason to do so and where those affected by the allegation will not be unduly prejudiced.

F.2 Reporting Allegations – Varsity Athletics

1. Filing of Allegations – Varsity Athletics:
   a. Allegations of Hazing in Varsity Athletics which are reported to the Varsity head coach, or which the Varsity head coach becomes aware of, shall be dealt with in the first instance by that head coach.
   b. Each allegation of Hazing reported to the head coach shall be reported to the Director, Varsity Athletics and the Executive Director, Student Life, including a report of any restorative, remedial and disciplinary action taken by the head coach. The Director, Varsity Athletics shall determine if the matter needs to be referred to the Executive Director, Student Life for further action under this Policy.
   c. Varsity athletes shall, in all circumstance, be permitted to report instances of Hazing directly to the Executive Director, Student Life.
   d. In circumstances where the head coach has already taken action, the Executive Director, Student Life shall determine if further action is required under this Policy.

F.3 Procedures for Matters Referred to Unit Heads

1. Referral to the Unit Head: If the Executive Director, Student Life concludes that there is sufficient evidence of possible Hazing to warrant a referral to the Unit Head for assessment the Executive Director, Student Life shall provide the Respondent with a copy of the Allegation, a copy of this Policy and notice of the Procedures under which the allegation will be investigated. A copy of the notice to the Respondent and the allegation will also be forwarded to the Unit Head.
2. Assessment: Within 10 working days of receipt of the referral the Unit Head will assess the allegation in accordance with the following process:
   a. The Unit Head will meet with Complainant(s) to give him or her an opportunity to present his or her allegation and to identify other relevant information and witnesses;
   b. The Unit Head will then meet with the Respondent (s), to give him or her an opportunity to address the allegation and identify relevant information and witnesses.
   c. The Unit Head may meet with any other individuals whom they deem relevant to the allegation, and may request access to, or production of, records or information that they deem relevant to the assessment.
   d. The Unit Head will document the information provided in each of the meetings set out in subsections (a), (b) and (c) above.
3. Referral Back to the Executive Director, Student Life: If at any point during the assessment process the Unit Head determines that the allegations of Hazing are more severe than initially anticipated, he or she may, in consultation with the Executive Director, Student Life, refer the matter back to the Executive Director, Student Life for a re-determination of the appropriate process.
4. Decision: The Unit Head shall, having regard to all information received during his or her assessment of the allegation, make a determination of whether there has been Hazing, and if there has been Hazing, what restorative processes, remedies and/or sanctions will be imposed.
5. Restorative Process, Remedial Action and Sanctions: In each case where the Unit Head determines that a student, who is not acting in his/her role as an Employee, has participated in Hazing the Unit Head may impose one or more of the following:
   a. In conjunction with the advice of the Manager, Student Conflict Resolution, a restorative process to engage respondent(s) in meaningful reflection and action with those impacted by the Hazing incident;
   b. Temporary removal from a group;
   c. Temporary loss of access to facilities or support services;
   d. Participation in educational or remedial programs;
   e. Community service;
   f. Any other sanction which does not otherwise permanently impact the individual`s privileges.
6. Employees: In a case where the Unit Head determines that an Employee, including a student acting in their role as an Employee, has participated in Hazing, the matter shall be referred to Human Resources to be addressed in accordance with applicable employee disciplinary processes.
7. Communication of Decision: The Unit Head will report in writing the outcome of the case to the Respondent in ways that appropriately address any privacy

and security issues. Where the Complainant has a legitimate interest in the outcome of an investigation, the Unit Head will report in writing to the Complainant in ways that appropriately address any privacy or security concerns.

8. Reporting of Decisions: The outcome of each assessment shall be reported to the Executive Director, Student Life, including a report of any sanctions or remedies imposed.

F.4 Procedures for Matters Referred to the Code of Student Conduct

1. Referral to Vice-Provost, Student Affairs: The Executive Director, Student Life shall forward the written allegation to the Vice-President Student Services in accordance with the Code of Student Conduct. Following referral to the Vice-Provost, Student Affairs all issues arising out of the allegation, including appeals, shall be dealt with in accordance with the Code of Student Conduct.

F.5 Procedures for Matters Referred to the Investigation Committee

1. Notifying the Respondent: If the Executive Director, Student Life concludes that there is sufficient evidence of possible Hazing to warrant a referral to the Investigation Committee the Executive Director, Student Life shall provide the Respondent with a copy of the Allegation, a copy of this Policy and notice of the Procedures under which the allegation will be investigated.
2. Representation: Respondents may have representation if they choose.
3. Informal Resolution: Prior to initiating an investigation, the Executive Director, Student Life will explore the possibility of informal resolution. Attempts at informal resolution may be made at any stage of the process. Any informal resolution shall be with the consensus of the Respondent(s) and, where the Complainant has a legitimate interest in the outcome of an investigation, the Complainant.
4. Investigation: If informal resolution is not reached within 10 working days of notifying the Respondent, the Executive Director, Student Life shall initiate an investigation. The investigation shall be concluded (including the delivery of the investigation report set out in section F.5.13) within 60 calendar days of its initiation, in accordance with the following process:
   a. The Executive Director, Student Life will provide the Respondent(s) 10 working days to provide to the Executive Director, Student Life his or her written response to the allegation.
   b. The Executive Director, Student Life will appoint an Investigation Committee comprising two of the Hazing Allegation Investigators.
   c. The Executive Director, Student Life will provide the Investigation Committee with a copy of the Allegation, the Response, and will provide guidance on the process.
   d. The Investigation Committee will meet with the Complainant(s) to give him or her an opportunity to present his or her allegation and to identify other relevant information and witnesses.
   e. The Investigation Committee will then meet with the Respondent(s), to give him or her an opportunity to address the allegation and to identify other relevant information and witnesses.
   f. The Investigation Committee may meet with any other individuals whom they deem relevant to the allegation, and may request access to, or production of, information or records that they deem relevant to the allegation.
   g. The Investigation Committee may meet subsequently with the Complainant(s) and/or the Respondent(s) in light of information they have received in the course of the investigation.
   h. The Investigation Committee will have a note-taker present at all meetings with the Complainant(s), the Respondent(s) or other individuals who are deemed relevant to the allegation.
   i. Each interview will be summarized in writing by the Investigating Committee in the form of an interview report, which will be forwarded to the interviewee for confirmation that the report fairly summarizes the interview. In the event an interviewee believes that the report does not fairly summarize their interview they may provide written comments to the Investigating Committee which must be provided to the Committee within two working days of receiving the report.
5. Investigation Report: The Investigation Committee will review all of the information gathered in the course of the investigation and submit an investigation report to the Executive Director, Student Life that includes:
   a. A summary of the allegation(s);
   b. A summary of the response;
   c. An analysis of the evidence relevant to the matters raised;
   d. Findings of fact with respect to the allegation(s) together with supporting reasons;
   e. A determination of whether there has been Hazing;
   f. Where Hazing is found, an assessment of the severity of the Hazing and a review of any mitigating factors; and
   g. Where Hazing is found, recommendations on appropriate restorative processes, remedies and sanctions.
6. Consideration by Vice-Provost, Student Affairs: The Executive Director, Student Life will forward the investigation report to the Vice-Provost, Student Affairs. The Vice-Provost, Student Affairs may request additional information or clarification from the Executive Director, Student Life if necessary to make a determination.
7. Outcomes:
   a. The Vice-Provost, Student Affairs shall consider the report and, where a finding of Hazing has been made, make and record a decision as to what sanctions or remedies will be imposed.
   b. In the event that the Vice-Provost, Student Affairs imposes remedies or sanctions which differ from the recommendations of the Investigation Committee, the Vice-Provost, Student Affairs shall also include in the record a summary of the nature and basis of the Investigation Committee's recommendations and the reason(s) forming the basis for the alternate recommendation.
8. Remedies and Sanctions: In each case where the Vice-Provost, Student Affairs determines that a student, who is not acting in their role as an Employee, has participated in Hazing he or she may impose one or more of the sanctions and remedies:
   a. Suspension of some or all individual or group privileges.
   b. Placing the group or individuals on non-academic probation for a set period of time.
   c. Removal from a group, including varsity athletic teams.
   d. Removal from leadership positions with groups (group executive, team captaincy, etc.).
   e. Loss of access to facilities or support services.
   f. Mandatory education sessions for executive and/or members.
   g. Community service.

h. Financial restitution and compensation for any loss, damage or injury.
i. Any other sanction which is considered appropriate in the circumstances.

9. Employees: In each case where the Vice-Provost, Student Affairs determines that an Employee, including students who are acting in their role as an Employee, has participated in Hazing the matter shall be referred to Human Resources to be addressed in accordance with the applicable employee disciplinary processes.
10. Communication of Decision: The Vice-Provost, Student Affairs will report in writing the outcome of the case to the Respondent in ways that appropriately address any privacy and security issues. Where the Complainant has a legitimate interest in the outcome of an investigation, the Vice-Provost, Student Affairs will report in writing to the Complainant in ways that appropriately address any privacy or security concerns.

F.6 Appeals

1. Unit Head Decisions – All decisions of the Unit Head are final and there is no appeal of those decisions.
2. Varsity Head Coach Decisions - All decisions of the Varsity head coaches are final and there is no appeal of those decisions.
3. Vice President Student Services Decisions
   a. Decisions made by the Vice-Provost, Student Affairs shall be appealable to the Senate Appeals Committee.
   b. Appeals must be filed within 30 calendar days of the date the student was notified of the decision.

Protection of Property

1. Dalhousie University is the owner and/or occupier 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 also be issued by Dalhousie University in relation to the Student Union Building at the request 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 extend 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 behaviour or activities were inappropriate and ought to cease, the reasons provided to the student, and whether the student was afforded the opportunity to respond or to rectify behaviors 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 is not an investigative body.
3. The Senate Appeals Committee does not receive or determine:
   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) 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.
5. An appeal may be initiated on the following grounds:
   a) the decision under appeal was made without jurisdiction,
   b) a denial of natural justice, or
   c) unfairness in the application of the relevant regulations regarding academic standards, academic evaluation, academic progression, academic advancement, or other University or Faculty academic regulations.
6. The Senate Appeals Committee shall not consider appeals:
   a) by students in an academic appeal who have not exhausted the approved appeal processes of the relevant Faculty,
   b) by students from the decision of a Faculty regarding professional unsuitability, said appeals falling under the jurisdiction of the Senate Steering 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) quash the decision of the Senate Discipline Committee in its entirety,
   b) re-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 unfairness 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.

Appeals Procedures

1. An appeal shall be initiated by submitting a written Notice of Appeal to the Senate Vice-Chair (Student Affairs), or designate, containing:
   a) the name, Banner identification number and mailing address of the Appellant,
   b) a copy of the decision giving rise to the appeal,
   c) a description of the matter under appeal,
   d) the grounds for the appeal, and
   e) the remedy sought by the Appellant.
2. An academic appeal alleging the refusal to make a decision at the Faculty level shall be submitted with reasonable promptness. All other appeals shall be submitted within 30 calendar days of the date that the decision under appeal was sent to the student. An extension of time to submit an appeal may be permitted by the Senate Vice-Chair (Academic Administration), or designate, if the Appellant establishes reasonable grounds for granting the extension.
3. The parties to an appeal are the student, as Appellant, and the Faculty, as Respondent. In an academic appeal, the Dean of the applicable Faculty shall designate one or more representatives to respond to the appeal. In a discipline appeal, the Academic Integrity Officer of the applicable Faculty, or designate, shall respond to the appeal.
4. Upon receiving notice of an academic appeal, the Senate Vice-Chair (Student Affairs) shall require a statement from the Dean of the applicable Faculty confirming that all appeal processes of the Faculty have been exhausted.
5. For each appeal, the Chair of the Committee shall constitute a Hearing Panel in a timely manner. The Hearing Panel shall consist of four faculty members and one student member of the Committee, and shall choose its own Chair. None of the faculty members of a Hearing Panel shall be a member of the Faculty from which the appeal originally emanates or belong to the department or program in which the student is or was enrolled. The student member of a Hearing Panel shall not be a member of the course, department, program, School or College from which the appeal emanates. In the event neither student member of the Committee is able to participate on a Hearing Panel due to the provisions of this paragraph, the Dalhousie Student Union shall appoint an ad hoc member to the applicable Hearing Panel.
6. The Appellant is entitled to an oral hearing, in accordance with the principles of natural justice. The Appellant may participate at an oral hearing in person, or at their expense, by way of teleconference, or by such other means approved in advance by the Hearing Panel. The Appellant may waive the right to an oral hearing and choose to proceed solely by written submissions.
7. Each party is responsible for presenting to the Hearing Panel all relevant evidence and submissions for the Panel to consider in the determination of the appeal. Written submissions are required from each party and shall contain:
   a) copies of all documents relevant to the appeal,
   b) supporting arguments,
   c) a list of all witnesses for that party and a brief description of their anticipated evidence, and
   d) the decision and any remedy being sought.
8. Written submissions shall be made:
   a) by the Appellant, within 15 calendar days of the Senate Vice-Chair (Student Affairs) requesting the submission, and
   b) by the Respondent, within 15 calendar days of receiving the Appellant's submission.
   but these timelines may be extended or abridged by the Senate Vice-Chair (Student Affairs), or designate, in appropriate circumstances.
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 and these Procedures. In extenuating circumstances, the Chair of the Hearing Panel may decide to proceed with the hearing in the absence of one faculty member of the Hearing Panel.
10. The decision of the Hearing Panel shall be by majority. The Hearing Panel shall deliver written reasons for its decision to the Senate Vice-Chair (Student Affairs). The decision of the Hearing Panel shall be final and binding on the parties, with no further appeal.
11. An audio recording of each oral hearing shall be made. The recording and all correspondence and documentary evidence relating to appeal proceedings shall be kept 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 its 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 s/he 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 unbecoming to a member of a health profession 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. This list should not be considered to be all inclusive:

1. a criminal act (e.g. assault, sexual assault, fraud, and drug trafficking) which according to established Faculty processes 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 an act;
2. 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;
3. 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;
4. unethical behaviour 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 these deliberations shall determine whether 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.

This policy does not replace other policies, procedures or guidelines concerning the use of specific IT Resources or data management but rather sets out a minimum standard of acceptable use.

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 inoperable 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 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 s/he 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 Assistant Vice-President Information Technology Services may restrict, suspend or revoke the User's access to any or all of the University's IT Resources, and may

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.

Faculty of Graduate Studies Regulations

Location:
Building/Room: Henry Hicks Academic Administration Building
Street Address 1: Studley Campus
Street Address 2: Room 314
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2485
Fax: (902) 494-8797
Website: www.dal.ca/grad
Email Address: graduate.studies@dal.ca

Administrative Officers

Dean

Leonard, M. L., BSc (Guelph), MSc (Carleton), PhD (Ottawa)

Associate Deans

Pelzer, D. J., MD (Heidelberg), DSc (Homburg)
Denovan-Wright, E. M., BSc, PhD (Dalhousie)

Program Officer

Fletcher, W., BA, BEd (Dalhousie), MA (Calgary)

Admissions and Convocation Officer

Berrigan, S., BSc (Dalhousie)

Admission, Recruitment and Retention Officer

Smart, J. P., BA (Calgary), MA (Dalhousie)

Administrative Officer (Acting)

Casey, C., BA (Open University, UK), Paralegal

Administrative Assistant to the Deans

Theriault, S., BComm (Dalhousie)

Scholarship Liaison Officer

Pottie, D.

Faculty Council (2015-2016)

Elected Members

Ali-Hassan, H., 2017, Rowe School of Business
Bearne, S., 2016, Biochemistry & Molecular Biology
Bodorik, P., 2016, Computer Science
Boe, S., 2018, Physiotherapy
Durier-Copp, M., 2018, Public Administration
Fitting, E., 2017, Sociology & Social Anthropology
Gadbois, S., 2017, Psychology & Neuroscience
Gibson, M., 2016, Process Engineering & Applied Science
Groulx, D., 2017, Mechanical Engineering
Iron, D., 2018, Mathematics & Statistics
Kozey, J., 2017, Health & Human Performance
Loomer, G., 2018, Law
Mullin, R., 2017, Architecture & Planning
Patterson, D., 2016, Agriculture
Sabo, B., 2018, Nursing
Stadnyk, R., 2016, Occupational Therapy
Stone, S., 2017, Biology
Toughill, K., 2018, Journalism
Tyedmers, P., 2017, Resource & Environmental Studies
Ulicki, T., 2018, International Development Studies
Wells, S., 2018, Biomedical Engineering

Ex Officio Members

Barker, W., Interdisciplinary PhD Program
Denovan-Wright, E., Associate Dean, FGS
Ellis, P., Killam Library
Lee, M., Chair
Leonard, M., Dean, FG
Martin-Misener, R., Vice-Chair
Pelzer, D., Associate Dean, FGS
Theriault, S., (Secretary), FGS Staff
Armstrong, J., Postdoctoral Fellow
Bhatia, D., DAGS Representative
Daizy, N., DAGS representative
Hesam, M., DAGS Representative
Armstrong, J., Postdoctoral Fellow

Detailed information about particular programs will be found in the Departmental entries in the subsequent sections of this calendar, or they may be obtained from Departmental publications. **It is the responsibility of all graduate students to familiarize themselves with the regulations that govern the conditions of their programs of study at the University.** Except where noted, Faculty of Graduate Studies regulations take precedence over Faculty/Departmental regulations. The Faculty of Graduate Studies regulations are subject to change. Up to date regulations can be found on the Faculty of Graduate Studies website: dal.ca/grad/regulations/.

The Faculty of Graduate Studies forms are available on the Faculty of Graduate Studies website at dal.ca/grad. Forms are updated on a regular basis.

I. Membership in the Faculty of Graduate Studies

Any person who solely supervises a graduate student must be a Regular member of the Faculty of Graduate Studies. Anyone who co-supervises a graduate student must be a member of the Faculty of Graduate Studies, see section 9.1. Persons who serve on supervisory committees for graduate students must be members of Faculty of Graduate Studies - see section 9.3. Examination committees must have a minimum number of Faculty of Graduate Studies members as specified in sections 10.3.2 and 10.6 for Master's and PhD defenses, respectively.

Membership is obtained by application to the Faculty of Graduate Studies. The following membership classifications are available:

- Regular
- Adjunct (FGS)
- Adjunct (Scholar)

Limits to Terms of Membership

1. Regular members have membership for the length of their academic appointment. FGS should be notified if regular members are no longer employed by the University.
2. Adjunct (FGS) members are subject to limited terms as specified in their letter of appointment, normally 3 to 5 years.
3. Adjunct (Scholar) members are limited to the duration of the student committee on which he/she serves or the duration of the course they teach.

Detailed descriptions of the membership classifications, the roles and the membership application forms and procedures can be found on the Faculty of Graduate Studies website at http://www.dal.ca/faculty/gradstudies/faculty/membership.html.

A retired full-time faculty member from Dalhousie University who holds a post-retirement (limited-term) appointment will continue to hold regular membership in the Faculty of Graduate Students for the duration of their appointment, if they were members before retirement. A retired faculty member who does not hold a post-retirement appointment may apply for a limited-term Adjunct (FGS) appointment in the Faculty of Graduate Studies in order to co-supervise graduate students, if he/she is nominated by a Department Chair. Retired faculty members who hold the title of Emeritus Professor should be aware that this title is an honorific and not a faculty appointment; those individuals need to apply for Adjunct status, if they do not hold a post-retirement appointment.

Appointment and continuation of appointments are subject to approval of the Dean of the Faculty of Graduate Studies.

II. Graduate Programs

Graduate programs are offered at Dalhousie University in a variety of research and professional fields at the Diploma, Master's and Doctoral level.

2.1 Degree Programs

Departments in the Faculty of Graduate Studies offer programs leading to the following degrees and diplomas:

- Doctor of Philosophy (PhD)
- Master of Applied Computer Science (MACSc)
- Master of Applied Health Services Research (MAHSR)
- Master of Applied Science (MASc)
- Master of Architecture (MArch)
- Master of Arts (MA)
- Master of Business Administration (MBA)
- Master of Computer Science (MCSc)
- Master of Development Economics (MDE)
- Master of Electronic Commerce (MEC)
- Master of Engineering (MEng)
- Master of Environmental Design Studies (MEDS)
- Master of Environmental Studies (MES)
- Master of Fine Arts (MFA)
- Master of Health Informatics (MHI)
- Master of Health Administration (MHA)
- Master of Information Management (MIM)
- Master of Journalism (MJ)
- Master of Laws (LLM)
- Master of Library and Information Studies (MLIS)
- Master of Marine Management (MMM)
- Master of Nursing (MN)
- Master of Periodontics (MPerio)
- Master of Planning (MPlan)
- Master of Planning Studies (MPS)
- Master of Public Administration (MPA)
- Master of Resource and Environmental Management (MREM)
- Master of Science (MSc)
- Master of Science (Clinical Vision Science) with concurrent Graduate Diploma in Orthoptics and Ophthalmic Medical Technology
- Master of Social Work (MSW)
- Graduate Diploma in Public Administration (GDPA)
- Graduate Diploma in Information Management (GDIM)

Combined Degrees:

- Master of Business Administration/Master of Engineering (MBA/MEng)
- Master of Business Administration/Juris Doctor (MBA/JD)
- Master of Health Administration/JD (MHA/JD)
- Master of Health Administration/Master of Nursing (MHA/MN)
- Master of Library and Information Studies/Juris Doctor (MLIS/JD)
- Master of Library and Information Studies/Master of Public Administration (MLIS/MPA)

- Master of Library and Information Studies/Master of Resource and Environmental Management (MLIS/MREM)
- Master of Nursing/Master of Health Administration (MN/MHA)
- Master of Public Administration/Juris Doctor (MPA/JD)
- Doctor of Medicine/Master of Science (Oral and Maxillofacial Surgery) (MD/MSc)

2.2 Program Administration

Graduate programs at Dalhousie are administered at the Faculty, unit and program levels.

2.2.1 Unit/Program Level

At the unit level, all graduate programs are administered through a Graduate Coordinator.

2.3 Program Definition and Fee Requirements

At Dalhousie, the academic year for graduate studies is divided into three terms: Fall (September-December), Winter (January-April), and Summer (May-August). Graduate degree programs are based either on a program fee structure (*e.g.,* a one-year program) or a per-course fee structure (*e.g.* a 10 course program).

Program Fee Degrees

Most graduate programs at Dalhousie University have a minimum period for program fee payment and residency requirements. For example, a student admitted to a one-year, full-time Master's program is required to pay three consecutive terms of full-time program fees. Some Master's programs require students to pay their three terms of full-time program fees over two terms, rather than three terms. Students are expected to register at Dalhousie for three consecutive terms even when given permission to take courses or undertake research elsewhere. If admitted to a two-year, full-time program, students (either Master's or Doctoral) are required to pay full-time program fees for six consecutive terms, even if degree requirements are met before the sixth term.

Students continuing beyond their initial program fee requirement period will be assessed continuing fees on a per-term basis. Students must maintain **continuous registration** until their program requirements are complete or granted a formal Leave of Absence. Students in Master's thesis programs should normally expect to take six to 12 months beyond the program fee requirement period to complete their studies. Students in Doctoral programs should expect to take 12 to 24 months beyond the program fee requirement period to complete their studies.

Students entering or switching to a part-time Master's program are required to pay the part-time equivalent of full-time program fees. In other words, part-time Master's students will pay the same amount of fees as a full-time student at a rate of three part-time terms being equivalent to one full-time term. For example, a Master's student entering a one-year, part-time Master's program must pay nine consecutive terms of part-time fees. Master's students entering a two-year, part-time Master's program must pay 18 consecutive terms of part-time fees. If a Master's student completes a part-time program earlier than the nine or 18 terms, they will be required to pay part-time program fees for any outstanding terms before they are approved for graduation. Part-time Master's students who do not finish their degree requirements in the required number of part-time, program terms must register and pay fees on a part-time continuing basis.

There are no part-time PhD programs at Dalhousie.

It should be noted that under the program or continuing fee, students may take only the courses approved by their department and recorded in the Graduate Student Information System (GSIS). If courses are not approved as part of degree requirements, additional fees will apply.

Program fee students include those in the following programs:
Master of Arts
Master of Science
Doctor of Philosophy
Master of Architecture (Post-Professional)
Master of Applied Science
Master of Business Administration (Corporate Residency)
Master of Applied Computer Science
Master of Computer Science
Master of Development Economics
Master of Electronic Commerce
Master of Environmental Design Studies
Master of Engineering
Master of Environmental Studies
Master of Fine Arts
Master of Health Informatics
Master of Journalism
Master of Laws
Master of Marine Management
Master of Nursing

Master of Planning Studies
Master of Nursing/Master of Health Administration
Juris Doctor/Master of Business Administration
Juris Doctor/Master of Health Administration
Juris Doctor/Master of Library and Information Studies
Juris Doctor/Master of Public Administration
Doctor of Medicine/Master of Science
Master of Engineering/Master of Planning

Per-Course Fee Degrees

Some graduate programs at Dalhousie University are based on a per-course fee, and students pay fees according to the number of courses they take in any given term. All such degrees have a minimum number of courses required to be completed for graduation. Per-course fee degrees apply to the following programs:

- Master of Architecture
- Master of Business Administration (Financial Services Stream)
- Master of Business Administration (Leadership Stream)
- Master of Engineering - Only Internetworking
- Master of Health Administration
- Master of Information Management
- Master of Library and Information Studies
- Master of Planning
- Master of Public Administration
- Master of Public Administration (Management)
- Master of Resource and Environmental Management
- Master of Social Work
- Master of Library and Information Studies/Master of Resource and Environmental Management
- Graduate Diploma in Public Administration
- Qualifying, Visiting or Special Graduate Students

Fee schedule can be found on the Student Account's website at dal.ca/moneymatters.

2.3.1 General Program Definitions - Master's Level

Master's programs are usually structured in one of three ways: 1. coursework plus a thesis; 2. coursework plus a graduate project; or 3. coursework only. Some programs also have a work or internship component in addition to coursework and project/thesis requirements, and this usually adds to the time necessary for completion.

A thesis-based Master's degree normally consists of a total of at least 30 credit hours of study, where most of the work is dedicated to independent research.

Fee Requirement	Coursework plus Thesis	Coursework plus Project	Coursework Only
*One-Year Program*Fee: one-year program fee, followed by continuing fees as required; or per course fees	Course credits as specified by the program, (normally completed in one year) and a thesis	Course credits as specified by the program, and a graduate project	Course credits as specified by the program
*Two-Year Program:*Fee: two years of program fees, followed by continuing fees as required; or per course fees	Course credits as specified by the program, (normally completed in two years) and a thesis	As above	As above

NOTE: Term courses are normally equal to three credit hours.

Master's programs or combined Master's/Diploma programs exceeding the requirements for a two-year program are considered as three year programs and fees are applied accordingly.

2.3.2 General Program Definition - Doctoral Level

All Doctoral programs at Dalhousie require a full-time residency period and full-time program fees as defined below.

A Doctoral degree normally consists of a total of at least 60 credit hours of study, where most of the work is dedicated to independent research.

Residency: Students are required, as part of their Graduate Student Program, to be on campus for at least four terms in the first two years of their program. Anomalies or deviations from the procedures or actions detailed above will be dealt with solely by the Dean of the Faculty of Graduate Studies.

Two-Year Fee: Students who enter with a first-class thesis Master's degree will pay two years of program fees, followed by continuing fees until degree completion.

Three-Year Fee: Students who enter directly from first-class undergraduate degree with honours standing equivalent to a Dalhousie honours degree or students who transfer from a Master's program will pay three years of program fees, followed by continuing fees until degree completion.

Registration: **Continuous registration is required.**

III. Admission Requirements for Graduate Programs

Please note that entry into Dalhousie's graduate programs is competitive, and applicants who meet the minimum requirements are not guaranteed admission. Normally, successful applicants have academic records and qualifications that are well above the minimum required.

3.1 Admission Requirements

The Faculty of Graduate Studies sets the minimum admission standards that are required for entry into graduate programs. Individual Departments may require additional qualifications of their candidates, and enrollment limitations usually mean that successful applicants possess qualifications that considerably exceed the minimum requirements. The Faculty of Graduate Studies reserves the right to reject applications from candidates who meet or exceed the minimum admission requirements. Final decisions on all admissions are made by the Faculty of Graduate Studies, and there are **no appeals on admission decisions**.

In all cases, candidates for admission must possess degrees which are deemed by the Faculty of Graduate Studies to be equivalent to those granted by Dalhousie University, and which have been granted by institutions that are fully recognized by Dalhousie.

3.2 Master's Degree Program

Candidates for admission must hold at least a four year Bachelor's Degree with a minimum B average in the last 60 credit hours from a university of recognized standing, with the following conditions:

1. For entry into a Master's program with a thesis requirement, candidates must hold a four year Bachelor's Degree with an honours or the equivalent of honours standing as granted by Dalhousie University in the area in which graduate work is to be done or an area which is relevant to the graduate work. A four year Bachelor's degree may be considered as equivalent of honours if there is evidence of independent research capacity (such as a research project as part of a course) or if the degree is officially approved as an honours equivalent.
2. Dalhousie University recognizes three year degrees in some programs from select universities from Bologna-signatory countries as equivalent to a four year honours degree, but makes decisions in this regard on a case-by-case basis. To be considered for admission, such an applicant must also meet the following criteria: (1) evidence of senior matriculation at the high school level (*e.g.,* A-level exams in Britain, the baccalaureate in France, Abitur in Germany), (2) a university program of study with completion of 180 to 240 ECTS, (3) an ECTS-based average of B or better, and (4) evidence of independent research capacity (*e.g.,* senior paper or thesis).
3. Dalhousie University recognizes three-year degrees in some programs from select Canadian universities where a student had taken a one-year *Collège d'enseignement général et professionnel,* or "General and Vocational College;" CEGEP before entering university.
4. For entry into all other programs, candidates must hold a four year Bachelor's Degree with at least four courses, or their equivalent, taken at a senior undergraduate level in the area in which graduate work is to be done or an area which is relevant to the graduate work. Candidates must achieve an average of at least a B in those four courses, as well as the overall B average in the last 60 credit hours for their degree.
5. Some professional programs offer a one-year Master's program for which an honours degree or equivalent is not required for admission. See Departmental Listings for details of individual program admissions.
6. In those cases where a candidate has a three year degree and a four year degree honours program was not available, first-class candidates may be considered for admission. Students may be accepted to a two-year program fee program or they may be accepted to a Qualifying year.
7. A small number of mid-career professional Master's degrees (see 7.4.3) may be admitted either with or without a Bachelor's degree, depending on the qualifications of the applicant. Admission to such programs, as with all graduate programs, is at the discretion of the Faculty of Graduate Studies.
8. All applicants whose first language is not English are reminded that they must also demonstrate English language competency (see section 3.4 in this Calendar).

3.3 Doctoral Degree Programs

The criteria for admission to Doctoral programs are more rigorous than for Master's programs. The successful completion of a Master's degree does not guarantee admission to a PhD program. Typically a PhD thesis must represent an original contribution that advances the field of learning in the subject. It must be a significant piece of research and only those with a demonstrated ability to perform research at an advanced level will be considered for admission.

Candidates must hold:

1. a first-class (*e.g.* a minimum of an A- average) thesis Master's Degree, or its equivalent, from a recognized university, for entry into a Doctoral program with a two-year program fee and residency requirement, (the identification of a first class Master's degree is based on grades in coursework; evidence of a well-written, high quality thesis, and other indicators, such as publications in refereed journals, presentations at scholarly conferences, etc.); or

2. a Bachelor's Degree from a recognized university with a first-class (*e.g.* a minimum of an A- average) honours standing (including a research dissertation) as granted by Dalhousie University, for entry into a Doctoral program with a three year program fee and residency requirement. Dalhousie University recognizes three year degrees in some programs from select universities from Bologna-signatory countries as equivalent to a four year honours degree, but makes decisions in this regard on a case-by-case basis. To be considered for admission, such an applicant must also meet the following criteria: (1) evidence of senior matriculation at the high school level (*e.g.,* A-level exams in Britain, the baccalaureate in France, Abitur in Germany), (2) a university program of study with completion of 180 to 240 ECTS, (3) an ECTS-based average of B or better, and (4) evidence of independent research capacity (*e.g.,* senior paper or thesis).
3. a first-class non-thesis Master's Degree may be considered for admission to the PhD on a case by case basis by FGS where evidence of independent research can be clearly demonstrated, such as a major research paper, presentations at scholarly conferences, publications in journals, etc. Such candidates may also be admitted into a Master's program with the possibility of transferring into the Doctoral program, as described below.
4. a Master's Degree from select universities from Bologna-signatory countries that consists of 120 to 240 ECTS beyond the Bachelor's degree and includes evidence of independent research capacity.
5. all applicants whose first language is not English are reminded that they must also demonstrate English language competency (see section 3.4 in this Calendar).

3.3.1 Transferring from a Master's to a PhD Program

A few departments will admit a Bachelor's graduate with a first-class honours degree into the Master's program and recommend them for transfer to the Doctoral program. Also, in exceptional circumstances a student with a non-thesis Master's degree of first-class standing (average course grade of A- or better) may be admitted into a thesis Master's program with the possibility of transferring into a PhD on the basis of outstanding academic and research potential. Students who wish to transfer from a Master's to a Doctoral program should do so within the first five terms of initial registration. Such requests must be made before the term in which the transfer is to take effect.

3.4 English Language Competency

English is the language of study at Dalhousie; therefore all applicants whose first language is not English must demonstrate their capacity to pursue a graduate-level program in English before admission. The standard test is the TOEFL. The Faculty of Graduate Studies sets a minimum acceptable score of 92 for the internet-based test. Some programs within the Faculty of Graduate Studies set a higher **minimum,** such as a TOEFL of at least 100. (See departmental listings for individual program admission requirements.) The following other tests will also be accepted with the following minimum scores: MELAB, 85; IELTS, 7; CanTest, average of at least 4.5 with no band score lower than 4.0; CAEL, 70 overall, with no band score lower than 60. Alternatively, a prospective student may enroll in the ESL program with the Dalhousie College of Continuing Education and obtain a grade of at least A- on the final stage of that training. The language competency test may be waived if the applicant has completed a degree at a recognized university where the language of instruction is English. The claims must be verified by the Faculty of Graduate Studies. Test scores are valid for two years from the date the test was written.

Further information on these tests may be obtained from:

Test of English as a Foreign Language (TOEFL)

TOEFL/TSE Service
PO Box 6151
Princeton, NJ
USA 08541
toefl@ets.org
www.toefl.org
The Dalhousie code is 0915 for the TOEFL test

Michigan English Language Assessment Battery (MELAB)

English Language Institute (ELI)
University of Michigan
555 S. Forest Avenue
Ann Arbor, MI,
USA 48104-2584
melabelium@umich.edu
www.cambridgemichigan.org/melab

International English Language Testing System (IELTS)

University of Cambridge Local Examinations Syndicate
1 Hills Road
Cambridge, UK CB12EU
ielts@ucles.org.uk

www.ielts.org

Canadian Test of English for Scholars and Trainees (CanTest)

CanTEST Project Office
Language Testing Services
University of Ottawa
70 Laurier Avenue East, Room 130
Ottawa, ON K1N 6N5
cantest@uottawa.ca
www.cantest.uottawa.ca

Canadian Academic English Language Assessment (CAEL)

CAEL Assessment Testing Office
School of Linguistics and Applied Language Studies
Carleton University
126 Paterson Hall, 1125 Colonel By Drive
Ottawa, ON K1S 5B6
cael@carleton.ca
www.ielts.org

Dalhousie University College of Continuing Education

Continuing Technical Education
1459 LeMarchant Street, Suite 2201
PO Box 15000
Halifax, NS B3H 4R2
cte@dal.ca
www.cte.dal.ca

3.5 Conditional Admissions

If a conditional admission is approved, the condition must be met within the specified period of time. If the condition is not met by the stated deadline, the student's admission will be rescinded.

Conditions on admission cannot subsequently be waived.

3.6 Graduate Examination

Some departments require GRE or GMAT scores of applicants as a criterion for program admission. Check departmental listings in this Calendar for information on specific program admission requirements.

3.7 Advanced Placement

Upon admission, in some departments with undergraduate honours programs, a student may request advanced placement credits based on graduate courses completed within an undergraduate program, that are deemed equivalent to graduate courses within the student's proposed graduate program at Dalhousie University. For courses that have been counted toward a previous degree, in which a minimum grade of "B" was attained, advanced placement of up to six credit hours of study may be used to reduce the overall course requirements in some Dalhousie graduate programs.

All requests must have the approval of both the Graduate Coordinator of the home unit and the Faculty of Graduate Studies. Combined, Advanced Placement, Letter of Permission and transfer credits completed outside Dalhousie University cannot normally exceed 33% of the program's overall course requirements.

3.8 Transfer Credit

A transfer credit allows for courses completed outside of the student's program, normally at another institution, to be used as part of the student's degree requirements. Such courses must have a minimum grade equivalency of B- on the Dalhousie graduate grade scale, cannot have been used for credit for another degree and normally cannot exceed 33% of the student's overall requirements. This total of 33% would also include any courses taken on Letter of Permission (see section 7.6.6) and Advanced Placement. Application for transfer credits must be made within the first term following admission and must be approved by the Graduate Coordinator of the home department and the Faculty of Graduate Studies. An original transcript and course equivalency is required if the course was not completed at Dalhousie. In order to be eligible, courses must satisfy any time period restrictions that may apply.

3.9 Students with Disabilities

See Accommodation Policy For Students in the University Regulations section of this calendar.

IV. Graduate Application Process

4.1 Faculty Application Forms and Supporting Materials

All applicants for graduate programs at Dalhousie must complete the Faculty of Graduate Studies Application for Admission Form. Students can apply online at dal.ca/admissions/graduate.html. A printable version of the Application Form can be found at dal.ca/admissions/graduate/admission_process.html. The application must be accompanied by the application fee. All supporting materials (including academic reference letters, official transcripts from all post-secondary institutions attended, official GMAT or GRE scores, official TOEFL scores, etc.) are to be sent directly to the department to which the student is applying. Interdisciplinary PhD Program applicants send all materials to the Faculty of Graduate Studies c/o the Director of the IDPhD program. **Note that supporting documents (transcripts, letter of reference, etc.) will be verified for authenticity.** Applicants submitting fraudulent documents may have their names published on the listserv of the Association of Registrars of Universities and Colleges in Canada and have their acceptance rescinded. Most documents submitted as part of the application cannot be returned or photocopied for the student.

4.2 Application Deadlines

The Faculty of Graduate Studies normally admits students to commence their programs in the fall term (September). See Admission Dates. However, some academic units may allow applicants to commence in the winter term (January) or the summer term (May) or may have different deadlines. General Deadlines for applications are as follows:

General Application Deadlines	Canadian Applicants	Non-Canadian Applicants
For September Admission	June 1	April 1
For January Admission	October 31	August 31
For Summer Admission	February 28	December 31

Check departmental listings in this Calendar for information on specific program admission requirements.

4.2.1 Specific Program Deadlines

Several programs have different application deadlines. Please refer to the specific departmental listings in this calendar for these dates.

Applicants who wish to be considered for university scholarship support are advised to apply by January 15 if they intend to register for the following September. (There is no application form for university or faculty scholarships, as all eligible applicants are automatically considered with their application for admission.) All eligible candidates should also apply for external awards. Consult with your chosen department to determine scholarship availability and eligibility. Please note, some departments have deadlines that are much earlier than the Faculty of Graduate Studies deadlines.

Applicants who require a student visa and are not funded by the University or an officially recognized funding agency must provide proof of financial support with their application. Canadian Immigration is increasingly rigorous about requiring proof of sufficient financial support to complete the program of studies.

4.3 Departmental and Faculty Approval

All applications are reviewed by departments, and the departments then make a recommendation to the Faculty of Graduate Studies for acceptance or rejection, including any required conditions of admission. At this stage, many departments will contact the applicants to let them know of a positive recommendation to the Faculty. **While this may be a useful indication to the applicant that their application is progressing, it does not constitute official acceptance into the graduate program, even if it is in the form of a written letter.** Official acceptance is achieved when the department recommendation has been approved by the Faculty of Graduate Studies, and a formal letter of acceptance is issued by the Registrar's Office to the student.

4.4 Official Response

All successful admissions will receive an official letter by mail from the Registrar's Office indicating they have been accepted into the graduate program. This letter is the only official notification that the university sends out. **All other forms of communication, including letters from a department or a faculty, do not constitute official acceptance by the university.**

4.5 Scholarship Awards

Successful applicants who are also approved for a graduate scholarship will receive an email or letter of notification of their award from the Faculty of Graduate Studies. Scholarship offers can be made at the time of an admission offer or later, depending when the decision on funding is made. **Letters from supervisors or departments do not constitute official offers of financial support by the university.**

4.6 Deferrals

Newly accepted applicants who, for reasons beyond their control, are unable to take up their position on the date for which they were accepted, may request a deferral of their start date to a later term. Students may request a deferral of one, two, or three terms. No student may receive more than one deferral. Students wishing to request a deferral should contact the department to which they were accepted as soon as possible, and all deferrals are subject to the approval of the Faculty of Graduate Studies. If students request a deferral after they have registered, it is the student's responsibility to cancel their registration.

V. Registration Procedures and Regulations

It is the student's responsibility to register. Registration is the process by which students officially establish with the University (through the Office of the Registrar) their degree program (MA, MSc, PhD, etc.) and status (full-time, part-time, etc.) and pay the appropriate academic fees (Student Accounts). Both aspects of the process (program/status and fee payment) must be completed before a student can be considered registered. **Graduate students must maintain their registration status on a continuous basis and pay the required fees.**

5.1 Registration Status and Fees for Graduate Students

Program-Fee Programs

Graduate students in program-fee programs must maintain their registration on a continuing basis. Program-Fee students must register for REGN 9999 in all three terms and pay the appropriate program fee. REGN 9999 is listed in the Academic Timetable as "Registration Course - Graduate". In addition to REGN 9999, Program Fee students should be registered in a course, project or thesis every term. If graduate students allow their registration to lapse they will be considered to have withdrawn and will be required to apply for re-admission.

Per-Course Fee Programs

With approval of the student's department and the Faculty of Graduate Studies (*e.g.* for a summer term when no appropriate courses are offered), graduate students in programs where fees are paid on a per course basis can allow their registration to lapse for one term per academic year without penalty. Students who allow their registration to lapse for more than one term will be considered to have withdrawn.

Thesis or Project Registration

Once graduate students begin their thesis or project, they must continue to register in their thesis every term and work toward its completion until all degree requirements are met.

5.2 Registration Procedures

All registration is carried out via the web at www.dal.ca/online. Students are encouraged to register early.

Continuing students who require an extension to their program or have an outstanding annual progress report will not be permitted to register until the extension or annual progress report has been officially approved by the Faculty of Graduate Studies.

5.2.1 Registration Deadline

All students must be registered by the deadline for each term. Students who do not register on or before the University's last day to register must submit a course add/drop form (approved by the department) to the Faculty of Graduate Studies for permission to register. A financial penalty will apply. Students who fail to register by the official deadline will not receive service from the University during that term.

5.2.2 Thesis-only stage for Per-course Fee Students

A per-course fee student, at the thesis-only stage of their degree requirements, such as MARCH, MLIS, MSW must register for REGN 9999 and Master's Thesis, every term, in order to maintain their status as a thesis student.

5.2.3 Failure to Register (Program-Fee Students)

Students who fail to register within the approved deadlines will be considered to have lapsed registration. Such students will not be permitted to submit a thesis, nor will they receive services from the University during that academic term. Students who allow their registration to lapse will be considered to have withdrawn and will be required to apply for readmission. (See section 5.3.1).

5.3 Voluntary Withdrawal

Students who withdraw from a degree program are to inform the Graduate Coordinator of their program immediately and the Faculty of Graduate Studies in writing. The immediacy of notification is important because the amount and speed of possible fee reimbursement is influenced by the date of withdrawal. Students must contact Student Accounts directly to make arrangements to receive their fee reimbursement. Please see "Academic Dates" for financial and academic implications of withdrawal. **A withdrawal is not official until it has been processed by the Faculty of Graduate Studies and received in the Registrar's Office. Under no circumstances will the Faculty of Graduate Studies back-date a withdrawal notice**.

5.4 Academic Dismissal

A student may be required to withdraw from a program for academic reasons (*e.g.* failure to meet admission requirements, program requirements, or lack of academic progress), for academic offences such as plagiarism, irregularities in the presentation of data, *etc.,* (see Intellectual Honesty and Senate Discipline Committee), for non-academic reasons, (see Code of Student Conduct), or for failing to maintain registration status (see section 5.1). The student will be notified of the reason for the required withdrawal by the appropriate body.

An academic dismissal is normally for one year, during this period work completed at another institution while on Academic Dismissal may not be used for credit at Dalhousie.

5.4.1 Reinstatement of Students

A student who is academically dismissed may apply in writing to their department/program for reinstatement (see sections 7.6.2 1 and 2). Reinstatement is not automatic. Following consideration of the student's request for reinstatement by the department/program, the Dean of the Faculty of Graduate Studies has to ratify the department/program recommendation, whether positive or negative. A student may be reinstated only once during the course of their program.

5.5 Readmission

A student who is withdrawn for academic reasons, voluntarily withdraws, or whose registration has lapsed may apply for readmission within 10 years of initial registration. Readmission is not automatic, and requires the permission of the department and the Faculty of Graduate Studies.

5.5.1 Readmitted Program-Fee Students

Students who fail to register and pay tuition fees for any term before the degree program requirements have been fulfilled are considered to have withdrawn and will be required to apply for readmission. Readmission is not guaranteed, but, if readmitted program fee students must pay make-up fees for the terms in which they were not registered to a maximum of three terms at the rate of $250 per term.

Readmitted students who were academically dismissed will not be charged make-up fees for the three terms immediately following the official date of dismissal. Make-up fees will be charged for any term thereafter, to a maximum of three terms, until the student is registered.

Students in thesis programs who have not maintained registration are normally required to have a satisfactory thesis in hand or a timetable for completion, approved by the department's Graduate Coordinator and signed by the student and thesis supervisor, before they can be readmitted. Students may be readmitted only once during the course of their program. Application for readmission must meet normal application deadlines, and all outstanding fees must be paid.

5.5.2 Readmitted Per Course Fee Students

With approval of the department and the Faculty of Graduate Studies, per course fee students can allow their registration to lapse for one term per academic year without penalty (*e.g.* for a summer term when no appropriate courses are offered). Students who fail to register and pay tuition fees for more than one term per academic year before the degree program requirements have been fulfilled are considered to have withdrawn and will be required to apply for readmission. Readmission is not guaranteed, but if readmitted per course fee students must pay make up fees for the terms in which they were not registered, to a maximum of three terms at the rate of $250 per term.

Readmitted students who were academically withdrawn will not be charged make-up fees for the three terms immediately following the official date of withdrawal. Make-up fees will be charged for any term thereafter, to a maximum of three terms, until the student is registered.

5.5.3 Readmission after 10 years from program start

Students may apply to a degree program after the 10 year limit. Readmission is not automatic, but follows the procedures for normal admission. In addition such admission does not constitute an automatic acceptance of credit for past work or past examinations. Requests to have past course work and exams recognized and assigned credit requires an independent advanced-placement assessment, which must be submitted to the Faculty of Graduate Studies. Advanced-placement credits must be approved both by the academic unit and the Dean of the Faculty of Graduate Studies. Students re-admitted under this cause should be aware that they will be assessed fees and tuition commensurate with a new incoming student, over the same period.

5.6 Concurrent Registration

A student may, with written permission from the Deans of both programs, register for two concurrent programs or diploma programs, either at Dalhousie or one at Dalhousie and one elsewhere, for a maximum of 12 months, usually the first academic year of the Dalhousie graduate program. This does not apply to a prerequisite degree student finishing a Master’s degree who has been accepted into a PhD program. In that case, the student must first complete the Master’s and then register in the PhD program in January, May or September as applicable and approved by the department. If the student fails to complete the Master’s degree for a particular entry point, the student must request deferral of admission to the next available start date.

5.7 Student Categories

All graduate students must be registered in each year and in each term of their graduate program in one of the categories listed below. Master's students wishing to change status from full-time to part-time or *vice versa,* must submit their request, with departmental approval, to the Faculty of Graduate Studies. Such requests must be made before the start of the term in which the change of status is to take effect.

5.7.1 Full-Time Student (Program Fee)

A full-time graduate student paying program fees (see section 2.3) is a student who has been approved by the department and the Faculty of Graduate Studies as working full-time on their graduate degree. All Doctoral students register full-time throughout their studies, and they pay full-time program fees for the first two or three years of study, as designated at the time of admission and continuing fees for subsequent terms. Program-fee students must maintain their registration for the summer, fall and winter terms. The following programs must register for REGN 9999 every term and pay fees for only two terms per academic year: LLM, MEC, MHI, MAHSR and MSc (HUCD). Full-time students are expected to work on their degree requirements on a full-time basis, therefore additional paid employment work should not exceed an average of 16 hours per week per term.

5.7.2 Full-Time Student (Per-Course Fee)

A student who is taking a minimum of nine credit hours per term is considered full-time. Per-course fee students who have completed all degree requirements except their thesis may be considered full-time or part-time. Full-time or part-time status for these students is determined based on the student's full-time or part-time thesis work. Full-time students are expected to work on their degree requirements on a full-time basis, therefore additional paid employment work should not exceed an average of 16 hours per week per term.

5.7.3 Part-Time Student (Program-Fee)

At the Master’s level a part-time student paying program fees (see Section 2.3) 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 cannot carry more than eight credit hours per term. Program fee students must maintain their registration for the summer, fall and winter terms.

5.7.4 Part-Time Student (Per-Course Fee)

A student who is taking fewer than nine credit hours in a semester is considered part-time.

5.7.5 Continuing Student (Program-Fee Programs Only)

This status applies to a student in a program that charges a program fee and who has completed the program fee requirement but has not yet finished all the degree requirements (usually the thesis). The student is required to pay a continuing fee on a per term basis.

5.7.6 Qualifying Student

Students who hold a recognized undergraduate degree, as defined in section 3.2, but who do not meet all admission requirements for a specific program, may be recommended for admission to a qualifying program. Admission to a qualifying program may be recommended by academic units for students in the following circumstances.

1. The student has the required GPA in a recognized undergraduate degree program, but may not have the required background for graduate studies in a specific discipline. The academic unit will specify the required advanced undergraduate courses that must be completed with B- or higher marks to qualify for admission to the graduate program.
2. The student does not meet the overall GPA requirements for admission to graduate programs. The academic unit will specify a set of advanced undergraduate courses that, upon satisfactory completion, will raise the GPA to the level defined in section 3.2.
3. The student has a three (3)-year undergraduate degree. First-class candidates may be considered for admission to a Qualifying year. Qualifying students are required to complete eight to 10 senior undergraduate courses with a minimum grade of B-.

Qualifying students can be full-time or part-time; take as little as three credit hours course or as many as 30 credit hours courses chosen from undergraduate courses or a mixture of undergraduate and graduate courses. Taking Qualifying-year graduate courses does not affect tuition for students in program-fee graduate programs. Qualifying students are not eligible for scholarship or bursary support and must apply for admission to the appropriate graduate program in the usual way towards the end of the qualifying period. Qualifying students must pass all the courses with no grades below a B- and a minimum average of at least B, and fulfill additional requirements as deemed by their department and the Faculty of Graduate Studies. Successful completion of the qualifying year does not guarantee admission.

Some departments admit students to the Master's program first and then consider them for transfer into the Doctoral program at a later date (see Section 3.3.1).

5.7.7 Special Student-Graduate Studies (SSGS)

With permission from the Faculty of Graduate Studies, it is possible for individuals to take courses outside of a program for personal or professional enrichment. The registration category for non-program students taking graduate courses is Special Student-Graduate Studies (SSGS). Such students may take a maximum of 12 credit hours with the permission of the course instructor and the appropriate Graduate Coordinator. Because all graduate courses must be taught at a consistent standard to graduate level students, non-program students must have records that meet the minimum entrance requirements for a graduate program. Hence they must be approved by the Faculty of Graduate Studies as admissible to a graduate program and should adhere to the same application deadlines.

Students are ineligible to apply for Special Student status in a course if they have been declined admission to the program because of academic standing, or have been academically withdrawn from the program.

Students who register in this category do so normally as an enrichment to their professional fields. Students trying to qualify for entry to a graduate program must follow a different route: either a Qualifying Year program, if eligible, or a program of study as a Special Student in an undergraduate faculty.

Courses completed under SSGS status can be used for credit toward formal graduate programs with approval by the Faculty of Graduate Studies at the time of admission.

5.7.8 Visiting Students

5.7.8.1 Visiting Student Graduate Studies (VSGS) - Letter of Permission

Students registered as graduate students at another university may register at Dalhousie to take courses on a Letter of Permission (LOP) from their home university. Visiting students must have records that meet the minimum entrance requirements for the course for which they are registering and must receive permission from the

Dalhousie professor teaching the course(s). Students must submit the graduate application, the application fee and an approved Letter of Permission to the Registrar's Office.

5.7.8.2 Visiting Student Graduate Studies (VSGS) - Research

Students registered as graduate students at another university may register at Dalhousie to conduct research under the supervision of a Dalhousie researcher as a visiting research student. They are not attending Dalhousie University under the auspices of a signed, bilateral exchange agreement and will not be attending courses.

Visiting research students are at Dalhousie for normally up to three terms, and while here, they are expected to work full time on their research. They must provide to the Faculty of Graduate Studies written support for their research from their home university and from their Dalhousie supervisor. Students must submit the graduate application and the application fee to the Registrar's Office. The two letters of support must be submitted to the Faculty of Graduate Studies.

International VSGS may be able to opt-out of the Dalhousie Health Plan if you have comparable alternative insurance. To do so, international visiting research students must take a copy of their health insurance plan to the Dalhousie Student Union (DSU) Health Plan Office to ensure it meets minimum coverage.

International VSGS with work a permit which is Labour Market Impact Assessment (LIMA) exempt are not eligible for paid employment in Canada unless indicated on the work and/or study permit.

5.7.9 Letters of Confirmation

A letter confirming a student's registration and/or scholarship status can be produced on request. Students should contact the Faculty of Graduate Studies Office for information on this service. Confirmation letter request forms are located on the Faculty of Graduate Studies web site http://www.dal.ca/grad/currentstudents/forms/

5.8 Leave of Absence including Parental Leave

The Faculty of Graduate Studies may approve a Leave of Absence for medical reasons or because of a serious problem outside the student's control if supporting documentation is provided. A leave of absence will not normally exceed one year per individual program. The student must submit an application for a leave of absence to the Faculty of Graduate Studies with signatures of approval from the student's Supervisor and Graduate Coordinator along with supporting documentation.

5.8.1 Parental Leave

Parental Leave will be granted at the time of pregnancy, birth or adoption. A parent may request up to three terms of leave, which must be completed within 12 months of the date of birth or custody. Students may request a parental leave with each new child born or adopted during their program.

5.8.2 Terms of a Leave of Absence and Parental Leave

Applications for a Leave of Absence, including parental leave, must be received prior to the term for which it is to take effect. Retroactive approval for a Leave of Absence will only be granted in extraordinary circumstances.

Students may not hold any Dalhousie Scholarships during a leave of absence, including parental leave, nor may they study elsewhere and receive credit at Dalhousie University.

A leave of absence, including parental leave, frees a student from paying tuition fees, it also releases the university from providing student services, such as consultation with professors and library privileges. Please see section 7 for details on normal degree completion timelines.

5.9 Program Continuance

With a Graduate Coordinator's support, the Dean of Graduate Studies may approve a program continuance to allow students to take part in an exceptional academic or career opportunity and maintain their student status as "in good standing" for a maximum duration of one year. Please see the following web address for the application form and further details. dal.ca/grad/currentstudents/forms

5.10 Suspension of Studies

Unexpected emergencies that arise during the term cannot always be accommodated by a Leave of Absence. Such cases can be accommodated through a suspension of

studies, but no fee rebate is possible. A student must apply in writing to the Faculty of Graduate Studies for a suspension of studies, stating the reasons and the length of time requested, and it must be supported by the Graduate Coordinator. A suspension relieves the student from responsibilities for completing coursework and other program requirements during the period of suspension, but it does contribute to time in the program (*e.g.* the clock does not stop ticking). Normally, a suspension of studies shall be for no longer than one term. Grades for registered courses in the term of the Suspension of Study will be determined by the date of the Suspension and the established withdrawal dates in the Academic Dates section of the Graduate Calendar.

5.11 Differential Fees for International Students

Students who do not hold Canadian citizenship or permanent residency are required to pay an additional Differential Fee (the amount being determined by the University); in addition to the regular fees, according to the following schedule:

Full-time Master's student (except Oral and Maxillofacial Surgery)	2 years (or equivalent)
Full-time Master's/MD student Oral and Maxillofacial Surgery	4 years
Part-time Master's student	6 years
Two-year, program fee PhD student (following a Master's degree)	2 years
Three-year, program fee PhD student (following a Bachelor's degree	4 years

The annual graduate program differential fee is charged over two terms for programs requiring two terms of fee payment.

This fee is applied to each new graduate degree in which the student registers.

Per-course fee Master's students' differential fee is changed per term in proportion to course registration(s).

5.12 Identification (ID) Cards

Full-time, part-time and continuing students in a degree program will receive ID cards entitling them to University services. Distance education students should consult their department. ID cards must be presented to write an officially scheduled examination or to use library facilities. In addition some services, such as the issuance of bursary or scholarship cheques, require the presentation of a valid Dalhousie ID.

5.13 Notification of Address

Students are required to ensure that address changes are kept up-to-date. This should be done on Dal Online: http://www.dal.ca/online.

5.14 Student Email Addresses

The University issues a @dal.ca email address to all students. This is the official email address and the only email address that the University will use for communication with students regarding academic and administrative matters. This address is entered automatically in the Student Information System as the preferred email address, it will be the address to which all general email messages to students will be sent, and it will be the address provided to faculty members when they request distribution lists for the sending of messages to students in their courses. A message sent by the University, or a faculty or staff member, to your @dal.ca address will be considered to have been delivered to you. Students should visit my.dal.ca for detailed instructions on how to activate their @dal.ca account.

VI. Intellectual Property and Conflict of Interest

At all times, faculty members and graduate students must maintain the highest levels of integrity in their research, teaching, and educational endeavours.

6.1 Conflict of Interest

Faculty members and students are expected to declare any real or perceived conflict of interest of a personal or financial nature that may influence explicitly or implicitly their participation in graduate programs and graduate administration. In a small community such conflicts are sometimes unavoidable. It should nonetheless be possible to avoid conflict of interest in the following cases:

No faculty member shall evaluate in a teaching context or supervise the thesis or project of a student who is a daughter, son, spouse, partner or other close relative.

A faculty member is not eligible to act as supervisor for: a) another faculty member who holds their primary academic appointment in the same academic unit; or b) an employee who is in a direct reporting relationship with him or her.

No student or supervisor shall have a financial or family interest in the industry or business in which the student is pursuing his/her thesis research. If a student is employed by the company in which the research is being conducted or the student's research is marketable under terms of the supervisor's grant or contract used to provide support for the student, protection must be given to the student's contribution to the research by means of an appropriate contract, finalized before the research for the degree is commenced and signed by all parties involved.

6.2 Intellectual Honesty and Plagiarism

All students should read and be familiar with the University policies on Intellectual Honesty, as described in the University Regulations section of this Calendar.

6.3 Policy on Integrity in Scholarly Activity

In accordance with the Senate Policy on Integrity in Scholarly Activity, the Faculty of Graduate Studies has adopted guidelines that focus upon the involvement of graduate students in research and scholarly activity. Guidelines are available on the Senate website www.senate.dal.ca.

6.4 Policy on Intellectual Property

If students and/or faculty have concerns or doubts about Intellectual Property, consult with your Chair, Graduate Coordinator, or Supervisor, or contact the Faculty of Graduate Studies for advice. If you feel uncomfortable with approaching your immediate supervisor, then go to the Graduate Coordinator or unit head and ask to be heard in confidence.

6.5 Policy on Graduate Teaching

No graduate student can teach a graduate course without completing all the preliminary program requirements, and the graduate student cannot be the "professor of record". The course must not include any of the graduate student's peers (*e.g.* a PhD student can teach only Master's students). Graduate students in the programs offered in the Faculty of Engineering are not permitted to teach undergraduate courses.

VII. Degree Requirements

Graduate students have a maximum period of time within which to complete all of the requirements for their graduate program.

The upper time limits* for the completion of degrees are:

One-year Master's, full-time:..... Four years
One-year Master's, part-time:..... Five years
Two-year Master's, full-time:..... Five years
Two-year Master's, part-time:..... Seven years
Three-year Master's, full-time:..... Five years
Three-year Master's, part-time:..... Seven years
PhD and JSD, full-time only:..... Six years
MBA - FS:..... Seven years
MPA (Management):..... Seven years

* exceptions are possible for approved LOA5

7.1 Maximum Time for Degree Completion and Extensions

Under exceptional and well documented circumstances, such as an approved LOA, up to a one year extension can be granted.

Under no circumstances can a student be registered in a program beyond 10 years from their initial registration in the program.

7.2 Program Requirements

Every graduate student must have an individually approved program of studies. The program of study for each graduate student must be approved by the Graduate Coordinator in each department or program and submitted for final approval to the Faculty of Graduate Studies. By the end of the first term, the Graduate Department will enter the proposed program (with the total number of credits required, the names and numbers of all courses required, including ancillary courses and any other requirements and conditions) on the Graduate Student Information System (GSIS). The graduate program requirements must be approved electronically by the student, supervisor (where applicable), the Graduate Coordinator and the Faculty of Graduate Studies. At this stage, the student and department are approving the requirements for the degree. Confirmation that the degree requirements have been met will be carried out in the Faculty of Graduates Studies as part of the degree audit for convocation. Once approved, the program requirements in GSIS constitutes an agreed contract between the student and the University and is used to audit the student's file for graduation. Any changes to the approved program requirement must be agreed to by the Graduate Coordinator and the Faculty of Graduate Studies by way of an update to the existing requirements already approved in GSIS.

7.3 Annual Progress Report

Every thesis-based graduate student is required to submit an Annual Progress Report on GSIS to the Faculty of Graduate Studies, through their Graduate Coordinator. This report is due on an annual basis, one month before the anniversary of the student’s admission date. Failure to submit this report will result in delays in registration and funding.

Students who have external funding administered by the University are required to submit annual progress reports one month before of the one year anniversary of the start date of their award. This report will also satisfy the Faculty of Graduate Studies progress report requirements.

7.4 Requirements for the Master’s Degree

Two types of Master’s degree are offered: one based primarily on research (involving a thesis) and the other based primarily on formal courses. The course-based programs are usually terminal degrees, while the thesis-based programs can lead to Doctoral studies. Master’s programs may also have additional requirements such as graduate projects, practicums, or internships.

7.4.1 Thesis-based Master’s Degrees

The course of study for the research degree (MA, MASc, MArch, MCSc, MSc, MDE, MEDS, MES, MURP and the thesis options available in the LLM, MArch (Post-Prof), MEDS, MEC, MHI, certain MSc and MA programs, MN, MLIS and MSW) may include graduate courses, seminars, preparation of fields of study, comprehensive examinations, demonstrations of foreign language proficiency, a thesis, and oral presentation and defence of the thesis.

Requirements vary considerably from program to program, and even within the same program, depending upon student’s previous experience and qualifications.

7.4.2 Course-based Master’s Degrees

Course-based Master’s programs include the MACSc, MBA, MEng, MHA, MIM, MMM, MPA, MREM, MPLAN and non-thesis options in the MArch (Post-Prof), MEC, MEDS, MHI, LLM, MCSc, MN, MLIS and MSW, and certain MA and MSc programs. The number of courses varies and a graduate research project is often required.

7.4.3 Specialty and Mid-Career Master’s Degrees

A number of specialty Master’s degrees have been and continue to be developed to meet specific needs and demands for graduate education in commerce, public service, and industry. Some, but not all, of these programs are degrees designed for mid-career professionals. These are primarily course-based programs, with some component of work and professional experience (either as part of the program or as pre-requisites for admission). All or part of the courses may be offered in a distance education mode. They currently include the MBA (Financial Services), MPA (Management), MEng (Internetworking), and MIM.

7.5 Requirements for the Doctoral Degree

A candidate must demonstrate the ability to carry out research of high quality leading to an advance of knowledge in his/her area of study. The candidate's course of study will be initiated with the advice and direction of a supervisory committee. See section 9.3 for supervisory committee structure.

The course of study may include courses, seminars, comprehensive examinations, qualifying examinations, thesis, preparation of fields of study, demonstrations of foreign language proficiency, and any other requirements considered necessary for the clear demonstration of post-Master's-level comprehension, scholarship, and ability in the candidate's particular area of study. Comprehensive exams are only taken after all coursework is completed.

7.6 Courses and Grades

Courses may be full or half year (six or three credit hours respectively) and may be designated by the candidate's committee as "Required" (pass mark is B-) or "Ancillary" (pass mark is B-). Some departments cross-list graduate courses with senior undergraduate courses: in which case the requirements for graduate students are more demanding than those for undergraduates.

If a student is permitted to take an undergraduate course (with an appropriate additional work requirement as approved by the Faculty of Graduate Studies Curriculum Committee) as part of their graduate coursework, the minimum B- grade also applies.

In those Doctoral programs that require completion of a specific number of graduate credits, students are not permitted to take undergraduate courses for credit, although such courses may be included within the required program of study (*e.g.* they are in addition to the required number of graduate credits) and in some cases would be ancillary courses (see section 7.6.3).

7.6.1 Academic Transcript

The academic transcript is a reflection of academic history and, therefore reflects both passes and failures. It cannot be altered after the fact. Accordingly, it is essential that students be fully aware of the deadlines for adding and withdrawing from graduate courses. See section 7.6.7 and section 7.6.8.

7.6.2 Course Assessment and Grading Policy

Course examinations may be oral, written (closed or open book) under supervision, take home or a combination.

Students will be provided with a course outline (syllabus) by the instructor at the first meeting of the class. In order to complete a course satisfactorily, a student must fulfill all the requirements as set down in the course outline. Changes to the outline that affect assessment components, the weight of individual assessment components, or examination requirements with a value of 10% or more must have the approval of at least two-thirds of enrolled students in order to be valid.

When collaboration is included as part of course expectations as in group projects or group assignments, the instructor will provide in the course outline a statement of the degree of collaboration permitted in preparation and submission of assignments.

Within four weeks after the beginning of each term, course outlines must be placed on file with the appropriate home faculty/school/college.

All instructors of graduate courses (*e.g.* designated 5000 and above), with the exception of a few courses for which a pass/fail grading scheme has been approved, will use the following grading scheme:

Letter Grade	Numerical (%) Equivalent
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
F	< 70

Students can expect that their final grade will appear on their record 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.

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/College, Dean of the Faculty in which the grade was assigned, the Student Advocate. If their concerns cannot be resolved,

students may also use the formal process that follows for the re-assessment of final grades. Once a final grade has been submitted to the Registrar, a student who wishes to have a final grade re-assessed should make a written request to the Registrar and pay the requisite fee of $50 per course. The request must identify the specific component that the student wishes re-assessed and the grounds for the request. The Registrar's Office will then forward the reassessment request to the Faculty of Graduate Studies. Such requests must be made by:

Fall term courses	March 1
Winter and regular session (Sept - Apr) courses	July 1
May - June courses	Sept 1
May - August courses	Nov 1
July - August courses	Nov 1

The reassessment will be conducted according to procedures developed for this purpose by the faculty/school/college. 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. A written notification of reassessments with reason should be returned to the Faculty of Graduate Studies no later than 45 days after receiving the request. If the reassessment results in the assignment of a grade that is different (higher or lower) from the original one, the new grade will replace the original one and the $50 will be refunded.

Note that graduate students can only request a grade assessment for written assignments and examinations.

Students who wish information about grade re-assessment procedures should contact their faculty/school/college office.

Pass Standard

1. Faculty of Graduate Studies regulations stipulate that graduate students must achieve a minimum grade of "B-" in all courses required for their degree program. Any lower grade will be recorded as a failure. A student who fails to meet these requirements in any year is immediately and automatically withdrawn (academically dismissed) from the program. A dismissed student may apply, in writing, to the department for reinstatement, (see section 5.2.6 Readmission of Students). Reinstatement to a program after a failing grade must be supported by the Graduate Coordinator, and must be approved in writing by the Faculty of Graduate Studies. If readmitted, any subsequent "F" will result in a final program dismissal. Note that academic withdrawal and reinstatement will be recorded on the student's official transcript. Students in these programs who receive two grades of "F" will receive a final program dismissal and will not be eligible for reinstatement.
2. In Architecture, Business Administration, Computer Science, Engineering (except Biomedical Engineering), Electronic Commerce, Library and Information Studies, Public Administration, Occupational Therapy MSc (Occupational Therapy-Post-Professional) programs only, students are allowed to carry a failing grade for one course. The MSc (OT) Entry to Profession level program cannot carry a failing grade. Failed core courses must be repeated, electives may be repeated or replaced at the discretion of the department. Failure of a second course results in immediate academic dismissal. A dismissed student may apply, in writing, to the department for reinstatement (see section 5.2.6 Readmission of Students). If readmitted by the department, with the approval of the Faculty of Graduate Studies, a subsequent "F" will result in a final program dismissal. Note that any academic withdrawal and reinstatement will be recorded on the student's official transcript. Students in these programs who receive three grades of "F" will receive a final program dismissal and will not be eligible for reinstatement.

7.6.3 Ancillary Courses

Undergraduate courses recommended by a department as advisable additional background to a graduate degree program, but not specifically required for that program, are termed ancillary courses and must normally be taken in a department other than the one in which the student is registered. The pass grade in ancillary courses is the same as for all graduate course requirements. Ancillary courses must be listed on the Graduate Student Information System, but do not count towards the required number of courses for the graduate program. Normally students are limited to one ancillary course (six credit hours) during their program. Students who take ancillary courses on a Letter of Permission are responsible for the tuition fees at the other institution.

Students are not permitted to register for undergraduate courses that are not part of their program requirements, unless they do so as a "Special Student Undergraduate" (SSUG) with program and Faculty of Graduate Studies approval. Courses taken as an SSUG must be admitted, registered and paid for separately. SSUG courses will appear on the student's transcript under the distinct heading of Special Student Undergraduate, and these will not be included as part of the student's graduate program.

7.6.4 Audits

Students may take one audit (equivalent of 6 credit hours) in each residency year of their formal program. Audits must be listed as program requirements in GSIS, must be relevant to the student's program of study, and must have departmental and the Faculty of Graduate Studies approval. For program fee students, audits not approved as part of their program of study will be subject to additional tuition on the student's account. Per-course fee students will be charged the normal audit tuition for each audit registration. Audits cannot be taken on a Letter of Permission and will not be approved as part of a Qualifying program.

7.6.5 Independent Study, Directed Readings, and Special Topics Courses

Students may not register for more than two independent study, directed readings, or special topics courses in any graduate program, and such cases require written approval of the Graduate Coordinator of the unit.

Each student will be provided with a course outline by the instructor. In order to complete the course satisfactorily, a student must fulfill all the requirements as set down in the course outline. By the end of the first week of class, the Independent Study / Directed Reading / Special Topics form must be submitted to the Faculty of Graduate Studies and placed in the student's file. Changes to the outline that affect assessment components, the weight of individual assessment components, or examination requirements with a value of 10% or more must have the approval of the enrolled student(s) in order to be valid and must also be sent to Faculty of Graduate Studies for the student file no later than four weeks after the beginning of the term in which the course is conducted.

When collaboration is included as part of course expectations, as in group projects or group assignments, the instructor will provide in the course outline a statement of the degree of collaboration permitted in the preparation and submission of assignments.

7.6.6 Letters of Permission

(i) Courses approved by the department and Faculty of Graduate Studies (after examination of course descriptions) can be taken at other universities as part of the graduate degree program, provided the course is not available at Dalhousie.

Students in good academic standing, with no holds on their registration may receive permission to take courses for credit at another university. For the graduate student letter of permission form and guidelines, see www.dal.ca/grad/currentstudents/forms/

Students may not take courses outside Dalhousie for graduate credit unless prior approval has been given by the Faculty of Graduate Studies. Courses are never approved retroactively.

The maximum number of courses taken outside Dalhousie University shall normally be confined to 33% of the course requirements, except in cases where a university-level agreement, governing specific cooperative arrangements, has been negotiated and is in operation.

The normal regulations governing grading policy (section 7.6.2) apply to courses taken at other institutions (*e.g.* a C+ on a graduate course taken elsewhere will be deemed an “F” in the student's program and may render him/her liable to academic withdrawal). Students who fail a course may not replace that course as Letter of Permission except by special permission from the Faculty of Graduate Studies.

Dalhousie will normally pay the tuition for students who pay a program fee to take courses offered at other Maritime universities, to the equivalent cost of a Dalhousie course, provided the course is not available at Dalhousie. Any charges above that amount are the responsibility of the student. Students who are required to take courses at other institutions outside the Maritimes will be considered on a case by case basis, (*e.g.* if the course is a necessary component of a student's program). The tuition for an approved course taken at a university outside the Maritimes is normally the responsibility of the student.

Students who receive approval to take courses at institutions within or outside the Maritimes for convenience or for non-academic reasons do so at their own expense. See regulation on concurrent registration (see section 5.4) whereby a student is required to receive approval to take any courses outside their degree requirements.

Graduate students who pay a program fee must be registered at Dalhousie and have paid appropriate fees before receiving approval.

Students who pay on a per-course fee basis are responsible for paying fees for courses taken outside Dalhousie.

(ii) Credit Courses at Non-Canadian Universities

Grades received at an international institution will be recorded on the student’s Dalhousie record as either “Pass” or “Fail”.

(iii) Graduate International Exchange and Study Abroad Programs

A number of graduate programs enable Dalhousie University students to pursue part of their studies in another country and culture. These are coordinated by the Study Abroad and Exchange Advisor in the International Centre (IC). Additional information is available at www.isd.dal.ca.

7.6.7 Withdrawal From Courses

The last dates for adding and deleting courses are published in the schedule of Academic Course Add/Drop Dates at the front of this calendar.

Students may not transfer from full to part-time status by withdrawing from courses after the deadlines listed in the schedule of Academic Course Add/Drop Dates.

A course may be added or dropped on the web at www.dal.ca/online by the deadline listed in Academic Course Add/Drop Dates) of academic dates/deadlines).

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

Non-attendance does not, in itself, constitute withdrawal. Withdrawals are effective when a student withdraws from courses on the web at www.dal.ca/online or written notification is received at the Faculty of Graduate Studies.

7.6.8 Incomplete Courses

A student who fails to complete the required work for a particular course during the normal period of the course will receive a grade of "F". However, where circumstances warrant, a grade of "Incomplete" (INC) may be assigned. Subsequent completion of the work following the end of the course may result in a change of grade by the course instructor, as long as the work is completed before the following deadlines:

Fall term courses..... February 1
Winter and Regular (September-April) term courses..... June 1
May-June courses..... August 1
May-August courses..... October 1
July-August courses..... October 1

MBA(FS) - Please consult departmental entry.

For GPA purposes a grade of INC holds a credit value of 0.0.

After these deadlines, an "INC" cannot be changed without permission of the Faculty of Graduate Studies.

Where the formal deadline for completion of work is beyond the INC deadline, the course instructor can request the Faculty of Graduate Studies extend the INC for an approved period of time.

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

All outstanding grades, including ILL or INC, must be addressed before registration for the next term.

7.6.9 Incomplete due to Illness

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

All outstanding grades, including ILL or INC, must be addressed before registration for the next term. If grades are still outstanding into the next term and no arrangements have been made, students may be required to re-register in the course.

7.6.10 In Progress Courses

The grade of "In Progress" (IP) may be used only to report thesis courses, research project courses, courses designated as "open to independent completion of study", and seminars requiring continuous registration until degree completion. Students must continue to register for the course each term until a final grade has been assigned.

7.6.11 Academic Standards

When the work of a student becomes unsatisfactory, (including insufficient progress), or a student's attendance is irregular without sufficient reason, the Faculty of Graduate Studies may require withdrawal from one or more courses, or academic dismissal from the Faculty.

VIII. Examinations

There are five types of examinations for graduate students:
1. Course Examinations;
2. Qualifying or Preliminary Examinations,

3. Comprehensive Examinations;
4. Thesis Proposal Examinations (Defences); and
5. Thesis Examinations (Defences).
This section deals with 1., 2., and 3. Thesis examinations are covered in Section 10.

8.1 Course Examinations

Examinations will normally be the method of grade assessment in graduate courses. There are no supplementary examinations for Graduate Students. For further information on the grading scheme and the regulations governing examination grading see section 7.6.2.

8.2 Qualifying or Preliminary Examinations

Some Doctoral programs require Qualifying or Preliminary Examinations. These occur early in the Doctoral program (often within the first year) and are sometimes used to assess the transfer of a student from a Master's to a Doctoral program. The exam may take the form of the presentation and defence of a Doctoral research project, or it may involve a written or oral examination.

8.3 Comprehensive Examinations

These examinations in the candidate's area of study are part of Master's degree programs in some departments and all PhD degree programs. Refer to particular departmental entries for details. It is the responsibility of departments to make the necessary arrangements for these examinations. Comprehensive exams should only be taken after the completion of all required coursework.

The Comprehensive Examination may be oral, written, or both and covers subjects relevant to the general area of the candidate's research and teaching competency. Departments are required to set out their rules on PhD examinations in writing and to give a copy to each PhD student on or before registration and to the Faculty of Graduate Studies if the Departmental handbook provides insufficient detail. Failure to pass will result in academic dismissal. However, on the recommendation of the department a student may be re-instated and permitted to repeat the examination (once) within twelve months of re-instatement. The Faculty of Graduate Studies must be notified immediately upon the successful completion of the examination process, and the result becomes part of the student's official record.

8.4 Thesis Proposal Defence

Some thesis programs require a formal defence of a thesis proposal/proposition. Such defences are considered a form of graduate examination. The thesis Proposal Defence may be oral, written, or both. During such an examination a student should defend a proposed thesis question and the method(s) required to answer that question, and prove that they have the depth of knowledge needed to answer the question. Departments are required to set out their rules on Thesis Proposal Defences in writing and to give a copy to each student well before the examination.

8.5 Academic Accommodation for Students with Disabilities

See the Accommodation Policy for Students in the University Regulations section of this calendar.

IX. Thesis Supervisors and Supervisory Committees

All thesis students must have a Supervisor (or two Co-supervisors) and a Supervisory Committee. In many departments, especially in the natural Sciences and Engineering, the appointment of a supervisor is a pre-requisite for admission into the program. All graduate research projects must have an Advisor who supervises the project work and thus acts as an effective supervisor. In some departments, graduate research projects also require an Advisory or Guiding Committee.

The membership and changes of these committees are part of the student's program requirements in GSIS.

9.1 Qualifications of the Supervisor

A thesis Supervisor or Co-supervisor must be a member of the Faculty of Graduate Studies. Regular members may supervise/co-supervise students in their unit of appointment and may do so in other units upon seeking a Cross Listing. Adjuncts may only co-supervise students in their unit of appointment. The tables entitled Serving on a Supervisory Committee, given below, define explicitly the permissions to Supervise or Co-supervise.

Serving on a Supervisory Committee (Unit of Appointment)

Appointment	Type of Committee	Supervisor	Co-supervisor	Serve on Committee
Regular Member	PhD	Yes	Yes	Yes
	Master's	Yes	Yes	Yes
Adjunct (FGS)	PhD	No	Yes	Yes
	Master's	No	Yes	Yes
Adjunct (Scholar)	PhD	No	No	Yes (one only)*
	Master's	No	Yes (one only)*	Yes (one only)**

* In this case, an Adjunct (Scholar) must hold a PhD or professional equivalent and can serve on only one committee in total
** In this case, an Adjunct (Scholar) must hold at least a Master's or professional equivalent and can serve on only one committee in total

Serving on a Supervisory Committee (non-Appointment Unit)

Appointment	Type of Committee	Supervisor	Co-supervisor	Serve on Committee
Regular Member	PhD	Needs Cross*	Needs Cross*	Yes
	Master's	Needs Cross*	Needs Cross*	Yes
Adjunct (FGS)	PhD	No	Needs Adjunct**	Needs Adjunct**
	Master's	No	Needs Adjunct**	Needs Adjunct**
Adjunct (Scholar)	PhD	No	No	No
	Master's	No	No	No

* Needs Cross = cross listed in non-appointment unit is necessary
** Needs Adjunct = Adjuncts must seek an additional appointment as an Adjunct in the non-appointment unit

Depending on the unit, experience on supervisory or examining committees, teaching graduate courses, or acting as a co-supervisor may be necessary before undertaking the role of thesis or project supervisor. Most natural science and engineering departments require faculty research funding as a criterion for supervision. All programs must maintain a copy of their criteria for supervision.

A Doctoral student must be supervised by a faculty member with a PhD or its equivalent, and a Master's student must be supervised by a faculty member with at least a Master's degree or its equivalent. Equivalency must be based on a faculty member's record of research activity and supervisory experience. In the case of co-supervision of a PhD student, at least one of the supervisors must have a Doctoral degree or its equivalent (or in the case of a Master's thesis, a Master's degree or its equivalent). See section 1 for membership.

9.2 Co-supervision

The Faculty of Graduate Studies recognizes four types of co-supervision:

1. that dictated by regulation 9.1 above where a co-supervisor is added because the other supervisor does not have an appropriate academic qualification (e.g. a Doctoral degree or equivalent);
2. that which arises from the desire of a student to draw equally upon the expertise of two individuals, or where an interdisciplinary project may require the equal expertise of two supervisors from different disciplines;
3. that which introduces a new faculty member to the standards of the department by providing an opportunity to work with an experienced supervisor; and
4. that which conforms to the Faculty of Graduate Studies practice regarding external supervisors or supervisors not from the student's department or program. An Adjunct faculty member may be the academic co-supervisor of a Dalhousie student provided the student also has an internal co-supervisor who is a Regular Member of the Faculty of Graduate Studies.

9.3 Supervisory Committees

All units will maintain supervisory committees for graduate students in thesis programs. All members of supervisory committees are Regular, Adjunct (FGS) or Adjunct (Scholar) members of the Faculty of Graduate Studies. All thesis candidates shall have one supervisor or two co-supervisors and at least two additional members, at least one of whom is from the student's graduate department. Regular members should constitute no less than 50% of the membership of a supervisory committee. The tables entitled Serving on a supervisory committee, given in Section 9.1, define explicitly the permission to serve on supervisory committees. Supervisory committees are selected by the supervisor in consultation with the student. A supervisory committee should complement the expertise available to the student in completing their research program. The membership of all supervisory committees must be recorded in GSIS, and changes to membership must be submitted on the student's program update form and recorded by the department in GSIS.

Supervisory committees should meet at least twice a year during the thesis research period and more often in the writing stages of a student's program. Normally the agreement of all committee members is required before a department brings forward a thesis for examination.

9.4 Guidelines for the Supervision of Graduate Students

The responsibilities and rights of students, supervisors and departments outlined in the sections below have been developed for students in thesis programs; however,

where appropriate units are encouraged to adopt these practices for project students and their supervisors.

9.4.1 Selection of Supervisor

In disciplines that do not assign supervisors at the time of admission, the selection of a supervisor should be based primarily upon competence in the field of the proposed thesis topic. Within this restriction, the department should seek to accommodate the student's choice of supervisor, although it is not obliged to guarantee the choice. Departments are expected to maintain guidelines for determining the number of thesis supervisions a faculty member can concurrently undertake.

In units where students are not normally admitted until their research areas have been identified and faculty members have agreed to supervise them, a potential difficulty should be drawn to the attention of new students: some restriction of students' freedom to follow their own lines of research may result from dependence upon supervisors' research grants for a significant portion of their income. When such conflicts of interest arise, the graduate coordinator and the candidate's supervisory committee should play a significant role in overseeing the development of the research and in protecting the student against over-specialization.

9.4.2 Responsibilities of Supervisors

When faculty members accept the supervision of graduate students, they assume several responsibilities:

- to provide reasonable access to their student(s) and to be available for consultation at relatively short notice;
- to be as helpful as possible in suggesting research topics and in assisting students to define their theses;
- to tell students approximately how long it will be before written work, such as drafts of chapters, can be returned with comments;
- to be thorough in their examination of thesis chapters, supplying, where appropriate, detailed comments on such matters as literary form, structure, use of evidence, relation of the thesis to published work on the subject, footnoting, and bibliographical techniques, and making constructive suggestions for rewriting and improving the draft;
- to indicate clearly when a draft is in a satisfactory final form or, if it is clear to the supervisor that the thesis cannot be successfully completed, to advise the student accordingly;
- to know the departmental and University regulations and standards to which the writer of a thesis is required to conform, and to make sure that the student is aware of them;
- to continue supervision when on leave, possibly with arrangements also being made for members of the supervisory committee to assist the student for the leave period;
- to advise and help the student to approach other faculty members for assistance with specific problems or even to request the reading of a chapter or section of the thesis;
- to see that all ethics and animal care approvals, as appropriate, are secured.

9.4.3 Responsibilities of Students

When graduate students undertake the writing of a thesis, they assume several responsibilities:

- to choose a topic (with the supervisor's aid and advice) and to produce a thesis that is essentially their own work;
- to produce a thesis that meets the standards of scholarship required by the University and the department, including demonstration of their capacity for independent scholarship and research in their field;
- to acknowledge direct assistance or borrowed material from other scholars or researchers;
- to realize that the supervisor has undergraduate or other duties which may at times delay the student's access to the supervisor at short notice;
- to give serious and considered attention to advice and direction from the supervisor;
- to submit their work to the judgment of the department and to abide by its decision when any rights of appeal, if exercised, have been exhausted;
- to know the departmental and University regulations and standards to which the writer of a thesis is required to conform;
- to comply with all ethics and animal care requirements.

9.4.4 Rights of Supervisors

Supervisors have the following rights:

- to expect students to give serious and considered attention to their advice concerning what they regard as essential changes in the research and thesis;
- to terminate supervision and advise the student to find another supervisor where evidence shows the student does not heed advice and ignores recommendations for changes in the research and thesis, or if the student is not putting forth a reasonable effort;
- to have their thesis supervision properly credited by the department as an intrinsic part of their workload so that, in the assignment of duties, they are not overburdened to the point of having their effectiveness impaired as supervisors;
- to have the thesis-writer acknowledge, by footnoting, all portions of the supervisor's own research over which the supervisor wants to retain future rights of authorship;
- to have thesis-writers give permission for the results of their research to be used for the benefit of a larger project when they are working as assistants with their supervisor on research that is part of such a project — this is always with the understanding that students will retain scholarly credit for their own work

and be given acknowledgment of their contribution to the larger project.

9.4.5 Rights of Students

Students have the following rights:

- to have a clear understanding of what is expected in thesis writing (expected length, acceptable methodology, validity of topic, notification of progress);
- to expect help from their supervisor in establishing a feasible topic, in solving problems and assessing progress as the thesis is being written;
- to receive a fair assessment of the completed thesis and explanations of negative criticism;
- to be allowed to have a new supervisor when they can offer convincing reasons to the department for the change and the change can be reasonably accommodated by the department;
- to be protected from exploitation by their supervisor or other faculty members if the latter should:

a) intrude upon the student's right of authorship or fail to give a student authorship credit for team research (where applicable, the department's protocols on authorship should be provided to students before they embark on research), or
b) divert the student's efforts from the timely completion of the thesis;

- to submit a thesis even if the supervisor is not satisfied, although such action should be taken only in extreme cases and after full consultation with the department.

9.4.6 Responsibilities of the Department

Departments have certain responsibilities in supporting and maintaining their graduate programs:

- to provide necessary facilities and supervision for each student admitted, and not to accept more candidates than can be offered effective supervision; therefore departments should consider carefully such matters as faculty retirements, sabbatical leaves, teaching loads, and library resources before admitting each student with a declared research interest. When, as is often the case in many disciplines, applicants are unable to choose a field of research until they have had some experience in graduate study or in a particular department, the department should still regulate admissions according to the number of faculty members available for supervision;
- to uphold a high academic standard for theses;
- to provide adequate supervision at all times, so that, when a supervisor leaves the University for another permanent position, substitute arrangements are made as soon as possible;
- to allow students to change supervisors if their research interests shift or develop in a new direction and a change of supervisor will not deprive them of financial support and if the change can be reasonably accommodated by the department;
- to provide procedures which assist and encourage students to complete the thesis, such as early review and approval of topic and methodology, guidelines on access and appeals, oversight of the students' schedule, and a clearly stated system of thesis review and evaluation;
- to regard supervision of graduate students as a major consideration in making replacement appointments for faculty;
- to encourage students to give papers as they proceed, so that they can test their ideas on a wider audience than the supervisory committee;
- to ensure that the graduate coordinator acts as a general overseer of student progress;
- to instruct all students (or see that they attend Faculty-level workshops) on research ethics.

X. Thesis Regulations

10.1 Ethical Review

All research undertaken at Dalhousie University must comply with current institutional policies regarding responsible conduct of research, including ethics requirements for research involving humans or animals. The policies on human and animal ethics are accessible through the Research Services - Ethics Review webpage.

10.2 Preparation of Manuscript and Submission of Theses

Thesis manuscripts must be prepared in accordance with Faculty of Graduate Studies guidelines at www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/format.html.

10.2.1 Preparation of Graduate Theses

All graduate theses, whether for Master's or Doctoral, must be completed according to the formal Faculty of Graduate Studies regulations for thesis preparation and submission. Failure to do so may cause delays in completion and may even result in the cancellation of a scheduled defence or examination.

10.2.2 Thesis Originality and Editing

The thesis must represent a coherent body of original work by the student. It must display a scholarly approach and thorough knowledge of the subject.

Plagiarism in any form is unacceptable (plagiarism.dal.ca/).

In some disciplines it may be appropriate for the thesis to include published or submitted manuscripts, papers, or reports authored or co-authored by the student. Students who wish to pursue this option must have the prior consent of their supervisory committees and must obtain appropriate copyright permission.

It is expected that the student has made a substantial contribution to any such manuscripts. Where co-authored manuscript(s) are included in the thesis, the student's contribution must be clearly indicated (www.dal.ca/faculty/gradstudies/currentstudents/thesisanddefences/forms.html). The publication or acceptance of such manuscripts before the thesis defence in no way supersedes the examination committee's evaluation of the work, including requesting revisions.

The thesis is the primary and permanent record of the student's work. As such, it is important that it both be written by the student (with appropriate editorial advice as needed) and conforms to normal academic standards. Assistance in improving writing skills is available at both the faculty and university levels (e.g. Writing Centre www.dal.ca/writingcentre

10.2.3 Submission and Registration Deadlines

All thesis students must refer to the Schedule of Academic Dates in this calendar for submission deadlines and registration deadlines.

Students must be registered for the term in which they present their approved electronic theses to the Faculty of Graduate Studies Office, as well as for the term in which they have their defence. Students will not be permitted to submit their thesis or proceed to defence unless they are appropriately registered and all fees have been paid.

Deadlines for the submission of fully completed and approved theses (following examination and revision) are final in all cases. Failure to meet the deadlines will result in additional registration fees.

It is the responsibility of the student to ensure that all regulations have been met. Failure to comply with the regulations can result in delay in graduation.

10.3 Master's Theses

Completed theses for the Master's degree must be presented no later than the published deadlines (see Academic Dates).

10.3.1 Master's Examination

The mode of supervision and examination of Master's theses varies among departments. This diversity recognizes differences in the nature of theses within Master's programs and differences in the culture of thesis examination within different disciplines at the Master's level. The Faculty of Graduate Studies requires the following minimum arrangements for the examination of Master's theses.

10.3.2 Master's Thesis Examining Committee

Each Master's thesis shall be examined by an Examining Committee, following the criteria given below:

1. There shall be a Chair, usually the Graduate Coordinator or designate, who is not a participating member of the Supervisory Committee, and whose duty is to ensure that the exam is appropriate and fair and to submit a report as noted below. The Chair is not an examiner.
2. The table below summarizes these minimum requirements and the examiners status with the Faculty of Graduate Studies. Additional examiners, who may or may not be members of the Faculty of Graduate Studies, are permitted beyond these minima.

	Single Supervisor	Co-supervised
Chair (independent)	1 (Grad. Co-ordinator or designate with Regular FGS membership)	1 (Grad. Co-ordinator or designate with Regular FGS membership)
Minimum Examiners	1 Supervisor with Regular FGS* Membership	1 Co-supervisor with Regular FGS* Membership
	1 Reader with Regular FGS Membership*	1 Co-supervisor with FGS Membership*

	1 Reader with FGS Membership*	1 Reader with Regular FGS Membership* 1 Reader with FGS Membership*
Minimum Total	4	5

* See Section I of this Calendar

1. Voting: Only examiners with a Faculty of Graduate Studies appointment may vote on the outcome of an examination and sign the Master's Thesis Approval Form
2. Defence format: The examination of a Master's thesis may be conducted either by oral or written defence.
   a) Oral Defence: In the case of an oral defence, it shall be public and the defending student must be in physical attendance of the examination. The standard procedure for an oral defence shall be a short presentation by the student; questions from the thesis committee (one or more rounds); *in camera* deliberation by the committee and agreement on the evaluation; presentation of the results of the exam to the student. If time permits, questions from the audience may be allowed before the *in camera* session.*b) Written Defence:* Examination by written submission must provide for the candidate to be able to respond to the comments, criticisms and recommendations of the Examining Committee through the exchange of written commentary.
3. Outcomes: all thesis are either approved or not approved. The categories are: a) approved as submitted; b) approved upon specific corrections with a clear timetable for completion, normally within one month; c) rejected but with permission to re-submit a revised thesis for re-examination with a clear timetable for completion, within one year; and d) rejected outright.
4. Reporting: The examination Chair shall submit a written report to the Chair and Graduate Coordinator of the department concerned. In the case of an outright failure or failure with a right to submit by a specific date, the Graduate Coordinator must send an additional written notification of failure to the Faculty of Graduate Studies.
5. Electronic Submission: See Electronic Submission of Final Thesis (see section 10.7).

10.3.3 Departmental Modifications

The above regulations with regard to Master's Thesis Examinations (see section 10.3.1B) constitute the minimum requirements of the Faculty of Graduate Studies. Departments may add further requirements but such additions must be approved by the Faculty of Graduate Studies Faculty Council and Senate.

10.4 Doctoral Theses

Doctoral theses must display original scholarly work, expressed in satisfactory literary form, consistent with the discipline concerned, and be of such value as to merit publication.

10.5 Deadlines for Graduation

Students must apply to graduate using the Intent to Graduate form by the published deadlines.

For thesis students the published deadlines for the final approved thesis to the Faculty of Graduate Studies Office in order to be eligible to graduate in May or October are final in all cases.

10.6 Regulations for the Defence of a Doctoral Thesis

All Doctoral theses must be examined in a public oral defence, to be conducted by an examining committee, recommended by the department and approved by the Faculty of Graduate Studies. A candidate shall not be permitted to proceed with the oral defence and examination until all of the following requirements have been met: (i) all required coursework completed successfully; (ii) comprehensive examination passed; (iii) thesis title approved; (iv) Examining Committee established; (v) the style and format of the thesis meets the requirements of the University and appropriate copies of the thesis have been submitted as per regulations and deadlines in paragraphs 1-10 below. Normally a candidate proceeds to oral defence with the approval of the supervisor and Supervisory Committee. A candidate may proceed without the consent of the supervisor and committee, but a signed declaration included on the PhD Thesis Submission Form is required by the Faculty of Graduate Studies.

10.6.1 Doctoral Defence Procedures

1. Appointment of External Examiner:
   On the Request to Arrange Oral Defence of a Doctoral Thesis form, the Chairperson of the Department (or Graduate Coordinator where appropriate) shall recommend to the Associate Dean of the Faculty of Graduate Studies the name of the proposed external examiner that was approved by the Supervisory Committee. Usually, the appointment of an external examiner occurs three months before the anticipated date of defence. The person suggested should be an acknowledged expert in the field or discipline of the research being examined in the thesis, must not have been directly involved in the student's research in any way, should possess a Doctoral degree or equivalent, and should have demonstrated experience of Doctoral supervision to degree completion and examination. Evidence of these qualifications must be explicit in the C.V. submitted for the proposed external examiner. The choice of the external examiner must be approved by the Faculty of Graduate Studies. If the first choice external examiner is unacceptable to the Faculty of Graduate Studies or if that person is unavailable, the Faculty of Graduate Studies will contact the department and request information for an alternate external examiner. The Graduate

Coordinator may then confirm the availability of the external examiner and propose dates and times for the defence. Once the date and time have been confirmed by the department then the formal invitation to the external examiner is issued by the Faculty of Graduate Studies (see paragraph 6. below).

2. Copies of Thesis Required for Examination: At least six weeks prior to the scheduled defence, the Candidate shall send a PDF copy of both the thesis and their current CV to the Faculty of Graduate Studies Office (

thesis@dal.ca). The PhD Thesis Submission Form and PhD Examination Information Form with original signatures must be sent in hard copy to the Faculty of Graduate Studies. FGS will send the thesis to the External Examiner once the PhD Thesis Submission Form has been received and the date and time of the defence has been determined. The candidate shall also send the abstract from their thesis for publication in a public notice of defence (the abstract must be submitted in Word compatible format to thesis@dal.ca). The candidate is responsible for distributing copies of the thesis to all members of their Examining Committee, except for the External Examiner. If the External Examiner requests a hard copy of the thesis, FGS will send it via courier.

Committee and Department Copies: The other four (or more as required) copies of the thesis will be submitted by the candidate to the departmental Graduate Coordinator, who is responsible for distributing copies to the examining committee (excluding the external examiner). One copy is held in the departmental secretary's office for use by other interested faculty and students. Interdisciplinary PhD students must submit this final copy to the Director of the Interdisciplinary PhD program.
No arrangements will be made for the oral examination until all these requirements are fulfilled. The examination will be held no earlier than four weeks after submission of the thesis, thereby allowing adequate time for the thesis to be read by the external examiner.
The Faculty of Graduate Studies will establish the place for the examination. Wherever possible the Coburg Board Room in the Mona Campbell building will be used.
The Faculty of Graduate Studies will issue a formal invitation to the external examiner and will send a copy of the thesis (see paragraph 2 above) to him/her at least four weeks before the examination, with a request to submit a written appraisal (the Examiner's Report - see paragraph 7) of the thesis no later than one week prior to the date of the defence.
The external examiner will submit by mail, fax, or email, a constructively critical and analytical report (the External Examiner's Report) to the Faculty of Graduate Studies Office at least one week prior to the scheduled date of the defence. The Examiner's Report must include a recommendation on whether or not the thesis should proceed to defence. Where the recommendation is not to proceed, the report should indicate what, if anything, would be required to make the thesis acceptable. Note that a decision to proceed to defence does not imply that the thesis is approved, only that it is acceptable for defence. The external examiner (and the examining committee) will have questions that must be answered to their satisfaction, and a thesis can be rejected as a result of the defence. The Examiner's Report must not be disclosed to the candidate or the Supervisory Committee prior to the defence (however, see paragraph 8. below). Normally the external examiner will attend the defence. A request for remote participation must be approved by the Associate Dean of the Faculty of Graduate Studies. If participation by the external examiner is not possible, the defence should be rescheduled.
If the External does not recommend that the thesis proceeds to examination, then within 12 months, a revised thesis may be resubmitted and sent to either the original external examiner or to a new external examiner, as deemed appropriate by the Faculty of Graduate Studies. A doctoral thesis may be submitted to the Faculty of Graduate Studies for examination no more than twice.
If the external examiner recommends that the thesis proceed to defence, notice of the public defence of the thesis will be published and sent to all relevant departments by the Faculty of Graduate Studies. All interested faculty, students, and members of the public will be welcome to attend.
Variation of the regulations outlined above may be permitted only with the written permission of the Faculty of Graduate Studies.
PhD Examination Committee Minimum Composition:

	Single Supervisor	Co-supervised
Chair (independent)	1 (appointed by FGS)	1 (appointed by FGS)
External Examiner	1 (External to Dalhousie, appointed by FGS)	1 (External to Dalhousie, appointed by FGS)
Minimum Examiners	1 Supervisor with Regular FGS* Membership	1 Co-supervisor with Regular FGS* Membership
	1 Reader with Regular FGS Membership*	1 Co-supervisor with FGS Membership*
	1 Reader with FGS Membership*	1 Reader with Regular FGS Membership*
		1 Reader with FGS Membership*
Departmental Representative	1 (Regular Membership)	1 (Regular Membership)
Minimum Total	6	7

** See Section I of this Calendar. External Scholars may not supervise or co-supervise doctoral students.* See Section 9.1

Voting: Neither the Chair nor the Departmental Representative may vote on the outcome. Only the External examiner, examiners who hold Faculty of Graduate Studies Membership, and the Departmental Representative may sign the PhD Thesis Approval Form.

10.6.2 Oral Examination

The oral examination of a Doctoral thesis is the culmination of the candidate's research program. It exposes the work to scholarly criticism and gives to the candidate the opportunity to defend the thesis in public.

1. Chair of the Defence: The Examination is chaired by a member of the Panel of PhD Defence Chairs.
2. Examining Committee: The examining committee consists of the research supervisor or co-supervisors, at least two additional members (Readers who shall normally have been members of the Supervisory Committee), and the external examiner who shall be from outside the University. A departmental representative (the chair of the department or a designate) is included as a non-voting and non-examining member of the committee.
3. The Departmental Representative attends the public and in camera sessions of defence. The role of the Departmental Representative is to ensure departmental expectations are adhered to and reports such to the Defence Chair.
4. Order of Examination Proceedings: (i) the Chair of the Defence opens the proceeding with a brief description of the protocol; (ii) the candidate is questioned on the thesis following a summary presentation no longer than 20 minutes; (iii) the Chair will give priority to questions from the external examiner and then from the other members of the examining committee in some pre-arranged order; (iv) the audience will then be invited to ask questions; (v) the Chair

adjourns the examination when the examining committee decides that further questioning is unnecessary, and the candidate and all members of the audience are required to leave the room; (vi) the Chair then presides over the examining committee during its deliberations *in camera*; (vii) following the *in camera* session, the candidate is invited back into the room and is informed of the decision of the committee; (viii) the Chair oversees the completion of the PhD Thesis Approval Form as appropriate and completes the Defence Report and returns it immediately to the Faculty of Graduate Studies Office.

5. *In camera* Deliberations and Grading: The decision of the Examining Committee is based both on the thesis and on the candidate's ability to defend it. The thesis is graded "approved" or "not approved". A thesis can be accepted by the Examining Committee as submitted; accepted on condition that specific corrections are made; rejected with permission to submit a revised thesis and re-defend within 12 months; or rejected outright with no possibility of re-submission. Thesis can be rejected on grounds of form as well as content. If specific corrections are required, the thesis will be returned to the candidate with a time limit for the completion of all corrections, normally no more than one month. Specific corrections will usually be left to the satisfaction of the research supervisor.
6. Proceedings in the Case of Rejection: If the thesis is rejected with permission to submit a revised thesis (within 12 months of the first defence), the revised thesis will be re-read by an Examining Committee, at least two of whose members were on the original committee. The thesis shall be submitted to an external examiner who may be the original external examiner if the Associate Dean of Graduate Studies considers this to be desirable. The candidate shall defend the thesis before an Examining Committee in the usual way. If the thesis is rejected again, there will be no third examination. Such a student will be academically dismissed without the possibility of reinstatement.
7. Variation of the procedures stipulated above may be permitted only with the written permission of the Faculty of Graduate Studies.

Anomalies or deviations from the procedures or actions detailed above will be dealt with solely by the Dean of the Faculty of Graduate Studies. The dean(s) of the faculty in which the student is enrolled cannot intercede in matters related to the defence of a thesis (Masters or PhD).

10.7 Electronic Submission of Final Approved Theses

All final, approved Master's and PhD theses-that is, after examination and approval of any required changes-are submitted directly to the Faculty of Graduate Studies as PDF/A files via DalSpace. These files are termed "electronic theses" or "E-theses". The procedures for E-theses approval and submission can be found on the Faculty of Graduate Studies website at:dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/submission.html. It is the student's responsibility to meet Faculty of Graduate Studies formatting requirements for the thesis and to ensure that the thesis has been converted into a compatible PDF/A version. Electronic submission of the thesis must be accompanied by original, paper forms, which are retained on file at the Faculty of Graduate Studies. These include: National Library Theses Non-Exclusive License Form, Thesis Approval Form, Dalhousie Thesis Licence Agreement, and Student Contribution to Manuscripts form (if applicable). All forms must have original signatures.

Within one week of submitting the E-thesis to the Dalhousie Institutional Repository (DalSpace) it is reviewed by the Faculty of Graduate Studies, if it is not approved as complete it will be returned to the student for corrections. Once it is approved as complete it is then committed to the institutional repository and then harvested by Theses Canada, and sent to the National Library, Ottawa. The National Library can then circulate such copy according to the International Inter-Library Loan Code, with full copyright protection for the author. Similarly, E-theses are also stored by DalSpace where they are searchable and available to the public via the Internet.

Faculty of Graduate Studies will not accept or bind paper copies of theses. Students wishing to obtain bound copies for themselves, supervisors, departments, or other parties, are free to do so. Contact information for some thesis binderies may be found on the Faculty of Graduate Studies website at: www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/submission/binding.html.

10.8 Thesis Embargo

When a thesis has been uploaded to DalSpace it will normally be included in the institutional repository and the Library and Archives Canada collection unless there is a compelling reason for withholding it. Students who wish to have their thesis withheld from DalSpace and LAC can request an embargo for up to one year period by completing the Application to Embargo a Thesis form found at www.dal.ca/faculty/gradstudies/currentstudents/thesesanddefences/forms.html. Applications to Embargo a Thesis must be submitted to the Faculty of Graduate Studies before the student submits the thesis to DalSpace.

In certain cases an extension can be requested. Requests must be in writing to the Faculty of Graduate Studies at least three months before the expiry of the initial one year embargo. The request must include a detailed explanation of the reason for the additional one year hold.

XI. Convocation

Convocation ceremonies are held in May and October.

11.1 Applying to Graduate

Apply to graduate throughwww.dalonline.dal.ca by December 1, for May Convocation and by July 1 for October Convocation. Dates and information are available on the Convocation websitewww.dal.ca/convocation. A $50 fee will be charged for applications submitted after the deadline. Applying to graduate is a requirement to graduate.

In the event that a student has applied to graduate but will not graduate, the student must complete the Request to Cancel Application to Graduate. Students must apply to graduate again by the appropriate deadline in order to be include at a later convocation.

11.2 Letter of Confirmation for Completion of Degree

When a student has fulfilled all the requirements for the degree in advance of the official graduation date, a letter to that effect can be obtained from the Faculty of Graduate Studies. The Confirmation Letter Request Form is located on the Faculty of Graduate Studies website under Current Students/Forms and Documents.

11.3 Conferring of Degrees

Successful candidates for degrees are invited to appear at convocation in the proper academic dress to have the degree conferred upon them. Any graduating student who is unable to appear at the convocation is expected to notify the Registrar in writing before May 4 for the Spring Convocation, or September 15 for Fall Convocation, giving the address to which the degree or diploma is to be mailed.

Detailed information regarding the upcoming ceremony dates, location, dress etc. is available on the Convocation website www.dal.ca/convocation

11.4 Academic Dress

Graduates of the University are entitled to wear gowns and hoods of black material. The distinctive part of the costume is the lining of the hood, which for the various degrees currently offered are as follows:

- JSD: Black gown faced with Olympic blue silk bordered with yellow silk; black corded hood silk/lining of Olympic blue silk and bordered with yellow silk; birretum is black velvet with blue and yellow cord
- LLM: Purple silk
- MA: Crimson silk
- MArch: White/two parallel stripes of red corded border
- MArch (Post-Prof.): White/vermilion border
- MAHSR: White silk/sky blue border with white piping
- MACSc: Emerald green/gold border with white piping
- MASc: Blue/gold border with white piping
- MBA: Turquoise silk
- MCSc: Emerald green/gold border with white piping
- MDE: Medium blue/scarlet border
- MEC: Emerald green/purple border with turquoise piping
- MEDS White/three parallel stripes of white and vermilion corded border
- MEng: Blue/gold border
- MES: Brown silk
- MHA: Sky blue silk/white border
- MHI: Scarlet silk/emerald green border
- MIM: Mint green satin/white border
- MJ: Royal blue/royal blue border with white corded piping
- MLIS: Mid-forest Green silk
- MMM: Navy silk/seagreen border
- MN: Apricot silk
- MPA: Sky Blue silk
- MPer: Gold silk/scarlet silk border
- MPLAN: Peacock blue/green corded border
- MREM: Brown silk/white border
- MSc: Scarlet silk
- MSW: Citron silk
- PhD: Black gown faced with yellow silk; black hood with a lining of yellow silk; birretum is the doctor’s bonnet of black velvet with yellow cord.

XII. Appeals

Appeals related to course examinations, qualifying and preliminary examinations, comprehensive examinations, thesis proposal defenses, and Master's thesis defenses are subject to the normal appeals procedures that begin with the unit (program, department, school, Faculty). If not resolved at the home Faculty level, the student may appeal to the Faculty of Graduate Studies on the grounds below. Appeals related to Doctoral defenses should be directed to Faculty of Graduate Studies in the first instance. There are no appeals on admission decisions, or decisions on scholarships, grants or bursaries.

The grounds for appeal are limited to the following:

1. procedural unfairness;
2. bias; or
3. irregularity in procedure.

Once an appellant has exhausted all available and appropriate appeal avenues within their home department and Faculty, s/he may appeal to the Faculty of Graduate

Studies. A written appeal must be submitted to the Dean of the Faculty of Graduate Studies within 60 days following a) the event or circumstances appealed, or b) notification to the appellant of the outcome of the appeal at the unit level, whichever is later. The submission must include:

i) a description of the exact nature of the appeal including a summary of events and chronology
ii) specific details of the alleged unfairness, bias or irregularity; and any other relevant consideration or information
iii) the requested resolution of the appeal.

In an appeals process the student has the right to representation. The student is required to inform the Dean, in writing, if s/he will have a representative presenting the appeal.

Decisions of the Appeals Committee are forwarded to the Dean. Students may appeal the final Faculty of Graduate Studies decision to the Secretary of Senate within 30 working days of the receipt of the Faculty decision. See the Senate Office website at senate.dal.ca/Revised_Senate_const.php

XIII. Departmental and Program Listings

The following entries are designed to provide general information about particular graduate programs. Although general Faculty of Graduate Studies requirements apply to all graduate programs, the methods of fulfilling these requirements vary considerably among Departments.

Detailed, up-to-date information is located in departmental publications.

Each departmental or program entry includes the following information:

1. A list of faculty members engaged in the teaching of graduate courses and/or the direction of graduate research. Faculty members whose major appointments are in other departments are so indicated. In addition, the names of other researchers in the department and adjunct appointees may be listed. Beside each name there may be a list of keywords indicating the major areas of research expertise and interest of the faculty member.
2. A description of facilities available may be included. Some general regulations may be described.
3. A list of admission requirements in addition to those of the Faculty of Graduate Studies. In some cases the minimum requirements outlined in Section 2 are not sufficient for entry into a particular program. Other particular requirements may be listed.
4. A description of degree program requirements includes:

a) Minimum time required to complete the program
b) Coursework required
c) Other academic requirements
d) Thesis requirement
e) Other requirements

5. A representative list of course offerings and brief course descriptions. Not all of the courses will necessarily be offered in a given year.
6. A list of areas of specialization.

XIV. Centre for Learning and Teaching

The Centre for Learning and Teaching (CLT) works in partnership with 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 learning and teaching practices, curriculum planning, services to support the use of technology in education, and institutional policies and infrastructure to enhance the Dalhousie learning environment. (See page 288 for more information about CLT services and resources).

Certificate in University Teaching and Learning: The Certificate program is offered to graduate students by the CLT in collaboration 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 other careers.

CLT also offers a non-credit course: Learning and Teaching in Higher Education (CNLT 5000). This course may be taken as part of the Certificate program, or separately. CNLT 5000 is a seminar course designed to bring together practical and theoretical aspects of learning and teaching in post-secondary settings.

Agriculture

Location:
Building/Room: Graduate Studies Office
Street Address 1: Cumming Hall
Street Address 2: Dalhousie Agricultural Campus
P.O. Box: 550
Truro, NS B2N 5E3
Telephone: (902) 893-6502
Fax: (902) 893-3430
Website: www.dal.ca/faculty/agriculture/programs/graduate-studies.html
Email Address: gradadmissions.agr@dal.ca

Staff

Dean and Principal

Gray, D. R., PhD (Rhodes)

Faculty Graduate Coordinator

Patterson, D. L., dian.patterson@dal.ca

Graduate Program Assistant

Law, M., marie.law@dal.ca

Professors

Asiedu, S. K., BSc (Agr), MSc, PhD (McGill), Plant and Animal Sciences Department. Plant-microbe Interactions, Post-harvest physiology, pathology of horticultural crops, potato physiology, production management. Head
Astatkie, T., BSc, MSc (Addis Ababa), PhD (Queen's), Engineering Department. Time series analysis, linear, nonlinear and nonparametric regression, and design of experiments
Burton, D. L., BSc (Dalhousie), MSc (Guelph), PhD (Alberta), Environmental Sciences
Soil biology and biochemistry, nutrient cycling, soil quality, climate change, greenhouse gases
Caldwell, C. D., BSc (Mt. A), MSc (Dalhousie), PhD (East Anglia), Plant and Animal Sciences Department. Crop physiology, water relations, cereals and oil seeds management, new crop development, and agroecology
Clark, J. S., BA (Guelph), MSc (Saskatchewan), PhD (North Carolina State), Business and Social Sciences Department. Econometrics and time series analysis. Tests of competition under general equilibrium. Statistical and economic aspects of climate change
Duston, J., BSc (Bath), PhD (Aston), Plant and Animal Sciences Department. Finfish Aquaculture and Environmental Physiology
Farid, A. H., BSc, MSc (Shiraz), PhD (Alta), Plant and Animal Sciences Department. Quantitative genetics, animal breeding, population genetics, application of molecular genetics to animal improvement, sheep production and management; selection for disease resistance in farm animals
Fredeen, A. H., BSc (Saskatchewan), MSc (Guelph), PhD (Davis), Plant and Animal Sciences Department. Ruminant nutrition, dairy systems analysis, milk composition, dairy products, greenhouse gas emission, pasture-based dairy production, sustainable, ecological organic dairying
Grant, K. G., BA (Acadia), MA, PhD (Western), Business and Social Sciences Department. Agricultural commodity spot futures and options markets; macroeconomics
Hoyle, J., BA (York), BA (Open Univ, UK), BEd (Dalhousie), MSc (Leeds), PhD (Dalhousie), Environmental Sciences Department. GC-MS, Organic Agriculture, Organosulfur Chemistry, Environmental Chemistry, River Studies, Innovative Teaching Methods
Lada, R. R., BSc (Hort), MSc (Hort) (TNAU, Coimbatore), PhD (Adelaide), Environmental Sciences. Environmental stress physiology and metabolism. Biostress defense molecules, inter and intra-plant communication, environmental regulation of plant development, bulking physiology, resource competition modelling
MacLaren, L. A., BSc (Agr) (Guelph), MSc (Alta), PhD (Calif), Plant and Animal Sciences Department. Bovine reproductive physiology, integrin expression, implantation, embryo development, and estrus synchronization
Nams, V. O., BSc (Toronto), MSc (Alta), PhD (Victoria), Environmental Sciences Department. Spatial scales, landscape ecology, fractal analysis, behavioural ecology, animal movement and mammals
Olson, A. R., BA (Augustana), MSc (Wisconsin), PhD (Alta), Environmental Sciences Department. Botany. Mutualistic, commensal and parasitic symbiotic relationships among flowering plants, anatomy of plant diseases, religious world views and their interaction with natural sciences, sexual reproduction of plants
Patterson, D. L., BSc (Alberta), MSc, PhD (Guelph), Plant and Animal Sciences Department. Biodiversity and Conservation of rare breeds
Percival, D., BSc (Agr), MSc, PhD (Guelph), Environmental Sciences Department. Plant physiology and berry crop production. Environmental regulation of carbon assimilation and metabolism, water relations, soil fertility and plant nutrition and the subsequent impact on plant growth, development, yield and composition
Rouvinen-Watt, K., BSc, MSc, PhD (Kuopio), Plant and Animal Sciences Department. Carnivore nutrition and physiology. Lipid and glucose metabolism, nutritional genomics, metabolic syndrome and diabetes, thermoregulation energy metabolism, nutrient digestion and excretion, feed evaluation. Diet evaluation and dietary

impacts on animal health and performance
Tennessen, T., BA, BSc, MSc, PhD (Alta), Plant and Animal Sciences Department. Applied ethology, domestic animal behaviour, farm animal welfare, green care and the use of farm animals in human therapy
Wang-Pruski, G., BSc (Tian Jin), PhD (Alberta), Plant and Animal Sciences Department. Plant molecular biology and genomics, functional genomics, proteomics, potato genome and gene expression, genetic control of potato tuber quality, genetic and environmental interactions, biotechnology

Associate Professors

Cameron, G. A., BA Hon (St. FX), MA (York), PhD (SOAS), Business and Social Sciences Department. Agrarian political economy, democratization transitions, the politics of East Africa, food security, co-operatives, Canadian agricultural policy
Corscadden, K. W., BEng (Bolton, UK), MSc, PhD (UMIST, UK), PEng (APENS), CEng (IET), Engineering Department. Electrical engineering, energy conservation, process optimization, renewable energy technology
Cutler, G. C., BSc (Memorial), MPM (SFU), PhD (Guelph), Environmental Sciences Department. Insect biology and ecology, insect toxicology, and development of ecologically sound and pragmatic insect pest management programs
France, R., BSc, MSc (Manitoba), PhD (Toronto), Environmental Sciences Department. Watershed management, limnology, ecoforestry, conservation biology, land-use planning, environmental engineering and BMP design
Havard, P. L., BSc (Agr Eng), MSc, PhD (McGill), Engineering Department. Water and energy conservation, instrumentation and computer control, system modelling
Kevany, K., BA (Carleton), MEd, EdD (Toronto), Business and Social Sciences Department. Factors that mediate well-being, resiliency, prosperity, vibrancy and sustainability. Theory and practice of mindfulness and positive psychology and how these enhance well-being. Systems analysis of implications of food choices and strategies to reduce climate change, improve health and increase well-being through production and consumption of whole foods
Lynch, D. H., BSc (Agr), MSc (Agr) (McGill), PhD (Guelph), Canada Research Chair in Organic Agriculture, Plant and Animal Sciences Department. Organic production systems. Nurtrient cycling in agro-ecosystems. Soil organic matter dynamics. Soil microbiology. Legume physiology. Composting and management of manures and organic wastes
Martynenko, A., BSc (Ukraine), MSc (Moscow), PhD (Guelph), Engineering Department. Multi-scale bioinstrumentation, real-time imaging, computer vision, food processing technologies, process engineering
Pitts, N. L., BSc (Agr), BEd, MAdEd (St. FX), MSc (McGill), PhD (Guelph), Environmental Sciences Department. Food chemistry, food quality, food safety, modified atmosphere packaged food, chemical analysis of essential oils
Price, G. W., BSc (BC), MSc, PhD (Guelph), Engineering Department. Alternative uses of organic by-products, nutrient management, management of specified risk material (SRMs), soil organic matter dynamics, soil nitrogen dynamics
Prithiviraj, B., BSc (Agr) (Annamalai), MSc, PhD (BHU), Environmental Sciences Department. Plant stress physiology, marine bio-products in animal and plant health, plant-microbe interactions, plant pathology, natural anti-infective compounds
Pruski, K. W., BSc (Warsaw), MSc (Alberta), PhD (Wageningen), Plant and Animal Sciences Department. Plant Propogation. Fruit horticulture (small fruit crops and tree fruit crops), plant physiology, plant propagation, plant tissue culture, post-harvest physiology
Rupasinghe, H. P. V., BSc (Peradeniya), MSc (Iowa), PhD (Guelph), Canada Research Chair in Fruit Bioactives and Bio products. Environmental Sciences Department. Bio-products, functional foods, nutraceuticals and natural health products; phytochemicals and human health; postharvest biotechnology, shelf-life and quality
Russell, S. G., BSc (Agr) (Guelph), MBA (St. Mary's), PhD (Bradford), Business and Social Sciences Department. Micro and small enterprise management including strategic marketing, financial management, human resource management and operations management. Family business issues such as succession and financing. Entrepreneurship in international settings, including international project management
Somogyi, S., PhD (Adelaide), B Wine Mark. Business and Social Sciences Department. Agribusiness management including value chain management, agricultural product marketing, and business to business marketing strategy, particularly in the wine and horticulture industries
Udenigwe, C. C., BSc (Hons) (Nigeria), MSc, PhD (Manitoba), Environmental Sciences Department, Food biosciences, functional foods and nutraceuticals in health promotion, food biopolymer chemistry, analytical nanotechnology in food and agriculture
Yiridoe, E. K., BSc (Univ of Science and Technology, Ghana), MSc, PhD (Guelph), Business and Social Sciences Department. Agricultural production economics, farm and agribusiness management and natural resource and environmental economics
Zaman, Q., BSc, MSc (Univ of Agriculture Faisalabad), PhD (Univ of Newcastle upon Tyne), Engineering Department. Precision agriculture, GPS, GIS, Sensors, remote sensing, VPT

Assistant Professors

Barrett, D. M. W., BSc (Memorial), MSc, PhD (Saskatchewan), Plant and Animal Sciences Department. Ruminant reproduction, endocrino logy, gonad, seasonality, puberty, and controlled breeding
Dukeshire, S. R., BComm, BA (St. Mary's), MASc, PhD (Waterloo), Business and Social Sciences Department. Media framing of agriculture and aquaculture; dietary decision making
Hammermeister, A. M., BSc (Saskatchewan), MSc, PhD (Alberta), Plant and Animal Sciences Department. Organic agriculture and organic cropping systems, soil fertility and management, land reclamation, cropping systems; cereals, oilseeds and small bush fruits
Hartt, C. M., BA (Dalhousie), MBA, PhD (St. Mary's), Business and Social Sciences Department. Critical Management studies, Business history, Native American, Aboriginal and Indigenous Persons in Organizational studies, Decision making, Acton-Network Theory, Critical Sense making, strategy
He, Q., BSc, MSc (ECUST, China), PhD (Western), Engineering Department, Biofuels, Nanocatalyst, separation of chiral molecules, crystallization, polymorphism of APIs
Lu, J., BA (Renmin), MA (Beijing Normal), PhD (McGill), Business and Social Sciences Department. Consumer eating behavior. Dietary consumption decision making Agri-food business marketing. Public health policy on healthy eating
McLean, N., BSc (Agr), MSc (Macdonald), PhD (Dalhousie), Plant and Animal Sciences Department. Plant genetics and field crop management
Montanholi, Y., MSc (Universidade Federal do Rio Grande do Sul, Brazil), DVM (Universidade do Estado de Santa Catarina, Brazil), PhD (Guelph), Plant and Animal Sciences Department. Beef cattle husbandry, energy metabolism, feed efficiency, theriogenology, grazing production systems, greenhouse gases, genomics
Myles, S., BA (St. Thomas), MSc (Oxford), PhD (Leipzig), Plant and Animal Sciences Department. Agricultural Genomics, with emphasis on apples and grapes
Nguyen-Quang, T., BSc (Eng), MSc (Grenoble), PhD (Mediterranean), PhD (Eng) (Montreal), Engineering Department. Mathematical models for biological processes, biofluids and biosystems modeling, fluid dynamics and transfer phenomena in soils and water, PIV method
Niu, H., BEng (Xi'an Univ Arch Tech, China), MEng, PhD (Memorial), Engineering Department, Fate and transport of contaminants in the environment, watershed

modeling and management, irrigation, drainage and water table management, effects of climate change on agriculture water resources
Stewart-Clark, S., BSc (Hon), MSc, PhD (UPEI), Plant and Animal Sciences, Shellfish aquaculture, shellfish molecular biology and genomics, shellfish gene expression under environmental stressors, aquatic invasive species, aquatic ecology, invasive tunicate genetics, population genetics, biotechnology

Adjunct (FGS)

De Koeyer, D., BSc (Agr) (Guelph), MSc, PhD (Minnesota)
Hillier, K., BScH, PhD (Memorial)
Murray, G. B., BSc (Agr) (Dalhousie/NSAC), MBA (St. Mary's), MSc (McGill), PhD (Dalhousie)
Norrie, J., BSc (Mt. A), MSc (Dalhousie), PhD (Laval)
Papadopoulos, Y. A., BSc, MSc, PhD (Guelph), MBA (St. Mary's)
Schumann, A. W., BSc, MSc (Univ of Natal), PhD (Georgia)
Stratton, G. W., BSc, MSc, PhD (Guelph)
Vanasse, A., BSc (A), PhD (Laval)
Zebarth, B., BSc, MSc (Guelph), PhD (Saskatchewan)

Admission

The Dalhousie Agricultural Campus has facilities for advanced study and research leading to an MSc in Agriculture.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. All inquiries for admission should be addressed to:

The Graduate Studies Office
Dalhousie Agricultural Campus
PO Box 550
Truro, NS B2N 5E3

Students may apply to begin the program in January, May, or September.

Please refer to the Admission Dates section for final dates for receipt of application for admission.

Master of Science (MSc) Degree Program

Graduate students attend courses at Dalhousie Agricultural Campus in Truro and, on occasion, supplement their program with courses at the Halifax campus. Students may choose to concentrate their studies in any of the following areas:

Bioresources and Environmental Sciences:
Waste Management, Environmental Microbiology, Ecology, Pest Management, Agricultural Systems, Resource Management, Food Science, Agricultural Chemistry, Soil Chemistry, Nutrient Management, Soil Fertility, Soil Conservation, Soil Management, Bioproduct Science, Environmental Stress Physiology, Entomology, resource economics

Animal Science:
Nutrition, Animal Behaviour, Genetics and Breeding, Animal Product Technology, Physiology, Animal Management, Aquaculture (Shell-Fish and Fin-Fish culture)

Plant Science:
Cropping Systems Management, Plant Genetics, Nutrition, Pathology, Physiology, Biotechnology, Horticulture

The MSc in Agriculture program is research centred and a student will not receive final acceptance until a supervisor has been identified. All students must complete a research thesis embodying original contribution in the thesis field of study. The thesis is defended at an oral examination.

Students are required to take a minimum of four graduate courses (0.5 credit hours each). The graduate course AGRI 5700.03: Communication Skills and Graduate Seminar is a required course. The remaining courses are selected by the student in consultation with his or her supervisor.

In addition, students must demonstrate in the laboratory of at least one undergraduate course in order to gain knowledge and experience in classroom instruction, must present at one Graduate Research Day, and must be admitted to candidacy within the first four to six months of their program.

Scholarships and Financial Aid

A number of scholarships are available to students in the MSc Agriculture Program. Consult the link at www.moneymatters.dal.ca or Awards

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Graduate courses are intended only for students registered in the graduate program and may be taken by undergraduate students only under exceptional circumstances, where they meet normal MSc admission requirements. Graduate students in programs other than the MSc Agriculture wishing to take AGRI courses should contact the Graduate Studies Office, Dalhousie Agricultural Campus.

Course Descriptions

AGRI 5230 Directed Studies in Environmental Sciences

CREDIT HOURS: 3
This course aims to provide to graduate students an opportunity for detailed study and critical thinking in an environmental sciences research area of interest. Through individual study and research, with guidance and instruction provided by a professor, students will leave the course with comprehensive knowledge of a contemporary topic(s) in the discipline, with improved skills in comprehension, problem formulation, writing/communication and critical thinking.
NOTES: Fall or Winter semester
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5250 Soil Microbiology

CREDIT HOURS: 3
This course is designed to provide an intensive study of the microbiology of soils and will emphasize nutrient cycling and biodegradation. Topics covered include the relationships between the abiotic and biotic components of soils; the microbial biochemistry of the carbon, nitrogen, sulphur, phosphorus, and selected micronutrient cycles; heavy metal cycling; and the microbial degradation of industrial wastes and pesticides. The laboratory classes will concentrate on techniques to monitor the microbial biomass in soil and the microbial components of nutrient cycles. These include new advances in bacterial taxonomy and identification, and the use of gas chromatography and high-performance liquid chromatography in quantitating nutrient cycling. In addition to a major term paper, a comprehensive laboratory report on the entire term's lab work, and a single take-home examination, graduate students will be required to: modify the term give a seminar to the class on their term paper topic paper into a critical review of some aspect of soil microbiology, chosen in consultation with the instructor (the review must be current and in depth; it must be written in manuscript format and will be graded accordingly) perform additional laboratory exercises not assigned to undergraduate students, use more replicates, perform a full statistical analysis of data, and provide a report in manuscript format
CROSS-LISTING: MICA 4000

AGRI 5260 Special Topics in Plant Pathology

CREDIT HOURS: 3
This course will be custom-designed to meet the specific needs of graduate students specializing in the area of plant pathology who need further specific knowledge and/or skills.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of instructor and Faculty Graduate Coordinator

AGRI 5270 Economic Entomology

CREDIT HOURS: 3
Insect pest management in agriculture with emphasis on a selection of non-chemical approaches to insect control, e.g., natural, mechanical, physical, cultural, biological, biochemical, and/or legal control. According to the student's interest, a section on chemical control can be included. This course is consistently in accord with the theory and principles of integrated pest management (IPM); consequently, the term assignments will incorporate the study of sampling techniques and monitoring methods of insect pests and related beneficial arthropods. Attendance at certain relevant seminars may be required, and directed readings may be assigned.
NOTES: Winter semester– A case history of a major agricultural insect pest will be prepared to satisfy the course requirement. The material will be submitted in term paper format and also delivered in an oral presentation. The case history will include the life
FORMAT: Lecture| Tutorial
LECTURE HOURS PER WEEK: 2

AGRI 5280 Directed Studies in Pest Management

CREDIT HOURS: 3
This course aims to provide to graduate students an opportunity for detailed study and critical thinking in a pest management research area of interest. Through individual study and research, with guidance and instruction provided by a professor, students will leave the course with comprehensive knowledge of a contemporary topic(s) in the discipline, and with improved skills in comprehension, problem formulation, writing/communication and critical thinking.
NOTES: Fall or Winter semester
FORMAT: Lecture| Discussion

PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5310X/Y Special Topics in Applied Ethology

CREDIT HOURS: 3
Course content will vary. Topics covered will be chosen so as to meet the requirements of individual graduate students. Aspects could include the assessment of farm animal welfare, foraging behaviour, environmental enrichment, social dynamics of livestock, and early rearing environment and the effect on later behaviour.
NOTES: Fall or Winter semester

AGRI 5320 Special Topics in Animal Nutrition

CREDIT HOURS: 3
The course is designed to provide an opportunity to study specific aspects of animal nutrition. Aspects could include study of a particular nutrient, a process in nutrition, a nutritional state, or nutrient metabolism of a specific species, with focus on the research method. Students are advised to consult with their supervisors to determine the specific scope of the topic to be studied.
NOTES: Fall, Winter or Summer semester

AGRI 5340 Special Topics in Animal Physiology

CREDIT HOURS: 3
This course is for students with a major interest in animal physiology. The course will consist of discussions, term papers, and presentations. Students will be expected to nominate topics for consideration and to prepare major reviews and class presentations of selected topics.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5350 Animal Research Methods

CREDIT HOURS: 3
This course is designed for students who are, or expect to be, working in Animal Science, or who have an interest in the methodology and ethics of animal research. The course will include consideration of some of the common or promising laboratory and field methods associated with domestic animal research, ethics of animal research, and the analysis, interpretation, and reporting of results. Students will be expected to participate in exercises, to contribute to discussions, and to present reviews on various aspects.
NOTES: Fall semester

AGRI 5360 Protein Nutrition

CREDIT HOURS: 3
A study of the sources, availability, and metabolism of protein and amino acids for the domestic animal. Subjects addressed include sources of protein, factors affecting digestibility of protein, digestion and absorption of protein and nitrogen, urea recycling, individual amino acid metabolism, excretion of nitrogenous wastes in birds and mammals, and protein and amino acid requirements of animals.
NOTES: Winter semester

AGRI 5365 Vitamins in Animal Nutrition

CREDIT HOURS: 3
Vitamins and vitamin-like compounds are discussed in relation to the normal function of the animal. Vitamin metabolic interrelationships, assessments of adequacy, treatments of deficiency, and sources both natural and synthetic are addressed for all vitamins. Current literature relating to each vitamin as bioactive molecules is discussed.
NOTES: Winter semester

AGRI 5370 Special Topics in Animal Breeding and Genetics

CREDIT HOURS: 3
Provides students with an opportunity to pursue more detailed studies in animal breeding and genetics. Topics will be decided on by the student in consultation with faculty members for the purpose of meeting the student's specific needs as defined by the thesis research. Delivery will be a combination of directed reading and tutorial discussions.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5380 Quantitative Genetics

CREDIT HOURS: 3
An introduction to quantitative genetics theory and to statistical techniques used in domestic animal improvement. Computing and statistical techniques will be demonstrated and presented, and relevant literature will be surveyed. Reference will be made throughout to performance recording programs used in Canada and around the world.
NOTES: Winter semester

AGRI 5390 Molecular Genetic Analysis of Populations

CREDIT HOURS: 3
This course is designed to give graduate students some understanding of the theoretical aspects of population and molecular genetics. Various DNA fingerprinting techniques (e.g., minisatellites, microsatellites, RAPD-PCR, FRLP-PCR and SSCP-PCR, and their applications in population genetic studies) will be discussed. Students will acquire hands-on experience with some of these techniques. Analysis of molecular data to estimate interpopulation populations (heterozygosity, Hardy-Weinberg equilibrium) and interpopulation parameters (test of heterogeneity of allele frequency distributions, genetic distances, phylogenetic analysis, bootstrapping, F-statistics) will be covered.
NOTES: Fall or Winter semester

AGRI 5400 Directed Studies in Soil Science

CREDIT HOURS: 3
This course aims to provide to graduate students an opportunity for detailed study and critical thinking in a soil science research area of interest. Through individual study and research, with guidance and instruction provide by a professor, students will leave the course with comprehensive knowledge of a contemporary topic(s) in

the discipline, and with improved skills in comprehension, problem formulation, writing/communication and critical thinking.
NOTES: Fall or Winter semester
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5450 Environmental Soil Chemistry

CREDIT HOURS: 3
The course is designed to provide an opportunity to study specific aspects of environmental soil chemistry. Topics may include the chemical composition of soils with special attention to soil biochemistry, and soil organic matter with an emphasis on organic matter/clay interactions, soil organic N, P, and S, and soil enzymology. Graduate students will be expected to participate in lecture/discussion sessions and complete required reading assignments. In addition, graduate students will be required to complete research papers and present their findings at in-class seminars.
NOTES: Winter semester– Minimum enrollment: 10 students
CROSS-LISTING: SOIL 4000

AGRI 5460 Special Topics in Soil and Water Management

CREDIT HOURS: 3
This course will discuss the state-of-the-art soil and water management practices in either humid or arid regions, depending on the specific needs of the graduate students. Topics may include fundamentals of soil and water properties; drainage and water table control; management of farm irrigation and draining systems; salinity control; irrigation water requirements; drainage requirements for humid and arid regions; soil conservation; and computer modelling of irrigation and drainage systems. Guest speakers will be invited to share their experiences with the students.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5480 Directed Studies in Analytical Instrumentation

CREDIT HOURS: 3
This course aims to provide graduate students with an opportunity for detailed study and critical thinking in specific areas of analytical instrumentation as it relates to their research area. Through individual study and research, with guidance and instruction provided by a professor, students will leave the course with comprehensive knowledge of a contemporary topic(s) in the discipline, and with improved skills in comprehension, problem formulation, writing/communication and critical thinking.
NOTES: Fall or Winter semester
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5510 Special Topics in Plant Breeding

CREDIT HOURS: 3
This course is designed to meet the specific needs of graduate students specializing in the area of Plant Breeding who need further specific knowledge and/or skills.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5520 Plant Breeding Methods

CREDIT HOURS: 3
Genetic and statistical principles underlying modern plant breeding methods are introduced. Those principles will be reinforced through the use of computer models. Cultivar development techniques for self and cross-pollinated species are examined in detail. Applications of tissue culture, genetic engineering, and marker-facilitated selection are discussed. This course is open to students who have had introductory courses in genetics, plant breeding, statistics, and molecular biology.
NOTES: Fall semester

AGRI 5530 Nitrogen in Crop Production

CREDIT HOURS: 3
Students will study the transformations of N in air, soil, water, and plants, and consider crop requirements for N. Topics include the chemistry of N, the N cycle, N transformations in soil, N metabolism in plants, N transport in plants, N-fixation, N losses in agricultural systems, and an evaluation of N fertilizer in these systems.
NOTES: Next offered in 2016/2017

AGRI 5540 Special Topics in Crop Physiology (A)

CREDIT HOURS: 3
This course is designed to meet the specific needs of graduate students specializing in the area of Crop Physiology who need further specific knowledge and/or skills.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5560 Advanced Crop Physiology

CREDIT HOURS: 3
Physiological processes relevant to crop plant development and production of harvestable yield will be examined.
NOTES: Summer semester

AGRI 5570 Special Topics in Agricultural Biotechnology

CREDIT HOURS: 3
This course is designed to meet the specific needs of graduate students specializing in the area of Agricultural Biotechnology who need further specific knowledge and/or skills.
NOTES: Fall or Winter semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5610 Special Topics in Animal Product Technology

CREDIT HOURS: 3
This course will review areas important in the technology of foods derived from animals (meat, fish, eggs, milk). Such areas could include chemistry (lipid oxidation,

Maillard reactions), physics (changes caused by freezing, sol-gel conversion, colour) and microbiology (spoilage, pathogenic organisms, modified-atmosphere packaging, HACCP). Each student will be expected to present a review of a particular topic.
NOTES: Fall semester
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5620 Ruminant Digestive Physiology and Metabolism

CREDIT HOURS: 3
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.
NOTES: Fall semester
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 2
PREREQUISITE: NUTR 3000, CHMA 3006
CROSS-LISTING: NUTR 4000

AGRI 5630 Intermediate Statistical Methods

CREDIT HOURS: 3
Analysis of single-factor experiments, randomized blocks, latin squares, and factorial and two-level fractional factorial designs.
NOTES: Fall semester
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAA 3000, or permission of the instructor
CROSS-LISTING: STAA 4000

AGRI 5700X/Y Communication Skills and Graduate Seminar

CREDIT HOURS: 3
Through practical assignment, students will be able to test and develop their communication skills. Topics will include review, criticism, and writing of journal papers, grant applications, posters, seminars, lectures, and interviews. This course is required for students enrolled in the M.Sc. in Agriculture program.
NOTES: Fall and Winter semesters – Enrollment per term may be capped.

AGRI 5705X/Y Module Course II

CREDIT HOURS: 3
This course normally consists of three modules. Each module consists of one month of lectures or assignments dealing with a topic in the lecturer's area of expertise. Research interests of incoming students are taken into account each year when module topics are solicited. Students should not apply to take a module unless they have at least a second-year undergraduate background in the focus area. A formal evaluation is made at the end of each module.
NOTES: Fall/Winter semester: Students registering for the module course in September must complete three modules between September and April (8 months). Winter/Summer semester: Students registering for the module course in January must complete three modules between January and August (8 months).
PREREQUISITE: AGRI 5710.03

AGRI 5710X/Y Module Course I

CREDIT HOURS: 3
This course normally consists of three modules. Each module consists of one month of lectures or assignments dealing with a topic in the lecturer's area of expertise. Research interests of incoming students are taken into account each year when module topics are solicited. Students should not apply to take a module unless they have at least a second-year undergraduate background in the focus area. A formal evaluation is made at the end of each module.
NOTES: Fall/Winter semester: Students registering for the module course in September must complete three modules between September and April (8 months). Winter/Summer semester: Students registering for the module course in January must complete three modules between January and August (8 months).

AGRI 5720 Applied Statistics and Experimental Design for Agriculture

CREDIT HOURS: 3
This course is designed to provide practical skills in statistical methods and experimental designs, and an appreciation of situations when more complex models and methods are required. Topics include linear and nonlinear regression, split-plot designs, repeated measures, and response surface methods. Students will be expected to successfully complete practical exercises and a project involving real experimental problems and data sets. Students will also be expected to acquire proficiency in at least one advanced statistical software package.
NOTES: Winter semester
PREREQUISITE: STAA 4000, AGRI 5630, or equivalent

AGRI 5730 Directed Studies in Food and BioProduct Science

CREDIT HOURS: 3
This course aims to provide to graduate students an opportunity for detailed study and critical thinking in a food and bioproduct research area of interest. Through individual study and research, with guidance and instruction provided by a professor, students will leave the course with comprehensive knowledge of a contemporary topic(s) in the discipline, and with improved skills in comprehension, problem formulation, writing/communication and critical thinking.
NOTES: Fall or Winter semester
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of the instructor and Faculty Graduate Coordinator

AGRI 5740 Advanced Studies in Food Chemistry

CREDIT HOURS: 3
This course is designed to allow graduate students to explore in detail various aspects of the chemical nature of agri-food products. This may include, but is not limited to, a study of naturally occurring components (functional foods and nutraceuticals), nutritional changes during value added processing, and product formulation. The exact focus of the course will depend on the expressed interest of students in the course.
NOTES: Fall or Winter semester

FORMAT: Lecture| Discussion
LECTURE HOURS PER WEEK: 1
PREREQUISITE: One undergraduate food science course or equivalent

AGRI 5750 Biotechnology

CREDIT HOURS: 3
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 genomics-related agricultural applications. Nutraceutical and pharmaceutical applications will also be discussed.
NOTES: Fall semester
FORMAT: Lecture
PREREQUISITE: GENE 2000 or equivalent
CROSS-LISTING: GENE 4003

AGRI 5770 Mathematical Modelling for Biosystems

CREDIT HOURS: 3
Mathematical modelling of biosystems, including deterministic and probabilistic models used n soils research, water management, plant and animal science and food production will be covered. Relationships between empirical/experimental data, suggested prediction models, solving and validating mathematical models will be included, using modelling techniques of relevance to the life sciences and engineering.
PREREQUISITE: MTHA 1001, STAA 2000 or equivalent
CROSS-LISTING: MTHA 4000

AGRI 9000 Graduate Thesis

CREDIT HOURS: 0

NOTES: Students register for this course when they are engaged in research work for credit towards the M.Sc. in Agriculture degree.

Architecture

Location:
Building/Room: School of Architecture
Street Address 1: 5410 Spring Garden Road
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3973
Fax: (902) 423-6672
Website: archplan.dal.ca
Email Address: grad.arch@dal.ca

Introduction

The School of Architecture, which is part of the Faculty of Architecture and Planning at Dalhousie University, was established in 1961 to serve the Atlantic region. While it continues to fulfill its original mandate, the School also contributes nationally and internationally to architecture through its dynamic faculty and committed student body. Its primary aim is to educate individuals who intend to become professional architects. The School's professional degree program includes the two-year Bachelor of Environmental Design Studies degree and the two-year Master of Architecture degree. Most of the program is conducted within the School of Architecture by full-time faculty members. It also includes two co-op work terms in which students gain practical experience in an architectural office. The curriculum enables architectural education and practice to develop in parallel.

Design

The central activity of the professional degree program is architectural design: the creative study of buildings and cities. In the School's design studios, students examine historical and contemporary buildings in Canada and abroad, and respond through the design of new architectural projects. From the core studies of the undergraduate program to the elective studies and design thesis of the graduate program, students learn to rely on their artistic skill, their knowledge of history and technology, their social and cultural awareness, and their critical imagination. Architecture is a multi-disciplinary profession, with alliances to the fine arts, the humanities and technologies, and many undergraduate disciplines provide an effective entry into architecture. Conversely, architectural studies provide an excellent foundation for careers in a variety of design-related fields.

Facilities

The School is housed in the original home of the Nova Scotia Technical College, built in 1909 and renamed the Ralph M. Medjuck 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, 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 1970, 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, Australia, China, Colombia, Germany, Japan, Kuwait, Netherlands, Norway, Singapore, Spain, United Arab Emirates, United Kingdom, and the United States.

Accreditation

The School's Master of Architecture program is fully accredited by the Canadian Architectural Certification Board (CACB). The entire six-year program consists of two years of general studies at a recognized university, followed by two years of undergraduate study at the School of Architecture (BEDS) and two years of graduate study at the School of Architecture (MArch).

The following is a statement from the Canadian Architectural Certification Board: "In Canada, all provincial/territorial associations/institutes/orders recommend a degree from an accredited professional degree program as a prerequisite for licensure. The Canadian Architectural Certification Board, which is the sole agency authorized to accredit Canadian professional degree programs in architecture, recognizes two types of accredited degrees: the Bachelor of Architecture (BArch) and the Master of Architecture (MArch). A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards. Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as 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 an individual for professional practice. An American citizen who graduates from the School's MArch program is qualified to become an architectural intern in the United States and to complete the examination for professional registration there. Applicants from other countries are advised to contact their national architectural organization about requirements for professional registration.

Staff

Director, School of Architecture

Burnay, D., DiplArch (Tech Univ Lisbon), MSc (Arch) (Univ College London)
Telephone: (902) 494-4128, Email: diogo.burnay@dal.ca

Undergraduate Secretary, School of Architecture

Morash-Kent, S., BA, BEd, MEd (St. Mary's)
Telephone: (902) 494-3971, Email: arch.office@dal.ca

Graduate Secretary, School of Architecture

Nightingale, B., Sec.Dip. (CTT)
Telephone: (902) 494-3973, Email: grad.arch@dal.ca

Director of Career and Community Services, Architecture and Planning

Costello, P., BEDS, BArch (TUNS), NSAA
Telephone: (902) 494-6201, Email: paula.costello@dal.ca

Undergraduate and Graduate Coordinator, School of Architecture

Parcell, S., BArch (Toronto), MArch (Cranbrook), PhD (McGill)
Telephone: (902) 494-3908, Email: stephen.parcell@dal.ca

Professors Emeriti

Baniassad, E., BArch (Illinois), MA, PhD (Manchester), FRAIC
Jackson, A., DiplArch (Poly London), ARIBA
Wanzel, J. G., BArch, MArch (Toronto)

Professors

Bonnemaison, S., BSc (Concordia), BArch (Pratt), MSc (Arch) (MIT), PhD (UBC). Lightweight and tensile structures, motion studies in architecture, architectural installations, temporary urbanism of festivals, responsive environments and electronic textiles for architectural applications.
Cavanagh, E., BSc, BArch (McGill), PhD (Lehigh). Architectural design (teaching and practice); scholarship in coastal planning and history of technology; production of design-build projects for coastal communities, focusing on innovative construction methods.
MacKay-Lyons, B., BEDS, BArch (TUNS), MArchUD (UCLA), FRAIC, (Hon) FAIA, NSAA, AAPEI, OAA. Private practice design work in private homes, urban design, public buildings, and artificial intelligence software design.
Macy, C., BA (Arch) (Calif at Berkeley), MArch (MIT), Reg.Arch.WA. History, theory and criticism of modern architecture, representation of cultural identity in architecture, urban systems and infrastructure, temporary urbanism, lightweight and ephemeral architecture.
Mannell, S., BES, BArch (Waterloo), NSAA, OAA. Building construction, professional practice; the architecture of public works, post-war modern architecture,

contemporary architectural criticism.
Parcell, S., BArch (Toronto), MArch (Cranbrook), PhD (McGill). Historical definitions of architecture; interdisciplinary alliances with architecture; history and theory of architectural representation.

Associate Professors

Burnay, D., DiplArch (Tech Univ of Lisbon), MSc (Arch) (Univ College London). Design practice in public architecture, contemporary architecture in the public realm, architectural tectonics.
Lilley, B., BES (Manitoba), AA Dipl. Ecological and programmatic strategies in architecture; garden/built projects advocating community health and well-being; facade design; ceramic materials; interactive environments with computational representation of climate and circulation.
Savage, N., BA (Alberta), BEDS, MArch (FP) (TUNS), NSAA. Residential and public buildings, affordable housing; alternative housing models, hard-to-house populations, and therapeutic housing environments.
Venart, C. A. S., Cert. Eng. (Mt. A), BFA (Toronto), MArch (SCI-Arc), AK NWF (prof. reg. Germany). Experiential, spatial, and phenomenological methods of documenting, representing and analyzing site, architecture, urban and natural environments; private design practice; multi-disciplinary design strategies for urban and architectural competitions and projects; publication and exhibition design.

Assistant Professors

Mullin, R., BEDS, MArch (FP) (TUNS). Detailing and significance of materials; landscape and buildings in coastal environments; community partnerships; design-build; representation in documentation, design, and construction.
Parsons, A., BSc (McGill), MES (Dalhousie), SMBT (MIT). Wood technology, wood lot management and the environmental impact of forest management practices, building performance of residential wood frame construction systems, timber frame systems.

Professors of Practice

Fitzgerald, S., BSc (Univ College London), BID (Kwantlen), BEDS (TUNS), MArch (FP) (Dalhousie), NSAA, AAA, AANB, IDNS. Design practice in institutional, civic, residential, and design-build architecture; research in spatial and social dynamics of cities, productive urban landscapes, and comparative models of practice.
Sweetapple, T., BA (Dalhousie), BEDS, MArch (FP) (TUNS), NSAA, AANB, AIA. Design practice in cultural, post-secondary educational, and agricultural buildings; research in school buildings, comprehensive design, public architecture, and material culture.
Verissimo, C., Dipl. Arch (Technical Univ Lisbon), MArch II (Harvard). Design practice in private and public buildings, urban design, and architectural tectonics; research in sustainable materials and eco-efficiency in building construction.

Lecturer

Kelly, P., BSc (Dalhousie), MSc (TUNS). The use of multimedia tools in architectural design, geographical information system, and astroarchaeology (astronomical alignments of ancient structures).

Cross-Appointed Faculty

Palermo, F., BArch (Toronto), MArch UD (Harvard), Planning

Adjunct (FGS)

Burns, C., BA (Bryn Mawr), BA, MArch (Yale)
Carter, B., DiplArch (Nottingham), MArch (Toronto); SUNY Buffalo
Kahn, A., BA (Bennington), MArch (Princeton); Columbia University
Levitt, J., BA, BArch (Toronto)
Sassenroth, P., DiplArch. (Tech Univ Berlin); Fachhochschule Bielefeld
Thün, G., BA (Western), BES, BArch (Waterloo), MUD (Toronto); University of Michigan

Senior Instructor

Jannasch, E., BEDS (TUNS), MArch (FP) (Dalhousie). History and future of building; relationships between film design and material culture.

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 1200X/Y.06: Science of the Built Environment
- ARCH 2000.03: Visual Thinking A
- ARCH 2001.03: Visual Thinking B
- ARCH 2025.03: Design Drawing

Please consult the undergraduate calendar for course descriptions.

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.

Undergraduate Degree Program

The entire professional degree program includes both the BEDS and MArch degrees. Information can be found at School of Architecture undergraduate program.

Degree Programs

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 program. Elective courses also enable a student to focus on a particular area of study such as housing, urban design, history and theory, building technology, environmental design, or computer applications. In the final year each student works on a design thesis, supervised by a faculty member.

The MArch program begins in May. Most transfer students enter in January to take several undergraduate courses during the winter term before applying for MArch admission.

Master of Architecture (Post-Professional)

Master of Architecture (Post-Professional) is a one-year program for a student who has already obtained a professional degree in architecture. It may be taken through full-time or part-time study. Subject areas each year depend on faculty availability. For available subjects in 2015-2016, please refer to the "Graduate Programs" page on the School of Architecture Website.

Two options are available for completing the MArch (Post-Prof.) program:

1. 24 credit hours of courses plus a MArch (Post-Prof.) Major Project equivalent to 6 credit hours.
2. 18 credit hours of courses plus a MArch (Post-Prof.) Thesis equivalent to 12 credit hours.

Master of Environmental Design Studies

Master of Environmental Design Studies is a one-year, non-professional program for a student who has completed an undergraduate degree in environmental design or a related field but does not intend to become a professional architect. It may be taken through full-time or part-time study. Subject areas each year depend on faculty availability. For available subjects in 2015-2016, please refer to the "Graduate Programs" page on the School of Architecture Website.

Two options are available for completing the MEDS program:

1. 24 credit hours of courses plus a MEDS Major Project equivalent to 6 credit hours.
2. 18 credit hours of courses plus a MEDS Thesis equivalent to 12 credit hours.

Admission Requirements

Minimum Academic Requirements

Candidates for all graduate programs must meet the minimum admission requirements of the Faculty of Graduate Studies.

Master of Architecture

Admission is based mainly on the applicant's design portfolio and academic record. For an applicant to be considered, a minimum of four years (eight academic terms) of university courses is required, including architectural studies equivalent to the Dalhousie BEDS degree, with a minimum B average (3.00 GPA) during the last two years (60 credit hours). A minimum B average in architectural design courses is also required. In assessing an application, the Admissions Committee looks for strong evidence of readiness to pursue graduate studies in design, humanities, technology, and professional practice. For external applicants, the committee looks for strengths equivalent to standards at the end of Dalhousie's BEDS program.

The Admissions Committee assesses transfer credits and recommends the level at which an applicant is eligible to enter the professional degree program. To meet professional accreditation standards, the committee cannot offer a level of entry that would permit a student to obtain the professional degree with less than six full years of university, including two years of general studies. An applicant who is ineligible for Master of Architecture admission may be offered entry at an advanced level in the BEDS program or may be required to take qualifying courses.

Master of Architecture (Post-Professional)

An applicant must have a professional degree in architecture with high academic standing from a recognized university. Admission is based on the applicant's design portfolio, academic record and statement of intent, regarding one of the graduate positions announced on the School of Architecture Website. An application that does not specify an available position will not be accepted.

Master of Environmental Design Studies

An applicant must have an undergraduate degree with high academic standing from a recognized university. This degree must be either a Bachelor of Environmental Design Studies degree, a Bachelor's degree with honours, or a Bachelor's degree with a major in a subject related to the applicant's proposed field of study in the MEDS program. Admission is based on the applicant's academic record and statement of intent, regarding one of the graduate positions announced on the School of Architecture Website. An application that does not specify an available position will not be accepted.

Documents

An external applicant to one of the School's graduate degree programs must submit all of the following documents before the application can be reviewed:

To be submitted to the Registrar's Office:

Admissions, Registrar's Office
Dalhousie University
PO Box 15000
Halifax, NS B3H 4R2

- graduate application form
- the appropriate application fee (see Graduate Studies Fees);

To confirm receipt of the items above, please contact the Registrar's Office: (902) 494-2450.

To be submitted to the School of Architecture:

Graduate Admissions, School of Architecture
Dalhousie University
5410 Spring Garden Road
PO Box 15000
Halifax, NS B3H 4R2

MArch applicants:

- an official academic transcript from all previous post-secondary institutions;

- evidence of competency in English for applicants whose native language is not English (see Graduate Studies Admission Requirements);
- a letter describing your background, your interest in the MArch program, your proposed area(s) of specialization in the MArch program (e.g., housing, urbanization, building construction, environmental systems, history/theory, digital media), and a possible thesis topic.
- a printed portfolio of design work that demonstrates your architectural design ability. This portfolio will not be returned.
- two letters of recommendation, including at least one from an academic instructor with close personal knowledge of the applicant's academic background. Each recommendation must be submitted on a Confidential Reference Letter form.

MArch (Post-Prof.) and MEDS applicants:

- graduate application form;
- an official academic transcript from all previous post-secondary institutions;
- evidence of competency in English for applicants whose native language is not English (see Graduate Studies Admission Requirements);
- a letter that indicates the graduate position for which the applicant is applying (selected from the "Graduate Positions" page on the School of Architecture Website), summarizes the applicant's previous academic/work in this area, and describes his/her career aspirations;
- MArch (Post-Prof.) applicants should include a portfolio of advanced architectural design work, especially work done in the proposed subject area. For MEDS applicants, a design portfolio is optional.
- two letters of recommendation, including at least one from an academic instructor with close personal knowledge of the applicant's academic background. Each recommendation must be submitted on a Confidential Reference Letter form.

To confirm receipt of the items above, please contact the Graduate Architecture Secretary, at grad.arch@dal.ca or by telephone (902) 494-3973. For additional application instructions, please refer to the School of Architecture website:archplan.dal.ca

Dalhousie Year four BEDS students who apply directly to the MArch program are required to submit an application form and a statement about the proposed area of focus in the graduate program to the Architecture office by February 1, followed by a design portfolio at the end of the winter term. An application fee, transcripts, introductory letter, and letters of recommendation are not required.

Application Deadline

For the Master of Architecture program, the deadline for applications from Canada and the United States is February 1. The deadline for applications from all other countries is December 1.

Transfer students with a pre-professional architecture degree who may not have completed courses that are equivalent to all required Dalhousie BEDS subjects should apply by October 1 and anticipate taking one or more undergraduate courses in the winter term.

Regulations

School of Architecture Regulations

In addition to the Faculty of Graduate Studies regulations, refer to the 'Current Students' section of the School of Architecture Website for academic regulations.

Courses Offered
Master of Architecture

Year 5 - Terms M1 and M2 (Summer and Fall)

- two core courses in Design (ARCH 50xx.06 series)
- two core courses in Humanities (ARCH 51xx.03 series)
- two core courses in Technology (ARCH 52xx.03 series)
- two graduate electives (ARCH 5xxx.03 or ARCH 6xxx.03)

Year 5 - Terms M3 and M4 (Winter and Summer)

- ARCH 5308.03: Professional Practice (Co-op Work Term)
- ARCH 5309.03: Professional Practice (Co-op Work Term)

Students extending their work term register for ARCH 5310.00: Co-op Work Term Continuation.

Before entering Year 6, a student must pass a Year 5 review to confirm that all Year 5 requirements have been completed.

Year 6 - Term M5 (Fall)

- ARCH 5216.06: Building Systems Integration for Design Thesis
- ARCH 9007.06: MArch Thesis Preparation
- one graduate elective (ARCH 5xxx.03 or ARCH 6xxx.03)

Year 6 - Term M6 (Winter)

- ARCH 5311.03: Professional Practice
- ARCH 9008.06: MArch Thesis
- one graduate elective (ARCH 5xxx.03 or ARCH 6xxx.03)

Graduate Courses

Core Courses - Design

- ARCH 5002.06: Urban Housing Studio
- ARCH 5004.06: Urban Systems Studio
- ARCH 5007.06: Landscape Studio
- ARCH 5010.06: Public Architecture Studio
- ARCH 5011.06: Coastal Studio
- ARCH 5012.06: Urban Program Studio
- ARCH 5013.06: Design-Build 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 5110.03: Architectural Exhibitions
- ARCH 5112.03: Documentation and Conservation of the Modern Movement in Architecture
- ARCH 5113.03: Technology, Culture and Society
- ARCH 5114.03: Theory of Conservation Practice
- ARCH 5198.03: Humanities Seminar

Core Courses - Technology

- ARCH 5202.03: From Timber to Lumber
- ARCH 5203.03: From Lumber to Structure
- 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: Tensile Architecture
- ARCH 5215.03: Fabrication
- ARCH 5217.03: Innovation in Computers and Building
- ARCH 5218.03: Site and Material Processes
- ARCH 5219.03: Technology of Heritage Conservation
- ARCH 5298.03: Technology Seminar

Electives

- ARCH 6002.03: Free Lab
- ARCH 6121.03: Architecture and Archaeoastronomy
- ARCH 6122.03: Humanities Seminar
- ARCH 6209.03: Material Investigation
- ARCH 6210.03: Material Investigation in Wood
- ARCH 6211.03: Technology Seminar
- ARCH 6215.03: Earth Construction
- ARCH 6216.03: Natural Finishes
- 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 6510.03: Architectural Documentation and Analysis
- ARCH 6511.03: Documentation of Historic Buildings
- ARCH 6513.03: Representation Seminar

For a graduate elective, a student may take a course offered by another department at Dalhousie University. The subject need not be directly related to architecture, but must be at a graduate level or equivalent. A maximum of two electives may be undergraduate courses that have been elevated to a graduate equivalent by the instructor and approved by the School and by Graduate Studies. With a Letter of Permission, a student may also take a course at another university, if the course is not available at Dalhousie University.

Master of Architecture (Post-Professional)

- ARCH 7005.06: MArch (Post-Prof.) Major Project
- ARCH 7003.00: Continuation - MArch (Post-Prof.) Major Project
- ARCH 9010.12: MArch (Post-Prof.) Thesis
- ARCH 9005.00: Continuation - MArch (Post-Prof.) Thesis

Other available courses are listed in the Master of Architecture section above and in the Planning section of this calendar.

Master of Environmental Design Studies

- ARCH 7006:06: MEDS Major Project
- ARCH 7004.00: Continuation - MEDS Major Project
- ARCH 9011.12: MEDS Thesis
- ARCH 9006.00: Continuation - MEDS Thesis

Other available courses are listed in the Master of Architecture section above and in the Planning section of this calendar.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Numbers

The first digit of an ARCH course number indicates whether it is a MArch core course (5), an elective (6), MArch (Post-Prof)/MEDS course (7), or Thesis (9). The second digit indicates the area of study: Design (0), Humanities (1), Technology (2), Professional Practice (3), or Representation (5). Courses have various credit-hour extensions (03-06) that indicate the approximate class hours each week and the appropriate balance of subjects for professional accreditation.

Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Course Descriptions

ARCH 5002 Urban Housing Studio

CREDIT HOURS: 6
This studio explores the aesthetic, tectonic, social/cultural and economic challenges presented by contemporary high-density, mixed-use development. The relationships 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
RESTRICTIONS: Graduate Students - Architecture

ARCH 5004 Urban Systems Studio

CREDIT HOURS: 6
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
RESTRICTIONS: Graduate students - Architecture

ARCH 5007 Landscape Studio

CREDIT HOURS: 6
This studio investigates architectural responses to landscape. 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
RESTRICTIONS: Graduate students - Architecture

ARCH 5010 Public Architecture Studio

CREDIT HOURS: 6
This studio examines the role of public architecture in manifesting cultural values through the design of a civic institution. It also considers public architecture as an expression of material culture that mediates between the scales of artifact and landscape.
FORMAT: Studio
RESTRICTIONS: Graduate students - Architecture

ARCH 5011 Coastal Studio

CREDIT HOURS: 6
This studio investigates building on the coast. It explores conjunctions 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
RESTRICTIONS: Graduate students - Architecture

ARCH 5012 Urban Program Studio

CREDIT HOURS: 6
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 distant references, each 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
RESTRICTIONS: Graduate students - Architecture

ARCH 5013 Design-Build Studio

CREDIT HOURS: 6
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 timbrel vaults, grid shells, and cable nets.
FORMAT: Studio
COREQUISITE: ARCH 5113.03
RESTRICTIONS: Graduate students - Architecture

ARCH 5102 Housing Theory

CREDIT HOURS: 3
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 neighbourhoods are designed. This understanding is placed in the context of differing economic, political and housing market situations.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5103 Residential Real Estate Development

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5104 Urban Systems

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5105 History and Theory of Cities

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5106 International Sustainable Development

CREDIT HOURS: 3
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 to engender patterns of living in a reflective and symbiotic manner
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5107 Theory and the Built Environment

CREDIT HOURS: 3
This course is an overview of contemporary architectural theory, structured into three themes: architecture as a poetic act, moral act, and meaningful act. These themes allow students to develop their research and design interests in the graduate program. In a major project, students translate theoretical concerns into an architectural installation.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5110 Architectural Exhibitions

CREDIT HOURS: 3
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.
FORMAT: Seminar| Studio
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5112 Documentation and Conservation of the Modern Movement

CREDIT HOURS: 3
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.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5113 Technology, Culture, and Society

CREDIT HOURS: 3
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 building as an example.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5114 Theory of Conservation Practice

CREDIT HOURS: 3
This course studies historical and contemporary principles of architectural conservation. It introduces philosophical questions through international charters, national policies, and practice documents. It also considers issues of heritage value and principles for making informed decisions in analyzing, documenting, and conserving historic buildings.

ARCH 5198 Humanities Seminar

CREDIT HOURS: 3
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.
NOTE: Course Details listed here also apply to ARCH 5199.03.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 5199 Humanities Seminar

CREDIT HOURS: 3

See ARCH 5198.03

ARCH 5202 From Timber to Lumber

CREDIT HOURS: 3
This course examines principles of forestry and ecology pertaining to woodlot management. It considers forest ecology, wood production, and the conversion of trees into building products such as dimensional lumber and engineered wood products.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5203 From Lumber to Structure

CREDIT HOURS: 3
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.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5210 Life Cycle Analysis

CREDIT HOURS: 3
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.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5211 The Construction Detail

CREDIT HOURS: 3
This course examines the construction detail and its dialectical 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.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5212 From Principle to Detail

CREDIT HOURS: 3
This course advances the technological content of a concurrent design project or thesis. It focuses on the integration of building systems (e.g., structure, construction, environmental technology), beginning with an overview of principles, followed by a self-directed material exploration, and culminating in the production of a relevant building detail.
FORMAT: Seminar| Studio
RESTRICTIONS: Graduate students - Architecture

ARCH 5213 Facades

CREDIT HOURS: 3
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.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5214 Tensile Architecture

CREDIT HOURS: 3
This course studies the design and behaviour of tensile structures by building and testing models and mock-ups. It also explores the rhetorical potential of tensile structures by integrating technologies such as video, sound, light, sensors, and smart fabrics.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5215 Fabrication

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 5217 Innovation in Computers and Building

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 5218 Site and Material Processes

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 5219 Technology of Heritage Conservation

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 5220 Adaptive Re-use

CREDIT HOURS: 3
Through examples and case studies, this course introduces issues of authenticity, sustainability, and relevant principles of practice as they apply to the adaptive re-use of heritage buildings. These issues are put into practice by re-designing an authentic, sustainable heritage building.
FORMAT: Lecture

ARCH 5298 Technology Seminar

CREDIT HOURS: 3
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.
NOTE: Course Details listed here also apply to ARCH 5299.03.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 5299 Technology Seminar

CREDIT HOURS: 3
See ARCH 5298.03

ARCH 5308 Professional Practice (Co-op Work Term)

CREDIT HOURS: 3
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 500 hours through supervised research related to Professional Practice.
NOTE: Course Details listed here also apply to ARCH 5309.03.
RESTRICTIONS: MArch students

ARCH 5309 Professional Practice (Co-op Work Term)

CREDIT HOURS: 3
See ARCH 5308.03

ARCH 5310 Co-op Work Term Continuation

CREDIT HOURS: 0
A student who has already registered for ARCH 5308.03 and ARCH 5309.03 may continue the co-op work term for up to three additional terms. While registered in ARCH 5310.03, a student's university status changes to part-time.
PREREQUISITE: ARCH 5308.03, ARCH 5309.03
RESTRICTIONS: MArch students

ARCH 5311 Professional Practice

CREDIT HOURS: 3
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).
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6002 Free Lab

CREDIT HOURS: 3
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: Lab
RESTRICTIONS: Graduate students - Architecture

ARCH 6121 Architecture and Archaeoastronomy

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6122 Humanities Seminar

CREDIT HOURS: 3
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.
NOTE: Course Details listed here also apply to ARCH 6123.03/ARCH 6124.03/ARCH 6125.03.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6123 Humanities Seminar
CREDIT HOURS: 3
See ARCH 6122.03

ARCH 6124 Humanities Seminar
CREDIT HOURS: 3
See ARCH 6122.03

ARCH 6125 Humanities Seminar
CREDIT HOURS: 3
See ARCH 6122.03

ARCH 6209 Material Investigation
CREDIT HOURS: 3
This course uses a controlled workshop environment to examine characteristics of a material (e.g., metal, 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: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6210 Material Investigation in Wood
CREDIT HOURS: 3
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 of raw material, the testing of structural capacity and environmental behaviour, and applications in design.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6211 Technology Seminar
CREDIT HOURS: 3
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.
NOTE: Course Details listed here also apply to ARCH 6212.03/ARCH 6213.03/ARCH 6214.03.
FORMAT: Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6212 Technology Seminar
CREDIT HOURS: 3
See ARCH 6211.03

ARCH 6213 Technology Seminar
CREDIT HOURS: 3
See ARCH 6211.03

ARCH 6214 Technology Seminar
CREDIT HOURS: 3
See ARCH 6211.03

ARCH 6215 Earth Construction
CREDIT HOURS: 3
This course studies traditional and contemporary methods of earth construction (cob, 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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6216 Natural Finishes
CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6217 Product Development in Architecture
CREDIT HOURS: 3
This course explores the design of manufactured building components. Through field trips, factual study, and hands-on labs, 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
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6503 Photography in Architecture

CREDIT HOURS: 3
This course examines architectural photography from the late nineteenth century to the present. By analyzing and applying various photographic styles and techniques, students learn about photographic representation in architecture.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6504 Montage in Architecture

CREDIT HOURS: 3
This course examines the history, concepts, and uses of montage 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
RESTRICTIONS: Graduate students - Architecture

ARCH 6505 Multimedia in Architecture

CREDIT HOURS: 3
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 also to projects in urban planning.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture and Planning or permission of instructor

ARCH 6506 Spatial Constructions in Digital Video

CREDIT HOURS: 3
This course investigates 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| Studio
PREREQUISITE: ARCH 6505.03
RESTRICTIONS: Graduate students - Architecture

ARCH 6510 Architectural Documentation and Analysis

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 6511 Documentation and Reconstruction of Historic Buildings

CREDIT HOURS: 3
This course studies the use of drawings to document existing buildings, structures, and landscapes. It also studies drawings as a means of projection and examines their role in the reconstruction of past built works and projects.
FORMAT: Lecture| Seminar
RESTRICTIONS: Graduate students - Architecture

ARCH 6513 Representation Seminar

CREDIT HOURS: 3
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
RESTRICTIONS: Graduate students - Architecture

ARCH 7003 Continuation - MArch (Post-Prof.) Project

CREDIT HOURS: 0
Continuation of ARCH 7005.06.
RESTRICTIONS: MArch (Post-Prof.) students

ARCH 7004 Continuation - MEDS Project

CREDIT HOURS: 0
Continuation of ARCH 7006.06.
RESTRICTIONS: MEDS students

ARCH 7005 MArch (Post-Professional) Major Project

CREDIT HOURS: 6
A major project is intended to address a question of personal interest and relevance to the field of study. It may be a work of design (accompanied by a written document) or an entirely written document, guided by a supervisor and an advisor.
RESTRICTIONS: MArch (Post-Prof) students

ARCH 7006 MEDS Major Project

CREDIT HOURS: 6

A major project is intended to address a question of personal interest and relevance to the field of study. It may be a work of design (accompanied by a written document) or an entirely written document, guided by a supervisor and an advisor.
RESTRICTIONS: MEDS students

ARCH 9005 Continuation - MArch (Post-Prof.) Thesis

CREDIT HOURS: 0
Continuation of ARCH 9010.12
RESTRICTIONS: MArch (Post-Prof.) students

ARCH 9006 Continuation - MEDS Thesis

CREDIT HOURS: 0
Continuation of ARCH 9011.12
RESTRICTIONS: MEDS students.

ARCH 9007 MArch Thesis Preparation

CREDIT HOURS: 6
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 9007.06 and ARCH 9008.06 must be completed in consecutive terms.
FORMAT: Seminar| Studio
PREREQUISITE: Completion of Year 5 MArch
RESTRICTIONS: MArch students

ARCH 9008 MArch Thesis

CREDIT HOURS: 6
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 9007.06
RESTRICTIONS: MArch students

ARCH 9009 MArch Thesis Continuation

CREDIT HOURS: 0
This continuation of ARCH 9008.06: 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 9007.06).
FORMAT: Studio
PREREQUISITE: ARCH 9008.06
RESTRICTIONS: MArch students

ARCH 9010 MArch (Post-Professional) Thesis

CREDIT HOURS: 12
A thesis addresses a question of personal interest and relevance to the field of study. It may be a work of design (accompanied by a written document) or an entirely written document, guided by a supervisor and an advisor. The thesis document is prepared in accordance with university thesis standards.
RESTRICTIONS: MArch (Post-Prof) students

ARCH 9011 MEDS Thesis

CREDIT HOURS: 12
A thesis addresses a question of personal interest and relevance to the field of study. It may be a work of design (accompanied by a written document) or an entirely written document, guided by a supervisor and an advisor. The thesis document is prepared in accordance with university thesis standards.
RESTRICTIONS: MEDS students

Atmospheric Science

Location:
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Street Address 1: 6310 Coburg Road
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Website: www.atm.dal.ca
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Introduction

Atmospheric Science is part of the Department of Physics and Atmospheric Science and offers programs leading to MSc and PhD degrees in the following areas: cloud physics, aerosol physics and chemistry, dynamics, radiation, atmospheric chemistry, planetary remote sounding from space and the ground, Arctic atmospheres, LIDAR systems and climate modeling.

The Department of Physics and Atmospheric Science also offers programs leading to a Diploma in Meteorology. For more details see the undergraduate calendar.

Graduate Degrees

Graduate degrees in Atmospheric Science may be taken through the Departments of Physics and Atmospheric Science or Oceanography. Please see the calendar entry for Physics and Atmospheric Science or Oceanography for more details.

Staff

Chairperson of Department

Rotermund, H. H., (902) 494-2342

Graduate Coordinator

Monchesky, T., (902) 494-3582, theodore.monchesky@dal.ca

Coordinator, Atmospheric Science

Martin, R., (902) 494-3915

Professors

Drummond, J. R., MA, D. Phil (Oxford), FRSC-Canada Research Chair, Remote Sounding of Atmospheres
Geldart, D. J. W., BSc (Acadia), PhD (McMaster) FRSC - Research
Martin, R. V., BS (Cornell), MS, MSc (Oxford), PhD (Harvard)

Assistant Professors

Chang, R. Y. W., BASc, MASc, PhD (Toronto)
Lesins, G. B., PhD (Toronto)

Associate Professors

Duck, T., BSc, PhD (York)
Folkins, I., BSc (Dalhousie), MSc, PhD (Toronto)

Adjunct (FGS)

Pierce, J., BS (Northeastern), PhD (Carnegie Mellon)
Ritchie, H. C., PhD (McGill), MSC

Postdoctoral Fellows/Research Associates

Croft, B., PhD (Dalhousie)
Geddes, J., PhD (Toronto)
Snider, G., PhD (McGill)
Tikhomirov, A., D Sci (Institute of Atmospheric Optics, St. Petersburg)
Tsehtik, Y., MSc (Mozhaisky Military Space Engineering Univ)
van Donkelaar, PhD (Dalhousie)

Biochemistry and Molecular Biology

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Staff

Head of Department

Bearne, S. L., BSc (Acadia), PhD (Toronto), MDCM (McGill)

Professors Emeriti

Doolittle, W. F., AB (Harvard), PhD (Stanford)
Gray, M. W., BSc, PhD (Alberta)
Helleiner, C. W., BA, PhD (Toronto)

Professors

Archibald, J. M., BSc, PhD (Dalhousie)
Bearne, S. L., BSc (Acadia), PhD (Toronto), MDCM (McGill), cross appointment in Chemistry
Byers, D. M., BSc, MSc (Dalhousie), PhD (Alberta), cross appointment in Pediatrics
Dobson, M. J., BSc (Dalhousie), DPhil (Oxon)
Doolittle, W. F., AB (Harvard), PhD (Stanford), post-retirement
Duncan, R., BSc (Guelph), MSc (Queen's), PhD (Guelph), major appointment in Microbiology and Immunology
Gray, M. W., BSc, PhD (Alberta), post-retirement
Liu, P. X. -Q., BSc (Wuhan), PhD (Cornell)
Marignani, P. A., BSc (Windsor), MSc (Western Ontario), PhD (McMaster), EMBA (UWO), cross appointment in Pathology
McLeod, R. S., BSc, PhD (UBC), Asst. Dean Graduate and Post Doctoral Studies, Faculty of Medicine
McMaster, C. R., BSc, PhD (Manitoba), major appointment in Pharmacology
Rainey, J. K., BSc (Guelph), MSc, PhD (Toronto), cross appointment in Chemistry; Director Nuclear Magnetic Resource NMR-3), Graduate Coordinator (902) 494-2306
Ridgway, N. D., BSc, MSc (Dalhousie), PhD (UBC), joint appointment with Pediatrics
Ro, H. -S., BSc, PhD (McMaster)
Roger, A. J., BSc (UBC), PhD (Dalhousie)
Rosen, K. V., BSc, MSc, PhD (Moscow State), joint appointment with Pediatrics
Singer, R. A., AB (Princeton), PhD (Harvard)
Too, C. K. L., BSc, MSc (Malaya), PhD (Hawaii)
Waisman, D. M., BSc (Brandon), PhD (Manitoba), major appointment in Pathology

Associate Professors

Blouin, C., BSc (Laval), PhD (Dalhousie), joint appointment with Computer Science
Dellaire, G., BSc (UBC), PhD (McGill), major appointment in Pathology
Karten, B., MSc (Hamburg), PhD (Graz), Associate Graduate Coordinator
Slamovits, C., PhD (Buenos Aires)

Assistant Professors

Kienesberger, P. C., MSc, PhD (Graz)
Pulinilkunnil, T., MSc (India), PhD (UBC)
Van der Spoel, A. C., MSc (Utrecht), PhD (Rotterdam), major appointment in Pediatrics

Instructor

Ewart, K. V., BSc (Moncton), PhD (Memorial)

Admission

General requirements for admission to the Faculty of Graduate Studies are given in the Faculty Regulations section. A TOEFL score of at least 600 (paper-based) or 100 (internet), or an IELTS score of at least 7.5 is necessary for those whose native language is not English. The TOEFL requirement may be waived if completion of the degree is at an institution where the language of instruction is English.

General Regulations

The Department accepts applicants with honours degrees (or the equivalent) in biochemistry and molecular biology and also those with research-based training in related fields such as biology, chemistry and biomedical sciences. Advanced knowledge within a student's chosen area of biochemistry and molecular biology is developed by formal courses and/or guided study arranged for each student through consultation with a supervisory committee. Students also participate in BIOC 5910.06: Biochemistry and Molecular Biology Seminar course and in teaching/laboratory demonstrating. Scholarship support is available, and students are eligible for the Patrick Prize and the Doug Hogue Award, awarded by the Department to recognize excellence in graduate research. Additional information can be obtained via our website www.biochem.dal.ca.

Degree Programs

Master of Science (MSc) in Biochemistry and Molecular Biology

A thesis describing original research done by the candidate is prepared and defended orally. A Thesis Supervisory Committee consisting of the research supervisor and two others is appointed to facilitate the research. The minimum residence requirement for the MSc program is usually one year (see the Faculty of Graduate Studies regulations). Most students take an additional 12-18 months to complete the thesis.

Doctor of Philosophy (PhD) in Biochemistry and Molecular Biology

The preparation and oral defense of a thesis describing an extensive original investigation carried out by the candidate is the major requirement. A Thesis Supervisory Committee consisting of the research supervisor and three others is appointed to facilitate the research. For students admitted directly into the PhD program, and for those requesting transfer from the MSc to the PhD program, a PhD Candidacy Examination related to the subject area of the thesis occurs at the start of the second year of study. The minimum residence requirements for the PhD are two years from the MSc and three years from the BSc (see the Faculty of Graduate Studies regulations). Most students take an additional one to two years to complete the thesis.

Master of Science (MSc) in Computational Biology and Bioinformatics

The department also participates in this joint program along with the Faculty of Computer Science, the Department of Biology and the Department of Mathematics and Statistics.

Areas of Specialization

Molecular Cell Biology and Molecular Genetics

Dellaire, G. - Nuclear structure and cancer biology; chemotherapy resistance and cancer biomarkers; CRISPR genome engineering; the role of nuclear organization in DNA repair, tumour suppression, and cell cycle control; genome instability and pre-mRNA splicing; zebrafish as a novel animal tumour model.

Dobson, M. J. - Yeast plasmid segregation, role of sumoylation in chromosome and plasmid inheritance, regulation of gene expression, epigenetics.

Duncan, R. - Protein-mediated cell-cell membrane fusion during viral infections and muscle cell differentiation; viral fusion protein structure and function; cellular pathways involved in cell-cell fusion; exosomes and nonenveloped virus transmission; oncolyfic viruses for tumor therapy.

McMaster, C. R. - Lipid homeostasis: genetic and molecular analysis of lipid metabolism in yeast with an eye to human disease genes; protein structure and function.

Marignani, P. A. - Molecular signalling of tumour suppressors, protein kinases and cellular migration, stem cell biology, genome stability, model organisms, translational research, system biology.

Rainey, J. K. - Structural biology: studying membrane and fibre forming proteins and peptides; peptide synthesis and expression of challenging proteins; biophysical characterization using protein NMR spectroscopy, scanning probe microscopy and complementary techniques.

Ro, H. -S. - Signalling mechanisms of chronic inflammation/macrophage activation in atherogenesis, mammary tumorigenesis, and type 2 diabetes mellitus.

Rosen, K. V. - Mechanisms of three-dimensional tumor growth: molecular control of cancer cell survival in the absence of adhesion to the extracellular matrix.

Singer, R. A. - Molecular/genetic analysis of core eukaryotic functions; yeast chromatin regulation and intracellular membrane dynamics (with G.C. Johnston, Microbiology and Immunology).

Too, C. K. L. - Prolactin and steroid hormone action: signal transduction; gene expression; regulation of tumor cell growth and apoptosis; breast and prostate cancers.

Waisman, D. M. - Molecular mechanisms of metastasis and angiogenesis. Role of inflamation in tumor progression.

Comparative Genomics, Proteomics and Molecular Evolution

Archibald, J. M. - Genome evolution, gene transfer, endosymbiosis, molecular phylogeny.

Blouin, C. - Protein evolution and folding, molecular phylogeny, bioinformatics.

Doolittle, W. F. - Genome evolution: genomics, molecular phylogeny, role of lateral gene transfer in phylogeny and evolutionary innovation, origin and evolution of genomic complexity.

Gray, M. W. - Protist genomics: evolution of protist mitochondrial and nuclear genomes; ribosomal RNA, RNA processing and RNA editing.

Liu, P. X. -Q. - Protein splicing inteins and applications in protein engineering including protein polymerization, cyclization, cleavage, and site-specific modifications.

Roger, A. J. - Protistan phylogenetics, organelle evolution and evolutionary genomic analysis: protein evolution; anaerobic organelles and bioinformatic method development.

Slamovits, C. H. - Eukaryotic genome structure and evolution, diversity and evolution of molecular mechanisms in eukaryotes, molecular biology and evolution of microbial parasites.

Structure, Function and Metabolism of Biomolecules

Bearne, S. L. - Enzyme catalysis and protein engineering: transition state analogues; enzyme inhibition; bio-organic reaction mechanisms; organic synthesis; biochemical recognition; protein modifications; active site architecture; enzyme evolution; proteomics.

Byers, D. M. - Protein structure and function: role of acyl carrier protein in bacterial growth and pathogenesis; protein mass spectrometry.

Ewart, K. V. - Protein folding adaptations in cold marine environments and relevance to amyloid diseases; chemical chaperones; sustainable marine resource development.

Kienesberger, P. C. - Lipid metabolism and signalling in cardiac health and disease.

Karten, B. - Cholesterol metabolism in the brain: Cholesterol trafficking and import into mitochondria in relation to energy metabolism in neurons and glia. Role of cholesterol in synaptic function, Niemann-Pick Type C disease.

McLeod, R. S. - Lipoprotein assembly: structure and function of apolipoproteins; regulation of hepatic apoB secretion; lipid metabolism in the hepatocyte. Adiponectin and lipid metabolism in the adipoctye

Pulinilkunnil, T. - Nutrient regulation of lysosome metabolism; signaling and autophagy in health and disease.

Rainey, J. K. - Structural biology: studying membrane and fibrial forming proteins and peptides; peptide synthesis and expression of challenging proteins; biophysical characterization using protein NMR spectroscopy, scanning probe microscopy and complementary techniques.

Ridgway, N. D. - Sphingomyelin, phospholipids and cholesterol: metabolic and coordinate regulation; intracellular transport and vesicle trafficking; role in programmed cell death (apoptosis).

van der Spoel, A. C. - Genetic diseases of lipid metabolism; intracellular traffic and turnover of glycosphingolipids; lipid-metabolizing enzymes.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

BIOC 5000X/Y Special Topics in Biochemistry & Molecular Biology

CREDIT HOURS: 6
Students interested in topics not covered in formal classes may ask the department for special classes to meet their needs. The fields in which the department can offer instruction are reflected in the list of faculty research areas.

BIOC 5001 Special Topics in Biochemistry & Molecular Biology

CREDIT HOURS: 3
Students interested in topics not covered in formal classes may ask the department for special classes to meet their needs. The fields in which the department can offer instruction are reflected in the list of faculty research areas.

BIOC 5010 Bioinformatics

CREDIT HOURS: 3
This course presents the theory and practice of bioinformatics. Topics include: rates of mutations, sequence alignment, database searching, phylogenetic analysis, bioinformatic tools for analyzing gene, genomes and proteins.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOC 3400.03

BIOC 5302 Lipoproteins: Structure, Biosynthesis and Metabolism

CREDIT HOURS: 3
The structure of lipoproteins, their biosynthesis and secretion are considered. The metabolism of lipoproteins and their removal from plasma is explored in relation to lipid transport and atherosclerosis. Emphasis is on the interpretation of original experimental data in the current literature. Evaluation is based on term papers and seminar presentations.
FORMAT: Seminar| Discussion
PREREQUISITE: BIOC 3700.03 and BIOC 3300.03, equivalent 3rd year courses or permission of the instructor.

BIOC 5307 Current Topics in Molecular and Cell Biology of Lipids

CREDIT HOURS: 3
Explores mechanisms and regulation of lipid metabolism, trafficking, and cell signaling. Includes sections on lipids in the central nervous system, methods of lipid analysis, and lipids in disease. Emphasis is given to evaluation of original data and critical reading of current literature.Evaluation is based on seminar presentations, an essay, and short home assignments.
FORMAT: Seminar| Discussion
PREREQUISITE: BIOC 3300.03 or equivalent

BIOC 5308 Molecular Mechanisms of Complex Diseases

CREDIT HOURS: 3
The objective of this seminar course is to familiarize students with the molecular mechanisms that are involved in human diseases. The course will emphasize Metabolic Syndrome which is comprised of cancer, diabetes and cardiovascular diseases and clinical applications of molecular signalling. Specific areas that are covered in detail include the role of tumor suppressors, oncogenes, cell metabolism and epigenetic events that give rise to disease. The use of animal models to study the complex interplay between environment and molecular homeostasis will also be discussed.

BIOC 5403 Genes and Genomes

CREDIT HOURS: 3
This course discusses the organization of genes into genomes. It deals with (i) genetic material in nuclear and organellar genomes, (ii) components of genomes that are not genes, (iii) methodology of genomics and proteomics, and (iv) genetic organization and higher order chromosomal structure and function.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOC 3400 or Instructor's Consent
CROSS-LISTING: BIOC 4403.03

BIOC 5404 Gene Expression

CREDIT HOURS: 3
The different mechanisms for regulation of gene expression in bacterial and eukaryotic cells, and their viruses, are emphasized. Topics include genomic, transcriptional, and post-transcriptional modes of regulation. Evaluation is based on a mid-term examination, an essay and oral presentation on a topic selected by the student, and a

final examination.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOC 3400.03 or Instructor's consent
CROSS-LISTING: BIOC 4404.03

BIOC 5501 Medical Biotechnology

CREDIT HOURS: 3
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, immunochemical techniques and applications, production of transgenic organisms, potential applications for embryonic stem cell and nuclear transfer cloning, business and legal aspects of biotechnology.
FORMAT: Lecture| Discussion
PREREQUISITE: Instructor's consent
CROSS-LISTING: BIOC 4501.03, BIOL 5105.03

BIOC 5503 Pathobiology of Cancer

CREDIT HOURS: 3
This course will examine the basic molecular and cellular biology of carcinogenesis and tumor pathobiology, as well as emerging topics in cancer genomics, diagnosis and treatment. The clinical aspects of cancer management will also be highlighted, including surgery, radiation and chemotherapy.
FORMAT: Lecture| Discussion
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BSc degree obtained in any biological or medical science.
CROSS-LISTING: PATH 5040.03, MICI 5040.03

BIOC 5700 Proteins

CREDIT HOURS: 3
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 membranes, and in energy transduction are provided. Protein evolution and turnover are examined.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOC 3700.03; or (CHEM 3601.03 and CHEM 2301.03 and CHEM 2304.03), all with grades of B or higher or instructor's permission

BIOC 5701 Enzymes

CREDIT HOURS: 3
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| Seminar
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOC 3700.03; or (CHEM 3601.03 and CHEM 2301.03 and CHEM 2304.03), all with grades of B or higher or instructor's permission

BIOC 5702 Biophysical Characterization of Macromolecules

CREDIT HOURS: 3
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: fluroescence, electronic and vibrational circular dichroism and NMR spectroscopy; light vs. X-ray vs. neutron scattering; and, single molecule methods.
FORMAT: Lecture
PREREQUISITE: BIOC 3700.03; or (CHEM 3601.03 and CHEM 2301.03 and CHEM 2304.03), all with grades of B or higher or instructor's permission.
Recommended: PHYC 1190.03/1290.03 or PHYC 1300.06

BIOC 5813 Biochemistry of Clinical Disorders

CREDIT HOURS: 3
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 approach to their diagnosis. Topics include cardiovascular, renal, gastrointestinal and hepatobiliary disorders, in addition to acid base, carbohydrate, lipid and amio acid disorders; endocrine and rheumatological diseases, as well as tumor markers and toxicology, blood and immune abnormalities.
FORMAT: Lecture| Discussion
CROSS-LISTING: BIOC 4813.03 and PATH 5013.03

BIOC 5910X/Y Biochemistry and Molecular Biology Seminar

CREDIT HOURS: 6
This course provides students with experience in the written and oral presentation of scientific data. Interactive faculty and peer feedback is used to hone students' skills with an emphasis on both clarity of presentation and on the ability of students to discuss specialist topics in general terms.
FORMAT: Seminar

BIOC 6701 Mechanistic Enzymology

CREDIT HOURS: 1.5
Enzymes from a variety of classes will be examined from an organic chemistry reaction mechanism perspective. The general principles of enzyme catalysis and the experimental approaches used to elucidate enzyme reaction mechanisms will be discussed. Applications and examples from the current literature will be critically appraised.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: CHEM 3401.03 and 3601.03 or BIOC 3700.03 or instructor's consent

CROSS-LISTING: CHEM 6458.015

BIOC 6702 Topics in High Resolution Nuclear Magnetic Resonance

CREDIT HOURS: 1.5
Advanced topics in high resolution liquid state nuclear magnetic resonance will be explored, including the quantum mechanical basis of the observables, product operator treatment of pulse sequences, 2D NMR pulse sequences, coherence selection and relaxation.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: CHEM 4402.03/CHEM 5402.03, CHEM 4602.03/CHEM 5602.03, or permission of instructor
CROSS-LISTING: CHEM 6362.015

BIOC 6703 Magnetic Resonance Techniques for Drug Design and Development

CREDIT HOURS: 1.5
Magnetic resonance techniques such as NMR spectroscopy and magnetic resonance imaging (MRI) have become essential tools for the design and molecular characterization of drugs and therapeutants. Topics of current interest are covered and include structural characterization of drugs, receptors and binding motifs, and MRI techniques for drug monitoring.
FORMAT: Seminar| Discussion
PREREQUISITE: CHEM 4601.03 or CHEM 4602.03 or permission of the instructor
CROSS-LISTING: CHEM 6457.015

BIOC 9000 MSc Thesis

CREDIT HOURS: 0

BIOC 9530 PhD Thesis

CREDIT HOURS: 0

Bioethics

Location:
Building/Room: Clinical Research Centre
Street Address 1: 5849 University Avenue
Street Address 2: Room C-315
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3801
Fax: (902) 494-3865
Website: www.bioethics.dal.ca
Email Address:

Staff

Department Head

Simpson, C., BA, BSc, MA (McMaster), PhD (Dalhousie)

Professors

Fernandez, C., BSc (UWO), MD (McMaster), FRCPC. Professor and Head of pediatric hematology/oncology, Department of Pediatrics at the IWK Health Centre and Dalhousie University with a cross-appointment in the Department of Bioethics. Interests: pediatric research ethics including return of research results to research participants, Wilms tumor, and principal investigator Children's Oncology Groups.
Kirby, J., MA, MD (Dalhousie). Interests: Organizational ethics, health policy development, social accountability, and deliberative engagement methodologies.

Associate Professors

Capps, B., BSc (Cardiff Univ, UK), MA (Univ Sheffield, UK), PhD (Univ Bristol, UK). Interests: The ethics of One Health, public health and infectious diseases; stem cell science and ethics, neuroethics; and jurisprudential and political theory.
Reid, L., BA (Winnipeg), AM, PhD (Illinois). Interests: ethical issues in physician-industry relations; preferential access (ethical wait list management, ethical advocacy, queue-jumping, professional courtesy); business ethics for physician practice groups; moral development and professional identity formation in medical education; philosophical issue in definition of health and disease, including definition and determination of death.
Simpson, C., BA, BSc, MA (McMaster), PhD (Dalhousie). Interests: the role of hope in health care, ethics education and capacity building, rural bioethics and organizational ethics.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

NOTE: The courses listed are half year courses, and may not be offered every year. Instructors are likely to vary from year to year. Consult the department for further information.

Course Descriptions

BIOT 5000 Advanced Topics in Bioethics

CREDIT HOURS: 3
The seminar involves critical examination of the bioethics literature. The application of various methodologies utilized in contemporary bioethical analysis will be highlighted. It will be of interest to graduate students in medicine, health professions, health law, and philosophy whose thesis topic involves a substantial bioethical component.
FORMAT: Seminar
PREREQUISITE: Instructor Permission

BIOT 5001 Research Ethics

CREDIT HOURS: 3
This seminar involves critical examination of the research ethics literature, with particular attention to a range of topics including: informed consent; research involving specific groups/communities; risks/limits to allowable risks; emergency room research; and placebo controls. It will be of interest to graduate students in medicine, health professions, health law, and philosophy.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor

BIOT 5002 Health Care Ethics and the Law

CREDIT HOURS: 3
The purpose of this course is to develop an understanding of health law and healthcare ethics and of the relationship between law and ethics. Topics covered in the past years include: informed choice; death and dying; genetics; reproduction; HIV and AIDS; resource allocation; and health research. Each issue is examined in an effort to determine what the law is and what the law ought to be.
CROSS-LISTING: LAW 2115.03

BIOT 5101 Directed Readings in Bioethics I

CREDIT HOURS: 3
This is an advanced level directed reading course designed for graduate students. Instructors and topics can vary.
PREREQUISITE: Permission of the instructor

BIOT 5102 Directed Readings in Bioethics II

CREDIT HOURS: 3
This is an advanced level directed reading course designed for graduate students. Instructors and topics can vary.
PREREQUISITE: Permission of the instructor.

BIOT 5801 Topics in Health Care Ethics

CREDIT HOURS: 3
In this course, we will explore some of the current debates among different theoretical perspectives about the proper theoretical groundwork for bioethics and the methodologies associated with these diverse theories. We shall pay particular attention to canonical work in the field, such as the principles approach of Beauchamp and Childress, while examining feminist and other alternatives. We shall consider the ways different theories identify, frame, and reason about ethical questions that arise in the realm of health and healthcare.
FORMAT: Seminar
CROSS-LISTING: PHIL 5801.03

Biology

Location:
Building/Room: Life Sciences Centre
Street Address 1: 1355 Oxford Street
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3515
Fax: (902) 494-3736
Website: biology.dal.ca
Email Address: biology@dal.ca

Staff

Chair

Bentzen, P.

Graduate Coordinator

Stone, S.

Graduate Admissions

Ruzzante, D.

Professors Emeriti

Hall, B. K., DSc (UNE), LLD (Calg), PhD (UNE), FRSC, University Research Professor Emeritus
McLaren, I. A., MSc (McGill), PhD (Yale), George S. Campbell Professor Emeritus. Copepod growth rules; population biology; copepods; birds; seals

Professors

Adamo, S., BSc (Toronto), PhD (McGill), major appointment in Psychology. Insect and cephalopod behavioural physiology
Bentzen, P., MSc (UBC), PhD (McGill), DFO Professor, Fisheries Resource Conservation Genetics and Biotechnology. Population genetics, conservation genetics, evolutionary genetics, fish ecology, fisheries science
Burton, D. L., BSc (Dalhousie), MSc (Guelph), PhD (Alberta), major appointment in Environmental Sciences (Agr)
Caldwell, C. D., BSc (Mt. A), MSc (Dalhousie), PhD (East Anglia), major appointment in Plant & Animal Science
Croll, R., PhD (McGill), major appointment in Physiology/Biophysics. Molluscan neurobiology, development and reproduction
Fredeen, A., BSA (Saskatoon), MSc (Guelph), PhD (California), major appointment in Plant and Animal Science
Hutchings, J., MSc, PhD (Memorial). Evolutionary ecology of fishes, life history evolution, salmonid fish, population biology, commercially exploited fishes, reproductive strategies, marine conservation biology
Iverson, S. J., PhD (Maryland), WFA. Reproductive strategies in mammals, lactation and energetics lipid metabolism, fatty acids, diets in marine mammals
Johnston, M. O., PhD (Chic). Evolutionary genetics, plant evolution, plant ecology, mutations and evolution, molecular evolution, plant reproduction, evolution of self-fertilization, inbreeding depression, speciation, floral development, sex allocation in hermaphroditic animals
Lada, R., BSc, MSc (Hort) (TNAU), PhD (Adelaide), major appointment in Environmental Sciences (Agriculture)
Lane, P. A., MSc (SUNY Binghamptom), PhD (SUNY Albany). Environment-economy interaction, environmental management, sustainability in Cuba and Latin America, freshwater and marine ecosystems, food web analysis
Leonard, M. L., PhD (Ottawa). Behavioural ecology, parent-offspring interactions, conservation, avian communication and conservation
MacRae, T. H., MSc, PhD (Windsor). Cell/molecular biology, small heat shock proteins, HSP70, LEA proteins, gene expression, diapauses, embryo development, Artemia, breast cancer and HSP27
Meinertzhagen, I. A., DSc, PhD (St. Andrews), University Research Professor, major appointment in Psychology. Visual system in flies, *Drosophilia*, synapse formation, computer 3-D construction techniques, circadian rhythms, cell lineage, neurons in ascidian tadpole larva, evolution of all of these
Metaxas, A., BSc (McGill), MSc (UBC), PhD (Dalhousie), major appointment in Oceanography
Nams, V. O., BSc (Toronto), MSc (Alberta), PhD (Victoria), major appointment in Environmental Sciences (Agr)
Percival, D. C., BSc (Agr), MSc, PhD (Guelph), major appointment in Environmental Sciences (Agr)
Ruzzante, D. E., PhD (Dalhousie). Professor and CRC in Marine Conservation Genetics. Population and conservation genetics of aquatic organisms. Adaptive

radiation in fish
Scheibling, R. E., BSc, PhD (McGill). Community ecology, marine rocky intertidal, subtidal zones, disturbance, succession, community structure, larval settlement, benthic marine invertebrates, predator-prey interactions, behavioural ecology, population dynamics, sea urchins
Simpson, A. G. B., BSc, PhD (Sydney Australia). Early Eukaryote Evolution: biodiversity and systematics of eukaryotic microbes (protists; protozoa), sub-cellular morphology of protists, molecular phylogenetics, genome evolution, classification
Walde, S. J., PhD (Calgary). Stream ecology, predator-prey interactions, arthropod populations, dispersal, competition
Wang-Pruski, G., BSc (China), PhD (Alberta), major appointment in Plant and Animal Science
Whitehead, H., MA, PhD (Cambridge). Behaviour, ecology, population biology of whales, social structure in vertebrates
Worm, B., PhD (Kiel). Marine biodiversity science, biodiversity-ecosystem linkages, marine conservation ecology, experimental community ecology of rocky shores, fisheries ecology, human impacts on marine ecosystems
Wright, J. M., PhD (Memorial). Gene expression, eukaryotic genomes, genetics, fish cytogenetics

Associate Professors

Bielawski, J. P., PhD (Texas A & M Univ). Adaptive molecular evolution, adaptation and diversification in prokaryotes, molecular phylogenetics, genomics, bioinformatics
Gunawardena, A., BSc (Srilanka), PhD (Oxford). Plant developmental biology, plant cell biology, programmed cell death, plant development
Herbinger, C. M., PhD (Dalhousie). Population, conservation and quantitative genetics of aquatic organisms, aquaculture
Latta, R., MSc (Toronto), PhD (Colorado). Ecology and Evolution of Plants. Spatial genetic structure of populations, migration and gene flow, adaptation to local environments, natural selection
Lotze, H. K., BSc (Gottingen), MSc, PhD (Kiel). Marine resources, population and community ecology, human impacts, cumulative effects, ecosystem structure and functioning, biodiversity, ecological history, management and conservation
Lynch, D. H., BSc, MSc (Agr) (McGill), PhD (Guelph), major appointment in Plant and Animal Science
Pinder, A., PhD (Mass), Respiration, circulation, metabolism in amphibians and fish, oxygen transport, coral reef ecology and conservation
Romanuk, T. N., PhD (McMaster). Food web structure and function, aquatic microcosms, stability, network theory, biodiversity
Staicer, C. A., MSc (Northern Arizona), PhD (Univ Mass Amherst). Ecology and behaviour of birds, forest ecosystem and biodiversity monitoring
Stone, S. L., PhD (York). Plant development, molecular biology, ubiquitination, regulated proteolysis, hormone signaling, stress tolerance

Assistant Professors

Bertrand, E., BSc (Bates College), PhD (MIT/WHOI), Microbial Oceanography, Proteomics, Phytoplankton
Côté, P. D., BSc (Ottawa), PhD (McGill). Cellular neurobiology, molecular genetics, neural development, retina maturation, synaptogenesis, sodium channels
Crossin, G. T., BA (Maine), BSc (New Hampshire), MSc, PhD (UBC). Physiological mechanisms underlying phenotypic variation in life-history traits. Endocrine costs of reproduction and carryover effects in migratory animals. Avian and fish model systems. Animal telemetry

Instructor list

Ewart, K. V., PhD (Memorial), major appointment in Biochemistry & Molecular Biology

Adjunct (FGS)

Adl, S. M., MSc (UBC), PhD (Paris-VI)
Barber, C., BSc (Guelph), MSc (Manitoba), PhD (Queen's)
Bradbury, I. R., BSc, BEd, MSc (Memorial), PhD (Dalhousie)
Bradford, R. G., BSc (Hons), MSc (UNB), PhD (Dalhousie)
Bowen, W. D., PhD (UBC)
Broders, H., BSc (Hons) (Acadia), MSc (Memorial), PhD (UNB)
Franz-Odentaal, T., BSc (Hons), MSc, PhD (Cape Town)
Frasier, T. R., BSc (North Dakota), PhD (McMaster)
Froese, R., PhD (Hamburg)
Guderley, H., BA (Indiana), PhD (UBC)
Horn, A., BSc (Cornell), PhD (Toronto)
Kenchington, E., MSc (Dalhousie), PhD (Tasmania)
Kuparinen, A., MSc, PhD (Helsinki)
Lee, R. W., MA (Mass), PhD (SUNY Stony Brook)
Papadadopoulos, Y. A., MBA (St. Mary's), PhD (Guelph)
Qaderi, M. M., MSc, PhD (Western)
Quaas, M., Diplom (Duisburg), PhD (Heidelberg)
Ronconi, R. A., BSc (Alberta), PhD (Victoria)
Ross, N., BSc, PhD (McGill)
Schmitz-Streit, R. A., PhD (Marburg)
Shackell, N. L., BSc (McGill), PhD (Dalhousie)
Skinner, M. A., BSc (UCB), MSc, PhD (UNB)

Stokesbury, M. J. W., BA (Acadia), BSc (UNB), MSc (Acadia), PhD (Dalhousie)
Swain, D. P., PhD (UBC)
Tittensor, D. P., BSc (Aberdeen), MSc (Memorial), PhD (Dalhousie)
Weilgart, L., BA (Luther), MSc (Memorial), PhD (Dalhousie)
Whoriskey, F. G., PhD (Laval)
Wong, M., BSc (Mt. A), PhD (UNB)

Admission

The Biology Department has facilities for advanced study and research leading to the MSc and PhD degrees.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies and normally a student will not be permitted to earn all three degrees (BSc, MSc, and PhD) at Dalhousie. All inquiries for admission to the graduate program should be addressed to Carolyn Young, Biology Department.

Master of Science (MSc) Degree Program

Students are required to take at least 12 credit hours at the graduate level including BIOL 5700.03: Communication Skills and BIOL 5705.03: Graduate Module Classes; they may include graduate courses from other departments or the Faculty of Agriculture. Additional courses may be specified by supervisory committees.

Students are required to demonstrate in an undergraduate biology course for at least one year and must take an admission to candidacy examination during the first nine months.

A thesis reporting original research must be submitted and defended orally.

Students are expected to participate in weekly departmental seminars.

Doctor of Philosophy (PhD) Degree Program

Students without MSc degrees have the same course requirement as MSc students. Students with MSc degrees must take at least six credit hours at the graduate level including BIOL 5700.03: Communication Skills (unless taken previously). Additional courses may be taken. Students are required to demonstrate in an undergraduate biology course for one year, and must take an admission to candidacy exam in their first nine months.

A preliminary examination including a review paper and thesis progress report is required for all PhD students. Students must pass the preliminary examination at least one year before submitting a PhD thesis.

A thesis reporting original research must be defended orally. Students are expected to participate in weekly departmental seminars.

Ancillary and Audit Courses

At the discretion of the Supervisory Committee, Supervisor or ATC examiners, a student may be directed to take for credit courses needed to make up deficiencies or acquire skills considered beneficial but of subsidiary importance. If these are undergraduate level courses they are designated as ancillary, to be passed with a minimum grade of D. They must be reported to the Graduate Coordinator or Stream Chair at the interview in September. They may ***not*** be used for ***graduate credit***.

Students may also elect or be required to audit courses relevant to their program. No credits are received for these. A maximum of one audit course is allowed for each year of the specified program (e.g. One for a 1-year MSc, two for a 2-year MSc, etc.). Continuing Students may not audit. However, additional courses may always be audited if paid for with extra fees.

Course Selection

Courses with the extension .03 are three credit hours. All others (sometimes shown with the extension .06) are six credit hours.

Some courses are offered only in alternate years. Others are suspended due to sabbatical leaves but will resume when the staff return. All course offerings are included in this listing so that students may plan their entire course of study in their first year. Such planning is necessary because the Faculty of Graduate Studies requires that a complete program be prepared for each student by October 15th in their first year.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Required Courses for MSc Students

BIOL 5700.03: Communication Skills
BIOL 5705.03/BIOL 5706.03: Graduate Module Classes

Special Topics Courses

BIOL 5800-BIOL 5899: Special Topics and Projects in Biology
A suitable combination of directed reading, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area. Courses are organized and scheduled by appropriate faculty, Adjunct Professors or honourary Research Associates when requested by interested students. Students should approach potential instructors directly with their requests. Each separate topic must be approved by the Graduate Coordinator and approval is not normally given for students taking a course from their research supervisor. A course description is required before approval can be given. Courses may be worth three or six credit hours, depending upon duration and content.

BIOL 5801.03: Special Topic in Agricultural Biology
BIOL 5802.03: Special Topic in Animal Behaviour
BIOL 5803.03: Special Topic in Animal Physiology
BIOL 5804.03: Special Topic in Animal Science
BIOL 5805.03: Special Topic in Aquaculture
BIOL 5806.03: Special Topic in Biochemistry
BIOL 5807.03: Special Topic in Biological Education
BIOL 5808.03: Special Topic in Biomathematics
BIOL 5809.03: Special Topic in Biostatistics
BIOL 5810.03: Special Topic in Cell Biology
BIOL 5811.03: Special Topics in Development Biology
BIOL 5812.03: Special Topic in Ecology
BIOL 5813.03: Special Topic in Environmental Biology
BIOL 5814.03: Special Topic in Evolutionary Biology
BIOL 5815.03: Special Topic in Fish Biology
BIOL 5816.03: Special Topic in Functional Morphology
BIOL 5817.03: Special Topic in Genetics
BIOL 5818.03: Special Topic in History of Biology
BIOL 5819.03: Special Topic in Industrial Microbiology
BIOL 5820.03: Special Topic in Limnology
BIOL 5821.03: Special Topic in Marine Biology
BIOL 5822.03: Special Topic in Marine Ecology
BIOL 5823.03: Special Topic in Marine Microbiology
BIOL 5824.03: Special Topic in Microbiology
BIOL 5825.03/BIOL 5925.06: Special Topic in Molecular Biology
BIOL 5826.03: Special Topic in Philosophy of Biology
BIOL 5827.03: Special Topic in Phycology
BIOL 5828.03: Special Topic in Plant Biology
BIOL 5829.03: Special Topic in Plant Ecology
BIOL 5830.03: Special Topic in Plant Physiology
BIOL 5831.03: Special Topic in Plant Science
BIOL 5832.03: Special Topic in Population Biology
BIOL 5833.03: Special Topic in Zoology
BIOL 9000.00: MSc Thesis
BIOL 9530.00: PhD Thesis

Course Descriptions

BIOL 5033 Molecular Genetic Techniques in Ecology

CREDIT HOURS: 3
Students gain experience in techniques of molecular ecology that include but may extend beyond DNA isolation, electrophoresis, PCR, RFLP and microsatellite analysis. Techniques are learned in the context of an actual research project. Evaluation is based on class participation, the student's laboratory note-book, and a report on research carried out.

BIOL 5042 Marine Conservation Genetics

CREDIT HOURS: 3
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, an essay and two exams.
FORMAT: Lecture| Discussion
PREREQUISITE: BIOL 2060.03, BIOL 2030.03 or BIOA 3001.03, GENE 2000.03

BIOL 5044 Genetics in Ecology

CREDIT HOURS: 3
The interface between heritable variation among living things (genetics) and their interactions with their environment (ecology) is the fundamental crucible of adaptive evolutionary change. This course will present an advanced examination of genetic variation in ecologically important traits. Both single gene and continuously varying (quantitative) traits will be examined.
FORMAT: Lecture| Seminar
PREREQUISITE: BIOL 3041.03 and STAT 2080.03
CROSS-LISTING: BIOL 4044.03

BIOL 5050 Advanced Topics in Developmental Biology

CREDIT HOURS: 3
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, progeins and cells interact in development of animals and plants.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: BIOL 3050.03 or equivalent

BIOL 5060 Environmental Ecology

CREDIT HOURS: 3
The ecological effects of pollution, disturbance, and other stressors, both anthropogenic and natural. Major subject areas are air pollutants, toxic metals, acidification, eutrophication, oil spills, pesticides, forestry, warfare, urban ecology, risks to biodiversity, and resource degradation. The overarching context of the course is ecological sustainability of the human economy.
PREREQUISITE: None
CROSS-LISTING: BIOL 3060.03

BIOL 5061 Experimental Design in Biology

CREDIT HOURS: 3
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
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: BIOL 4061.03

BIOL 5062 Analysis of Biological Data

CREDIT HOURS: 3
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.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: BIOL4062.03

BIOL 5067 Ecology and Evolution of Fishes

CREDIT HOURS: 3
This course will examine selected topics on the ecology and evolution of marine and freshwater fishes. Topics shall include systematics, morphology, evolutionary ecology, behaviour, life history strategies, population biology, and fisheries management.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BIOL 2001.03, BIOL 2060.03 or BIOA 3001.03
CROSS-LISTING: BIOL 3067.03

BIOL 5070 Advanced Topics in Animal Physiology

CREDIT HOURS: 3
Advanced physiology delves more deeply into physiological topics of particular interest to the participants. Students present seminars based on two research papers of their own choice. The other students participate in a critique of the paper and discussion of the data, quality, and impact of the paper
NOTE: Course Details listed here also apply to BIOL 5080.03.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 2
PREREQUISITE: Classes in organic chemistry, general biochemistry, physiology and plant biology normally necessary. Permission of instructor required

CROSS-LISTING: BIOL 4070.03

BIOL 5080 Advanced Topics in Animal Physiology

CREDIT HOURS: 3
See BIOL 5070.03

BIOL 5103 Infectious Diseases of Aquatic Organisms

CREDIT HOURS: 3
This course will examine a variety of pathogens (viral, bacterial, fungal and protozoan) with emphasis on disease prevalence, diagnosis, control and pathogen identification. Immune systems of invertebrates and vertebrates will be discussed in relation to disease.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: BIOL 4012.03

BIOL 5105 Medical Biotechnology I

CREDIT HOURS: 3
See course description for BIOC 4501.03/5501.03 and PHAR 4351.03 in the Biochemistry or Pharmacology sections of this calendar.
FORMAT: Lecture| Discussion
PREREQUISITE: Consent of instructor
CROSS-LISTING: BIOC 4501.03

BIOL 5214 Physiology and Biochemistry of Marine Algae

CREDIT HOURS: 3
Algae are examined in terms of their major processes and products with attention directed toward the influence of environmental factors, such as light, nutrition and temperature. The taxonomic classes are compared by means of pigment composition, nitrogenous compounds, reserve products and cell wall structure.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 2

BIOL 5220 Plant Cell Biology

CREDIT HOURS: 3
This course covers the structure, function, and dynamic properties of plant cellular components including constituent organalles, cytoskelton, and the cell wall. Areas of significant current research such as programmed cell death, cell signaling and cellular trafficking are considered in depth. The course consists of lectures, student seminars and report writing.
FORMAT: Lecture| Seminar
PREREQUISITE: BIOL 2020.03 or BIOA 2001.03 and one of BIOL 2003.03 or BIOL 2004.03 or BIOL 3050.03 or BIOL 3218.03
CROSS-LISTING: BIOL 4220.03

BIOL 5302 Clinical and Molecular Immunology

CREDIT HOURS: 3
An advanced course which investigates the molecules involved in the generation and expression of immune responses. Topics typically include the molecular mechanisms of cell death, molecular regulation of cytokines, the generation of antibody diversity by immunogobulin gene rearrangement, the structure and function of cell surface receptors such as the T cell antigen receptor, MHC and adhesion molecules, receptor signaling and the genetics of immune regulation.

BIOL 5610X/Y Scientific Writing and Advanced Laboratory in Biochemical Techniques

CREDIT HOURS: 6
This course will consist of a series of laboratory modules (3 modules each of 4 weeks' duration, 1 day per week or 72 hours in total with limited flexibility to accommodate the need to attend other courses) and tutorials with computer-based assignments designed to teach scientific writing techniques (9 hours in total). The course is organized collaboratively by the Departments of Biochemistry & Molecular Biology, Biology, and Microbiology & Immunology. Several lab modules will be offered in 3 sections covering techniques used in the study of molecular biology, protein structure-function, and specific metabolic processes. Students in concentrated Honours Biochemistry must complete 1 module from each section. Students in combined Honours with Biochemistry may select their three modules from any section or sections, subject to availability of space. Students must obtain a course outline from the Biochemistry & Molecular Biology Department office prior to registration and return the module selection form at least 24 hours prior to the organizational meeting, the date of which will be indicated in the Registration Timetable.
NOTES: 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| Tutorial
CROSS-LISTING: BIOC 4610.06, BIOC 5610.06. BIOL 4013X/Y.06, MICI 4610X/Y.06, MICI 5610X/Y.06

BIOL 5651 Evolutionary Ecology of Marine Mammals

CREDIT HOURS: 3
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
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: BIOL 4060.03

BIOL 5700X/Y Communication Skills

CREDIT HOURS: 3
Through realistic, practical assignments students test and develop their communication skills. There is also information on the graduate program in Biology and other aspects of the work of a biologist (e.g. ethics). This course is mostly in the Fall term and is graded pass/fail.
NOTES: Required of all students.

BIOL 5701X/Y Communication Assignment

CREDIT HOURS: 3
This course is for first year PhD's who have already completed BIOL 5700C, and others by special permission. Permission to register in this course must be obtained by October 15th.Assignments appropriate to the student's background and interests will be organized to further develop communication skills.

BIOL 5705X/Y Graduate Module Classes

CREDIT HOURS: 3
All MSc students must complete a module course. All students choose from the same set of modules. Three month-long modules (out of about 15-20) are required for each half credit. Students who have taken BIOL 5705.03 may take BIOL 5706.03. Both courses are graded. Modules may also be taken at the Faculty of Agriculture in Truro. Module titles will be listed on the module web site.
COORDINATOR: J.P. Bielawski NOTE: Course Details listed here also apply to BIOL 5706.03.

BIOL 5706X/Y Grad Module Class II

CREDIT HOURS: 3
See BIOL 5705.03.

BIOL 5800 Special Topics and Projects in Biology

CREDIT HOURS: 3
A suitable combination of directed reading, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area. Classes are organized and scheduled by appropriate faculty, Adjunct Professors or Honorary Research Associates when requested by interested students. Students should approach potential instructors directly with their requests. Each separate topic must be approved by the Graduate Coordinator and is not normally given for students taking a course from their research supervisor. Approval must be requested by the instructor in writing and must have been received before October 1. A course description is required before approval can be given. Classes may be worth a half or full credit, depending upon duration and content.
NOTE: Course Details listed here also apply to courses BIOL 5801.03 through to BIOL 5899.03.

BIOL 5801X/Y Special Topic in Agricultural Biology

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5802X/Y Special Topic in Animal Behaviour

CREDIT HOURS: 3
See BIOL 5800.03.

BIOL 5803X/Y Special Topic in Animal Physiology

CREDIT HOURS: 3
See BIOL 5800

BIOL 5804X/Y Special Topic in Animal Science

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5805X/Y Special Topic in Aquaculture

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5806X/Y Special Topic in Biochemistry

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5807X/Y Special Topic in Biological Education

CREDIT HOURS: 3
See BIOL 5800.03.

BIOL 5808X/Y Special Topic in Biomathematics

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5809X/Y Special Topic in Biostatistics

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5810X/Y Special Topic in Cell Biology

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5811X/Y Special Topics in Development Biology

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5812 Special Topic in Ecology

CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5813X/Y Special Topic in Environmental Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5814X/Y Special Topic in Evolutionary Biology
CREDIT HOURS: 3
See BIOL 5800.03.

BIOL 5815X/Y Special Topic in Fish Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5816X/Y Special Topic in Functional Morphology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5817X/Y Special Topic in Genetics
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5818X/Y Special Topic in History of Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5819X/Y Special Topic in Industrial Microbiology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5820X/Y Special Topic in Limnology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5821X/Y Special Topic in Marine Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5822X/Y Special Topic in Marine Ecology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5823X/Y Special Topic in Marine Microbiology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5824X/Y Special Topic in Microbiology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5825X/Y Special Topic in Molecular Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5826X/Y Special Topic in Philosophy of Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5827X/Y Special Topic in Psychology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5828X/Y Special Topic in Plant Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5829X/Y Special Topic in Plant Ecology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5830X/Y Special Topic in Plant Physiology
CREDIT HOURS: 3

See BIOL 5800.03

BIOL 5831X/Y Special Topic in Plant Science
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5832X/Y Special Topic in Population Biology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 5833X/Y Special Topic in Zoology
CREDIT HOURS: 3
See BIOL 5800.03

BIOL 9000 MSc Thesis
CREDIT HOURS: 0

BIOL 9530 PhD Thesis
CREDIT HOURS: 0

Biomedical Engineering

Location:
Building/Room: Dentistry Building
Street Address 1: 5981 University Avenue
Street Address 2: Room 5197
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3427
Fax: (902) 494-6621
Website: bme.medicine.dal.ca
Email Address: BME@Dal.ca

Introduction

The School of Biomedical Engineering is a collaborative effort of the Faculty of Medicine and the Faculty of Engineering.

The interdisciplinary research within the School of Biomedical Engineering at Dalhousie University is concentrated in four thrust areas: (i) Biomaterials and Tissue Engineering, (ii) Imaging and Medical Technology, (iii) Biosignals and Physiological Modelling, (iv) Dynamics of Human Motion. Other significant research efforts in biomedical engineering at Dalhousie include work in kinesiology and gait including orthopaedic implants, biomechanics in cardiac, orthopaedic, respiratory and cellular systems, auditory and vestibular function, biomedical instrumentation and robotics.

The program offers both a Master of Applied Science (MASc) degree and a Doctor of Philosophy (PhD) degree in Biomedical Engineering.

The program also offers BioMedic: An NSERC CREATE training program in Biomedical Technology, Innovation, and Commercialization. The training program includes courses in partnership with Dalhousie's Business School on the Business of Medical Technology and Technological Needs in the Clinical Settings, and work placements at local and international medical device companies. Upon successful completion of the Training program a certificate in competency will be noted on the student's academic record in addition to the degree completed. See department website for details.

Staff

Director

Maksym, G. N.

Graduate Coordinator

Wilson, J. L.

Professors

Bance, M., MB, ChB (Manchester, England), MSc (Toronto), FRCS (C) (Canada). Middle ear mechanics, measuring minute vibrations of middle ear structures, hearing reconstruction mechanics, design of prosthesis for hearing reconstruction, transfer function of normal and diseased middle ears, finite element modelling of middle ear (in conjunction with Dr. Robert Funnel at McGill University). Primary appointment in Division of Otolaryngology, Faculty of Medicine
Dunbar, M., MD (Dalhousie), PhD (Lund). Joint biomechanics and kinematics. Development of radiostereometric analysis and gait Analysis for Prediction of hip and knee arthroplasty failure. Development of gait laboratory surrogates for clinical assessment of orthopaedic patients. Primary appointment in Surgery, Division of Orthopaedics
Fine, A., VetMD, PhD (Univ of Pennsylvania). Synaptic function and plasticity in the brain. . Brain networks underlying sensation and memory. Advanced optical methods for imaging neural structure and function. Primary appointment in Physiology and Biophysics
French, A., PhD (Essex). Information encoding and processing by sensory neurons, mechanotransduction, nonlinear systems analysis and ion channel biophysics. Primary appointment in Physiology and Biophysics
Gu, J., PhD (Alberta). Medical robotic devices and applications; artificial eye implant control; rehabilitation assistive device design and applications; sensor fusion in mobile robot. Primary appointment in Electrical and Computer Engineering
Kozey, C., PhD (Dalhousie). Classification of neuromuscular control patterns associated with normal movement and movement in the presence of pathology and/pain. These studies involve the use of electromyography, and other sensors to measure muscle function and motion parameters. Primary appointment in the School of Physiotherapy
Lee, J. M., PhD (Western). Bioprosthetic heart valves and vascular grafts, intravascular stents, biopolymers, tissue mechanics, developmental changes in cardiovascular system. Primary appointment in Applied Oral Sciences
Leon, L. J., BSc, MSc, PhD (Dalhousie), PEng. Computational Electromagnetics, parallel and distributed computing, biomedical engineering, cardiac electrophysiology. Primary appointment in Electrical and Computer Engineering

Schmidt, M., MD (Ludwig-Maxmilians Univ, Munich). Postoperative neurocognitive and organ dysfunction in elderly; neuro- and organ protection in the field of anesthesia; device development (protoyping, clinical and animal studies) and commercialization. Primary appointment in Anesthesiology
Stanish, W. D., MD (Dalhousie), FRCS (Canada). BST-cargel: in situ chondioinduction for cartilage repair. Gait patterns in individuals suffering with moderate osteoarthritis of the knee, but with non-surgical interventions. Psychological predicators of prolonged pain and disability following total knee arthroplasty. Primary appointment in Division of Orthopaedic Surgery, Faculty of Surgery, Dalhousie University

Associate Professors

Brown, J. A., PhD (Queen's). High-resolution ultrasound imaging, micro-transducer design and fabrication, miniaturized piezoelectric hearing prosthesis. Primary appointment in Biomedical Engineering
Filiaggi, M., PhD (Toronto). Biomaterials for orthopaedic and dental applications; synthesis of bioceramic scaffolds and coatings; bone regeneration and replacement. Primary appointment in Applied Oral Sciences
Ghanem, A., PhD (Cornell). Cell biomaterial interactions, biodegradable biopolymers for tissue engineering and drug delivery, cell culture models for in vitro toxicology. Primary appointment in Chemical Engineering
Gratzer, P., PhD (Toronto). Tissue engineering. Developing scaffolds for tissue regeneration (e.g. blood vessels, ligaments) using naturally derived materials (collagen and elastin). Primary appointment in School of Biomedical Engineering
Horne, G., MD (London), PhD (Calgary). Septal mechanics in heart failure. Non-invasive functional myocardial imaging (echocardiography, MRI, scintigraphy), somatic cell gene therapy for myocardial repair. Primary appointment in Medicine
Kreplak, L., PhD (Paris). My research goal is to unveil the design rules underlying the unique mechanical properties of protein assemblies, cells and tissues. I am interested in both bottom-up and top-down approaches. In the former, I study the relationship between structure and mechanical properties for peptides and proteins assemblies in vitro. In the latter, I am interested in human pathologies that modify the mechanical properties of cells and tissues through changes in cytoskeletal or extra-cellular matrix architecture. Primary appointment in Physics and Atmospheric Science
Kozey, J., PhD (TUNS). Occupational biomechanics and workstation design with emphasis on accessibility, reach and anthropometry. The projects require the use of a variety of human motion analysis techniques. Primary appointment in Health and Human Performance
Maksym, G., PhD (McGill). Magnetic bead micromanipulation for stimulation and measurement of the cytoskeletal mechanics of the cell; structure-function of airway smooth muscle cells in asthma. Primary appointment in School of Biomedical Engineering
Price, R. B., DDS (Dalhousie), PhD (Malmo, Sweden). Photopolymerization of dental resins, hardness testing, cytotoxicity of dental resins, light emitting diode (LED) dental curing lights, optical testing of dental curing lights, mechanical testing of dental materials. Primary Appointment in Dentistry
Russell, K. A., Diploma Orthodontics (Toronto), DDS (Dalhousie), MSc (Toronto). (I) 3-D assessment of cleft lip and palate repair: facial morphometric studies and evaluation of bonegrafting and orthodontic results (II) material properties of orthodontic wire/bracket systems and elatomers. Primary Appointment in Dentistry
Wells, S. M., PhD (Toronto). Structural-mechanical relations in biopolymers such as elastin and collagen are examined in order to determine the underlying mechanism(s) of elasticity of these materials-and thereby to understand the functioning of the arteries, ligaments, skin etc. which they make up. As well, research examines the structural remodeling of these structures during development and maturation: from fetal to adult life. Primary appointment in School of Biomedical Engineering
Wilson, J. L., PhD (Dalhousie). Modeling and description of joint dynamics, neuromuscular function and orthopedic biomechanics, with particular application to the study of knee osteoarthritis gait patterns and other musculoskeletal disorders. Pattern recognition and statistical modeling of complex biomechanical data. Three dimensional motion capture analysis, electromyography, Radiostereometric Analysis and finite element methods. Primary appointment in Biomedical Engineering

Assistant Professors

Adamson, R., PhD (Toronto). My research concerns the biomechanics of hearing and new diagnostic imaging technologies for otology. My primary focus is on developing optical probes for investigating the ear - an optical coherence tomography (OCT) probe for imaging and a fiber optic hydrophone for dynamic pressure measurement. Primary appointment in School of Biomedical Engineering
Beyea, S. D., PhD (UNB). Nuclear magnetic resonance imaging physics. Technique development for high field functional neuroimaging. NMR studies of degradable biomaterials and implantable devices. Primary appointment at the Institute for Biodiagnostics (Atlantic) - National Research Council Canada
Boyd, D., PhD (Limerick). Glass based biomaterials for minimally invasive clinical interventions; synthesis, characterization, and safety and efficacy evaluation of new clinical materials (Oncology, Spine and Dentistry). Primary appointment in Applied Oral Sciences
El-Hawary, R., BEng, MD, MSc, FRCS (C). Pediatric orthopaedic and pediatric spine surgery. Roentgen stereophotogrammetric Analysis (RSA) model of pediatric spine and scoliosis, design of early onset scoliosis implants, gait analysis. Primary appointment in Division of Orthopaedic Surgery, Faculty of Surgery, Dalhousie University
Ellsmere, J., SM (MIT), MD (Dalhousie). Image guided surgery, surgical navigation systems, medical device development, laparoscopic and endoscopic ultrasonography, gastrointestinal surgery. Therapeutic endoscopy, minimally invasive surgery. Primary appointment in Surgery, Division of General Surgery
Frampton, J. P., PhD (State Univ of New York at Albany). Microscale cell and tissue engineering, cell-material interactions, liquid handling technologies, microfluidic manipulation of cells, design and development of multiplex bioassays. Primary appointment in School of Biomedical Engineering.
Milne, A. D., MD, MSc (Dalhousie). Research ranges from basic laboratory testing to clinical outcome studies. Specific areas of interest include: Anesthesia Airway Equipment Design, Device Testing and Quality Control, Clinical Anesthesia Database/Outcome Studies, and Drug Stability. In addition to Anesthesia related work I also have interests in Orthopedics/Plastic Surgery; specifically Biomechanics/Biomaterials, 3-D kinematics and surface geometry digitization. Graduate students are welcome to shadow me in the operating room to get a better understanding of biomedical device implementation and real world usage. Primary appointment in Department of Anesthesiology

Adjunct (FGS)

The following researchers are also eligible to supervise graduate students in the School of Biomedical Engineering:

Bowen, C. V., PhD (Western). Magnetic resonance imaging physics and engineering. Research activities in cellular and molecular imaging with development of methods for mapping cellular migration patterns and molecular processes using iron-oxide contrast agents. Applications in cellular therapy for regenerative medicine

and immunology agents. Applications in cellular therapy for regenerative medicine and immunology research. Also involved in the development of functional MRI techniques for mapping brain activity. Primary appointment at the Institute for Biodiagnostics (Atlantic) - NRC
Landry, S. C., BEng (Dalhousie), BScH (Acadia), PhD (Dalhousie). Biomechanics and neuromuscular function of the lower limb: Investigations into understanding the higher prevalence of knee osteoarthritis (OA) and non-contact anterior cruciate ligament (ACL) in the female population. Progression and non-invasive treatments of knee OA. Primary appointment in Kinesiology Acadia University
McFarland, S. A., PhD (Univ of California San Diego). Design and development of metal-based prodrugs as diagnostic agents and as sensitizers for photodynamic applications: photodynamic therapy (PDT), photodynamic inactivation of bacteria (PDI), photodynamic antimicrobial chemotherapy (PACT), and various other phototherapy indications. Development of plan extracts as photosensitizers for PDI. Projects are multidisciplinary and involve aspects of chemistry, physics, biology and engineering, in particular; synthetic chemistry, photophysics and photochemistry, and cancer biology. Primary appointment in Chemistry at Acadia University.
Valstar, E., PhD (Leiden Univ). Professor of Orthopedic Implants at Leiden University Medical Center, as well as an appointed professor in department of biomechanical engineering at Delft University of Technology. His research aims to develop and clinically apply biomechanical models, image processing tools, surgical instruments, and biological methods to prevent, detect and repair aseptic loosening so that joint replacement prostheses will last a lifetime.
Veres, S. P., BEng (Dalhousie), PhD (Auckland). Structure-function relationships in biomaterials. My research focuses on the identification, implications, and exploitation of structural changes that occur within biomaterials (primarily collagen) in response to mechanical loading. A multi-level approach is employed, studying tissues at the macro, micro, ultrastructural, and molecular levels. Pathologies of interest currently include rupture and subrupture of tendons and ligaments, and spinal damage including intervertebral disc herniation, and internal disc disruption. Primary appointment in the Division of Engineering, Saint Mary's University.
Weaver, D. F., MD, PhD (Queen's). Computer-aided design and development of new chemical entities as potential drugs for people with neurologic diseases. In particular, epilepsy, Alzheimer's and general anaesthesia.

Master of Applied Science (MASc) Program

Candidates must satisfy the general requirements for admission in the Faculty of Graduate Studies. In addition to the Faculty of Graduate Studies requirements, the School of Biomedical Engineering has the following requirements for the PhD program.

Students will be accepted into the MASc program from:

1. BEng or BASc from an accredited undergraduate engineering program
2. Four year BSc in the physical sciences (e.g. Mathematics, Physics, Chemistry, etc.) with research experience**
3. Four year BSc in the biological sciences (e.g. Physiology, Biophysics, Biochemistry, Microbiology, Immunology, etc.) with research experience**
4. MD, DVM, DDS, or equivalent

In cases (3) and (4) above, additional undergraduate coursework may be required prior to entry into the program. This will depend on the nature of the research thesis to be undertaken and the requirements will be developed in consultation with the school; however, a minimum of second year undergraduate calculus (equivalent to Dalhousie University's MATH 2001.03: Intermediate Calculus I and MATH 2002.03: Intermediate Calculus II) plus linear algebra and/or statistics, and one year of physics and chemistry will normally be required. **Qualifications for research experience include: a research thesis, senior research project, or equivalent work experience determined in consultation with the School of Biomedical Engineering.

A minimum mid-B average during the student's undergraduate coursework (with a minimum average of A- over the last two years) will be required, plus demonstrated ability to communicate and write in English (consistent with the entry requirements of the Faculty of Graduate Studies, e.g. TOEFL>600).

GRE Aptitude and Advanced scores in one of the sciences are recommended for all applicants whose undergraduate work has been completed outside Canada.

Degree Requirements

1. At least a total of 18 credit hours to be chosen in consultation with a school advisor. It is expected that a minimum of 12 credit hours will be taken from the suite of 5000 level courses offered by the School of Biomedical Engineering. In addition, students whose preparation in a particular area is deficient may be required to complete appropriate courses, as part of the 18 credit hours, or exceeding this number.
2. Attendance and participation in the BME seminar program, annual BME Research Day.
3. A research thesis representing original work by the student will be carried out under the supervision (or co-supervision) of a faculty member of the School of Biomedical Engineering who is also a member of the Faculty of Graduate Studies. This thesis will normally be 75-100 pages in length exclusive of figures, tables, references, etc. Where the student's principal research supervisor is not appointed in the School of BME, a co-supervisor from within the school will be named on the advice of the school's Graduate Studies Coordinator in order to ensure that the thesis contains sufficient Biomedical Engineering content. The student must also undertake a satisfactory oral defense of the research thesis.

Doctor of Philosophy (PhD) Program

Candidates must satisfy the general requirements for admission in the Faculty of Graduate Studies. In addition to the Faculty of Graduate Studies requirements, the School of Biomedical Engineering has the following requirements for the PhD program.

Students will be accepted into the PhD program from a Masters degree from an accredited program. Transfer from the MASc program will only be considered for exceptional students who have completed at least 15 credit hours and passed a PhD Transfer Examination.

Degree Requirements

1. Normally 12 credit hours.
2. Attendance and participation in the SBME Seminar Program, annual Research Day.
3. Successful completion of a PhD Candidacy Examination.
4. Successful completion and examination of a PhD research thesis.
5. Presentation of research work at one or more national or international conferences.
6. Submission or publication of at least one research paper in a refereed journal.

Financial Support

A minimum stipend of $19,000 is normally provided for MASc. a minimum of one year and $21,000 for PhD candidates for a minimum of two years. Normally, students who are accepted are supported financially by research grants of their supervisors, external and/or Dalhousie scholarships. Applications should be made early, preferably by April 1 at the latest for a September start.

Supervisory Committees

Each student will have a supervisory committee consisting of their thesis supervisor and/co-supervisor plus a minimum of two faculty members appointed to the Faculty of Graduate Studies, one of whom must be a member of the School of Biomedical Engineering, and another with a primary appointment in another department. The supervising committee will meet at least twice a year (including September following admission) or when called by any member of this committee or the student.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

BMNG 5010 Introductory Physiology for Biomedical Engineering

CREDIT HOURS: 3
A survey of the physiology of human organ systems including the nervous, cardiovascular, respiratory, renal, gastrointestinal and endocrine systems. Some emphasis will be placed on engineering principles, including biomechanics, bioelectricity, dynamic systems and control theory, where appropriate.
CROSS-LISTING: PHYL5323.03

BMNG 5020 Cell and Molecular Biology Foundations for Biomedical Engineering

CREDIT HOURS: 3
Fundamental concepts related to cell structure, function and organization in tissues in normal physiology and disease in the context of emerging technologies for probing/manipulating cells and integrating engineering/modelling principles

BMNG 5060X/Y Introduction to Biomedical Technologies in Clinical Settings

CREDIT HOURS: 0
This is a non-credit course which is required for the Biomedic Program - an NSERC Create training program in Biomedical Technology Innovation and Commercialization. It focuses specifically on clinical exposure and an appreciation of the challenges of device development for clinical use. Areas of exposure are in clinical ethics, principles of human physiology and pathophysiology, biomedical device certification, technology challenges in challenging environments such as the operating room and clinic and sterilization issues. Students will be directly exposed to clinical procedures and patients during the course. Enrolment is limited.

BMNG 5110 Biocompatibility and Biomaterials Design

CREDIT HOURS: 3
This course deals with the scientific basis of biocompatibility (host and materials responses in biomaterials) and its application to intelligent design of biomaterials for implantable systems. The course will be divided into thirds: (i) cellular, tissue-level, and systemic responses to implanted devices, including thrombosis, wound-healing, cytotoxicity, and immunological responses; (ii) materials degradation including corrosion, dissolution, swelling/leaching, surface chemistry, etc.; (iii) case studies of materials and device design including: heart valves, total hip prostheses, dental restorative materials, total artificial heart, burn dressings and hemodialysis systems. The course will be evaluated by three literature criticism sessions, a research paper and coupled class presentation, one mid-term test and a final exam.

BMNG 5120 Biomechanics in Physiology and Surgical Implant Design

CREDIT HOURS: 3

This course deals with: (i) solid and fluid mechanical analysis of biological tissues and organs, and (ii) use of mechanical engineering techniques in the design of implantable medical devices, e.g. heart valves, vascular grafts, ligament replacements, total artificial heart, and total hip or knee replacements. Topics to be covered include cell structure and mechano-electrical function, blood flow, arterial mechanics, bone structure and mechanics, mechanics and tribology of artificial joints, muscle mechanics, pulmonary functions, fundamentals of gait and mobility aids. Guest lecturers from clinical sciences will help to develop the practical context of biomechanical engineering problems.

EXCLUSIONS: MECH 4650.03

BMNG 5130 Biomechanics of Human Gait

CREDIT HOURS: 3

An overview of the research in biomechanics of human motion with particular focus on gait analysis. Topics include measuring and analysis techniques, biomechanical modeling, and data analysis techniques. Applications include the study of normal, able-bodied gait, and the evaluation of gait pattern changes associated with osteoarthritis, and total knee replacement.

BMNG 5150 Introduction to Tissue Engineering

CREDIT HOURS: 3

Tissue engineering is a recent and fast-growing field which encompasses and unites biology, chemistry, medical sciences and engineering to design and fabricate systems to replace tissues and organs. Topics will include tissue engineering scaffolds, cell incorporation (selection and culture), in vivo versus in vitro constructs, and applications of tissue engineering.

BMNG 5210 Biomedical Instrumentation, Data Acquisition and Analysis

CREDIT HOURS: 3

This hands-on course is an introduction to computer-based acquisition and analysis of physiological signals as relevant to Biomedical Engineering. In an integrated series of lectures and laboratory projects, students will use A/D, D/A, and serial techniques to acquire real and simulated data from a variety of sensors (e.g. electrocardiograms, muscle activity, pressure, temperature and sound). Issues such as sampling, aliasing, filtration, convolution and image analysis will be examined. This course provides a step-by-step introduction to programming with Labview (National Instruments) and Python.

CROSS-LISTING: ECED 5210.03

BMNG 5230 Biomedical Signal Analysis and modelling

CREDIT HOURS: 3

This course is directed at the student interested in the analysis of physiological signals and modeling of physiological systems using mathematical methods. It is ideally paired with Biomedical instrumentation which in the spring term covers data acquisition and transducer instrumentation through programming in Labview. In this course the focus will be on analysis of physiological signals using Engineering signal analysis approaches. This course is normally offered every second year.

BMNG 5250 Bioelectricity: A Quantitative Approach

CREDIT HOURS: 3

An introductory electrophysiology class, following a quantitative approach based on the general principles established in physics and engineering. The core material covers nonlinear membrane properties of excitable cells that produce action potentials, propagation of action potentials in one-, two-, and three-dimensional excitable media, the response of excitable media to artificial stimuli, and the electromagnetic field that the active bioelectric sources produce in the surrounding extracellular space. Applications to the study of neural and cardiac electrophysiology will be discussed in detail.

BMNG 5260 Principles of Medical Imaging

CREDIT HOURS: 3

This course will discuss the basic principles behind modern medical imaging modalities including the mathematical foundations of image process and image reconstruction from projections. the specific imaging modalities that the course covers are X-ray, CT, PET, MRI, and Ultrasound imaging. Fundamentals of ionizing radiation along with the interaction of radiation with tissue is also described. Students will all be required to perform one Magnetic resonance Imaging lab/report using a bench-top Earth field MRI system.

FORMAT: Lecture

CROSS-LISTING: ECED 5260.03

BMNG 5270 Advanced Cardiovascular Physiology

CREDIT HOURS: 3

This course provides an in-depth survey of cardiovascular physiology with a focus on discussion of current research in the field. Topics include cardiac anatomy/ultrastructure, cardiac pump-function, cardiac electrophysiology, excitation-contraction coupling, cardiac mechanics and regulation of the vasculature. Cardiac diseases will be addressed.

PREREQUISITE: One of PHYL 3320.3, PHYL 3520.3, PHYL 4680.3, or equivalent, and permission of course director

CROSS-LISTING: PHYL 5568.03

BMNG 5310 Business of Medical Technology I

CREDIT HOURS: 3

Students work in interdisciplinary teams to trial-develop a biomedical concept from idea to commercial product in this course and in the following course BMNG 5311.03. Topics covered include innovation and design methodology and industry practice, industrial design and creativity in design, intellectual property fundamentals and industry practices, medical technology development processes. Teams combine students from biomedical engineering, medical residents and MBA programs. Enrolment is limited.

FORMAT: Lecture| Seminar

BMNG 5320 Entrepreneurship and the Business of Medical Technology II

CREDIT HOURS: 3

Students work in interdisciplinary teams to trial-develop a biomedical concept from idea to commercial product. Topics include opportunity identification, professional standards, communication, professional standards, medical device commercialization strategies, medical regulatory concerns (FDA/CSA/EU) and the road to translation and market insertion. Students work in teams combining engineering, clinical and management expertise. Enrolment is limited.

FORMAT: Lecture| Seminar
PREREQUISITE: BMNG 5310.03

BMNG 5410 Directed Readings in Biomedical Engineering

CREDIT HOURS: 3
This course is designed for students wishing to gain knowledge in a specific area in which no graduate level courses are offered. Class format is variable and may include seminars, lectures, and the study of papers and/or book chapters as part of a directed research or design project. Students are required to present the work (not less than 90 hours per semester), in a written report which will be evaluated. Normally, a student can take only one directed reading course as part of their degree program.
NOTE: Course Details listed here also apply to BMNG 5420.03/BMNG 5430.03.

BMNG 5420 Directed Read Biomedical Eng

CREDIT HOURS: 3
See BMNG 5410.03.

BMNG 5430 Directed Read Biomedical Eng

CREDIT HOURS: 3
See BMNG 5410.03.

BMNG 5500 Biomedical Engineering MASc Seminar

CREDIT HOURS: 0
All MSc students must present their thesis proposal to the department in a departmental seminar.

BMNG 5510 Biomedical Engineering MASc Thesis Proposal

CREDIT HOURS: 0
Each MASc candidate in biomedical engineering must prepare a Thesis Proposal at about the one-year mark in the MASc program. The written proposal should include a title page, table of contents, introduction/literature review, thesis objectives/hypothesis, proposed methods and materials, timeline for the project, progress/results to date, and a list of references. The body of written text should not exceed 20 pages.

BMNG 5530 Biomedical Engineering MASc Research Day

CREDIT HOURS: 0
All MSc students must present their research at least once at the departmental Research Day.

BMNG 6500 Biomedical Engineering PhD Seminar

CREDIT HOURS: 0
All PhD students must present both their proposal and the results of their research to the department in a departmental seminar.

BMNG 6510 Biomedical Engineering PhD Thesis Proposal

CREDIT HOURS: 0
In preparation for the research thesis work, each PhD candidate must first prepare and defend a PhD Thesis Proposal. Presented at about the 1-year mark in the PhD program, this 20-40 page proposal will briefly review the relevant scientific/engineering literature, present the research objectives and specific hypotheses to be tested, describe the methodology to be employed, the expected outcomes and potential pitfalls, demonstrate the likelihood of an original contribution to knowledge relevant to Biomedical Engineering.

BMNG 6520 Biomedical Engineering PhD Candidacy Examination

CREDIT HOURS: 0
In the second year of the program the student will be provided with five questions related to the student's research area. The committee will select three of these on which the student will write 15-20 page papers in the style of a journal review articles. The committee will orally examine the student both on the content of the papers and on background knowledge in the research area.

BMNG 6530 Biomedical Engineering PhD Research Day

CREDIT HOURS: 0
All PhD students must present their research at least twice at the departmental Research Day.

BMNG 9000 MASc Thesis

CREDIT HOURS: 0

BMNG 9530 PhD in Biomedical Engineering

CREDIT HOURS: 0

Business Administration

Location:
Building/Room: Kenneth C. Rowe Building
Street Address 1: 6100 University Avenue
Street Address 2: Room 2127
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1814 or Toll-free in NA 1-888-432-5622
Fax: (902) 494-7154
Website: www.dal.ca/academics/programs/graduate/mba_financial_services.html
Email Address:

Introduction

The Rowe School of Business is proud to offer two distinct MBA programs.

The Corporate Residency MBA (CRMBA) offers an in-class delivery model that includes an eight-month paid corporate residency (work-term). The CRMBA program does not require previous work experience for admission. Additionally, the CRMBA program is available to students from all academic backgrounds. There are two combined programs associated with the CRMBA - the combined CRMBA / Juris Doctor (JD) program and the combined CRMBA / Master of Engineering (MEng) program. Admissions and program information specific to the CRMBA and its combined programs follows.

The MBA (Financial Services) is an online MBA designed specifically for the mid-career professional. Online courses, delivered via the university's online learning system, conclude with a two to five day face-to-face “intensive” component conveniently held in cities across Canada. Admissions and program information specific to the MBA (FS).

Staff

Director of the CRMBA Program

Shaw, D., BA (Queen’s), MBA (Edinburgh)

Director of the MBA-FS Program

Klapstein, R., BSc (Calgary), BA (Alberta), MBA/LLB (Dalhousie)

Professors Emeriti

Duffy, J. F., BS, MS, PhD (Iowa)
George, R. E., BSc (London), MS (Bristol), PhD (London)
MacLean, L. C., BA, BEd (St. FX), MA, PhD (Dalhousie)
McNiven, J. D., BA, MA, PhD (Mich)
Rosson, P. J., DipMS (Salford), MA (Lancaster), PhD (Bath)

Professors

Barker, J., BA (UCA), MA (Purdue), PhD (Colorado)
Chowdhury, S., BCom, MCom, (Dhaka), MBA, PhD (Kentucky)
Conrod, J. E. D., BComm (Dalhousie), MBA (Toronto), FCA
Fooladi, I., BS (Iran), MA (Tehran), MS, PhD (Oregon)
Gassmann, H. I., Vordiplom (Stuttgart), MS (Oregon State), PhD (UBC)
Hebb, G., BA (McGill), MBA (Queen’s), MA (Dalhousie), PhD (Texas A&M)
McLarney, C., DipRadTech (Fanshawe), BComm, MBA (Windsor), PhD (York)
Zhao, Y., BSc (Anhui), MSc (Kentucky), PhD (UBC)

Associate Professors

Blunden, R. G., BComm (Dalhousie), MM (Northwestern), PhD (Western)
Kelley, E., BA, MBA (St. Mary's), MLS (Toronto), PhD (St. Mary's)
Lynch, D. F., BS (FDU), MPA (Colorado), PhD (Arkansas)
Nason, R., BSc, (McMurry), MSc (Pittsburgh), MBA, PhD (Ivey School of Business, UWO), CFA
Ng, E., BComm (UBC), MBA (SFU), PhD (McMaster)
Parcurar, BA (Mahes-Bolyai, Romania), UIbA (Nantes/IFAG), PhD (HEC Montreal)
Rumsey, J., BA (Berkeley), BEd (Toronto), MSc (Victoria), MBA, PhD (York)
Sheehan, L., BSc (Alberta), MEDes, MBA, PhD (Calgary)
Sy, O., BAA, MSc (HEC), PhD (McGill)
Trifts, V., BBA (UPEI), MBA (St. Mary's), PhD (Alberta)

Assistant Professors

Ahmad, A. R., BS (N.E.D.), MS (King Fahd), MS, PhD (Waterloo)
Bliemel, M., BSc (Queen's), MMS (Carleton), PhD (McMaster)
Comber, S., BEDS (Dalhousie), MBA, MA, PhD (Fielding)
Foster, M., BA, PhD (Dalhousie)
Huang, L., BSc (Fudan), MBA (SUFE), PhD (McGill)
Leach, E., BComm (Dalhousie), CMA (NS), MBA (Western), PhD
Roach, D., BEng (TUNS), MBA, PhD (Dalhousie)
Song, K., BBA, MBA (St. Mary's), PhD (York), CFA
Sur, S., BSc, MBA, PhD (Concordia)

Adjunct (FGS)

Brooks, M. R., BOT (McGill), MBA (Dalhousie), PhD (Wales)
Schellinck, D. A., BSc, MBA (Dalhousie), PhD (Illinois)

Corporate Residency MBA Program

Regulations of the Faculty of Graduate Studies govern admissions. Admission is approved by the Faculty of Graduate Studies, on the recommendation of the School of Business Administration. Applicants must hold a degree recognized by Dalhousie University as equivalent to a four-year bachelor's degree in one of its own faculties or any institution recognized by Dalhousie University. The minimum requirement is a B average (GPA 3.0) or better in the final two years, and a GMAT score of 550, or better.

While the School of Business values the benefits of bringing work experience to the classroom, the Corporate Residency MBA is designed for highly qualified candidates coming directly from undergraduate studies. A resume, profile and personal essay should accompany every application. Letters of reference and a successful admission interview are required.

All applicants are required to submit results of a Graduate Management Admission Test (GMAT). Information on test dates, locations and registration can be obtained from the Dalhousie Registrar's Office, or by writing directly to GMAT, Pearson VUE, PO Box 581907, Minneapolis, MN 55458-1907, USA (1-800-717-GMAT (Americas)) or (http:www.mba.com). The minimum score required for admission is 550. Applicants may write the test more than once. Please check with mbacr@dal.ca for further information. The admissions committee may consider the results of an LSAT, GRE or MCAT test in lieu of the GMAT requirement.

Candidates whose first language is not English may be required to submit proof of English proficiency. A minimum TOEFL score of 100 or IELTS score of 8. See Regulation 3.4 for more details.

The deadlines for applications are:

- For international students, the deadline is January 15.
- For Canadian students, applications will be considered until the program is full.

All applications received after the program has been filled will be considered for admission to the following year.

Interim (official) transcripts will be considered for candidates currently attending university, if all other documentation is complete. Since space in the program is limited, all documents must be submitted before May 15 for entry the following June. Applications will be considered for acceptance as long as space is available.

A complete application includes:

- $100 application fee
- Faculty of Graduate Studies application forms
- Two reference letters, (If you graduated five or more years ago and have been working full time during that period, you may supply one professional and one academic letter of reference.)
- GMAT results (550 or higher)
- TOEFL results, where applicable (or MELAB, IELTS, CAEL or Cantest)
- Letter of Financial Guarantee (non-Canadian applicants)
- Transcripts from each institution attended (two copies - both originals)
- Personal Essay
- Your resume (two copies)
- GPA (grade point average) of 3.0 (B) or greater, last two years
- Profile Form

All applicants for the Corporate Residency MBA Program must complete the Dalhousie Graduate Application form. Students can apply online at dalgrad.dal.ca/prospectivestudents/admissions/admissioninfo. Alternatively, a paper version of the Application Form can be at dal.ca/admissions/apply/applying_as_a_graduate_student.html. The application must be accompanied by the application fee. All supporting documentation should be sent directly to the Rowe School of Business, Corporate Residency MBA Program.

Reference letters must be originals, sent directly by the referees, or delivered sealed and signed. Only official transcripts received directly from the issuing institution will be accepted. GMAT and TOEFL score reports must be forwarded by the testing service. Based on a successful review of submitted documentation, candidates will be invited to participate in an interview to assess suitability for the program and employability. Admissions decisions will be based on all required documentation and other assessment elements.

All admitted applicants must confirm in writing their acceptance of the offer of admission and provide a non-refundable deposit to the Student Accounts Office. This deposit will be applied toward tuition, but will be forfeited if the student does not register in the academic year for which he or she was admitted. Orientation materials are only sent to students who have paid their deposit.

Academic Standing

Advanced standing is not possible in the CRMBA program.

Program Fees

CRMBA tuition is based on a program fee model. Fees are paid in equal installments four times over the course of the program. This model means that program fees cover the cost of courses (required and elective) and a number of additional programmatic elements including all aspects of the corporate residency process, the leadership and career management curriculum, innovative course elements such as intensives, supplementary course materials (e.g. integrative cases and simulations), pre-program materials and general outreach and consultation with industry to ensure that the program in all of its aspects is industry-relevant and recognized for its innovative approach to MBA education. Please note, the program fee does not include ancillary fees related to health insurance, society fees, bus pass, etc. For more information on ancillary fees please consult the fee schedule at www.moneymatters.dal.ca. International students are required to pay a differential fee. Additional information on differential fees can be found in the Fees section.

The Corporate Residency MBA focuses on preparing students to apply the theory learned in the classroom to the workplace. It is designed around the concepts of applied, experiential and integrated learning.

The experience is an intense one, individually designed and implemented in conjunction with the development needs of the students and the needs of the employer partners.

In total the Corporate Residency MBA requires 13 core courses (39 credit hours), seven elective courses (21 credit hours), and four required non-credit courses. The program has a total of 60 credit hours.

Summer - Year 1

BUSI 5703.03: Business Economics
BUSI 5103.03: Business Accounting
BUSI 5503.03: Quantitative Decision Making
BUSI 6900.03: Corporate Responsibility, Ethics and Society
BUSI 5000.00: Introduction to Personal and Professional Effectiveness (PPE) (non-credit)

Fall - Year 1

BUSI 5201.03: Financial Management
BUSI 5305.03: Managing People
BUSI 5401.03: Marketing Management
BUSI 5512.03: Leveraging Technology
BUSI 5551.03: Operations Management
BUSI 5003.00: Personal and Professional Effectiveness I

Winter/Spring/Summer - Year 1

BUSI 5801.03: International Business (online)
BUSI 7000.03: Corporate Residency (January - August)

Fall - Year 2

MGMT 5000.03: Management Without Borders
BUSI 6000.03: Strategy and Competitiveness
BUSI 5004.00: Personal and Professional Effectiveness II
Three graduate level electives

Winter - Year 2

BUSI 6005.03: Strategy Implementation
BUSI 5004.00: Personal and Professional Effectiveness II
Four graduate level electives

20 Month MBA Program Structure (Traditional Program)

We no longer offer admission into the 20 month MBA program structure. The program will continue to be delivered to any current students until all students have graduated, or the time allowed for program completion has elapsed, or all students have left the program. Program details can be found in the 2012-2103 Graduate Calendar.

Combined CRMBA and Juris Doctor (JD) Program

Students who complete the combined CRMBA and Juris Doctor (JD) program, must be admitted to each program independently. Each student is required to complete 13 core courses (39 credit hours), four elective courses (12 credit hours), and required non-credit courses of the CRMBA, thereby completing a total of 51 credit hours of the CRMBA program. For more information regarding the JD requirements for students enrolled in the combined degree, please consult the Law Calendar. The suggested sequence is as follows:

Summer - Year 1

BUSI 5703.03: Business Economics
BUSI 5103.03: Business Accounting
BUSI 5503.03: Quantitative Decision Making
BUSI 6900.03: Corporate Responsibility, Ethics and Society
BUSI 5000.00: Introduction to Personal and Professional Effectiveness (PPE) (non credit)

Fall - Year 1

BUSI 5201.03: Financial Management
BUSI 5305.03: Managing People
BUSI 5401.03: Marketing Management
BUSI 5512.03: Leveraging Technology
BUSI 5551.03: Operations Management
BUSI 5003.00: Personal and Professional Effectiveness I

Winter/Spring/Summer - Year 1

BUSI 5801.03: International Business (online)
BUSI 7000.00: Corporate Residency (January - August)

Year 2

In year 2 students are full time JD students (see program requirements in the Law Calendar). There are no MBA requirements during this period.
First Year JD Courses
LAWS 1000X/Y.06: Contracts and Judicial Rule-Making
LAWS 1001X/Y.06: Criminal Justice
LAWS 1002.01: Orientation to Law
LAWS 1003.05: Fundamentals of Public Law
LAWS 1004X/Y.06: Legal Research and Writing
LAWS 1005X/Y.06: Property in Historical Context
LAWS 1006X/Y.06: Tort Law and Damage Compensation

Year 3

BUSI 6000.03: Strategy and Competitiveness (Fall)
BUSI 6005.03: Strategy Implementation (Winter)
One graduate level elective (Winter)
JD Requirements include:
LAWS 2061X/Y.06: Civil Procedure
LAWS 2062X/Y.06: Constitutional Law
LAWS 2201X/Y.06: Compulsory Moot
A major paper course 7-0 hours of law courses from the “Business Law” area (detailed in the Law Calendar)
Other elective courses for a total of 23-25 law credits

Year 4

MGMT 5000.03: Management Without Borders
Three graduate level electives (one fall; two winter)
JD Requirements include:
LAWS 2099.02: The Legal Profession and Professional Responsibility
A major paper course
Three to five hours of law courses from the “Business Law” area
Other elective law courses for a total of 23-25 law credits

CRMBA/Master of Engineering (MEng)

This is a two year program that enables students to select courses which will allow them to graduate with a Master of Engineering and Master of Business Administration. This combination provides graduates with a diverse skill set in two high demand disciplines. Candidates for the CRMBA/MEng program must satisfy the entrance requirements for both the Faculty of Engineering and the School of Business. Students may obtain further information about the combined program by contacting the Faculty of Engineering or the Admissions Officer of the CRMBA program.

Students enrolled in the combined program are required to complete the following courses in the CRMBA program: 13 core courses (39 credit hours), three elective courses (nine credit hours), and three required non-credit courses, thereby completing a total of 48 credit hours of the CRMBA program. For detailed information on the MEng program requirements; please consult the appropriate section of the Graduate Calendar. The suggested sequence is as follows:

Summer - Year 1

BUSI 5703.03: Business Economics
BUSI 5103.03: Business Accounting
BUSI 5503.03: Quantitative Decision Making
BUSI 6900.03: Corporate Responsibility, Ethics and Society
BUSI 5000.00: Introduction to Personal and Professional Effectiveness (PPE) (non credit)

Fall - Year 1

BUSI 5201.03: Financial Management
BUSI 5305.03: Managing People
BUSI 5401.03: Marketing Management
BUSI 5512.03: Leveraging Technology
BUSI 5551.03: Operations Management
BUSI 5003.00: Personal and Professional Effectiveness I

Winter/Spring/Summer - Year 1

BUSI 5801.03: International Business (online)
BUSI 7000.00: Corporate Residency (January - August)

Fall - Year 2

BUSI 6000.03: Strategy and Competitiveness
MGMT 5000.03: Management Without Borders
One CRMBA elective
Engineering courses: two graduate courses plus seminar

Winter - Year 2

BUSI 6005.03: Strategy Implementation
Two CRMBA electives (graduate level)
Engineering courses: three graduate courses plus seminar

Summer - Year 2

Engineering requirement: Graduate Project
During this semester it may be possible to complete one of the above mentioned electives

MBA (Financial Services/Leadership)

The Dalhousie MBA (Financial Services) degree helps managers in the financial services industry enhance their skills by furthering their abilities to exercise leadership and make sound business decisions, honing their analytical skills, and sharpening their judgment in managerial and client service roles. The program broadens the horizons of financial managers by exposing them to business concepts necessary inside and outside the industry, thereby enhancing performance in their present positions and increasing their scope of career opportunities. Successful applicants integrate their new knowledge into their everyday job responsibilities. This is done on a course-by-course basis both in existing positions and as their careers progress within the financial services industry.

The part-time MBA (FS) program is delivered using a blended learning model of combining distance and classroom instruction. The flexible course schedule allows students the opportunity to continue their academic studies while working on their professional career goals. Offered in Toronto, Vancouver, Calgary and Halifax.

This program offers advanced standing opportunities for successful applicants who have specific designations and/or programs with leading industry educators; list of educators and program for details.

Program Overview

MBA (Financial Services) program is specifically tailored to the financial services sector of the business world. There are several streams designed specifically for various banking, wealth management, financial planning, benefits planning, pension benefits, and insurance institutions. The MBA (Financial Services) program has well established affiliations with leading financial educational institutions which will provide you with excellent learning potential and advanced standing opportunities. (see Advanced Standing section).

The MBA (Financial Services) program consists of 14 required courses, 10 core and 4 electives.

Students must complete the program requirement in seven years from the date first admitted.

MBA (Leadership)

The Master of Business Administration Leadership program is a part-time program designed for working professionals.

The program consists of 42 credit hours; it comprises a core of 30 mandatory credit hours and 12 elective credit hours. CFAME offers three academic terms: fall, winter and summer, and traditionally students in this program will take one course per term, given that they are working professionals, undertaking their degree while continuing their careers. As such, students take an average of three courses per year, usually completing their degrees in four years. As with other graduate programs at Dalhousie, part-time study may extend over a maximum of seven years.

Each course is organized around a fourteen week term, which involves synchronous and asynchronous on-line learning. Asynchronous resources include readings, videos, discussion posts, blogs, and audio files. The synchronous elements include Live Classroom, tutorials, Blackboard Collaborate, Adobe Connect, and Skype sessions. At the end of each term, students gather in person, in major cities across the country (based on critical mass of students), for their Intensive; sessions are led in-person by the course instructor. These sessions are designed to apply and consolidate the learning which has taken place online in the course of the term. Intensives consist of activities such as simulations, presentations, panels and guest speakers, designed to enhance students' application of what they have learned. The final Intensive takes place on the Dalhousie campus. MBA Leadership Stream Upon completion of the MBA Leadership stream, students will have a comprehensive knowledge of fundamental and contemporary leadership theories, enhanced by the ability to integrate leadership around current issues of global change, strategic innovation, and the capacity to handle complex situations in today's organization.

Admission Requirements

Regulations of the Faculty of Graduate Studies govern admissions. Admission is approved by the Faculty of Graduate Studies, on the recommendation of the School of Business Administration. Applicants must hold a degree recognized by Dalhousie University as the equivalent of a four-year Bachelor's Degree in one of its own faculties or an institution recognized by Dalhousie University. The minimum requirement is a B average (GPA 3.0 on a 4.3 scale). Applicants must also have a least five years relevant professional experience.

* Applicants who do not meet the standard academic criteria are required to submit a Prior Learning Assessment Portfolio and/or a GMAT (results of 550 or higher)

A complete application includes:

- Faculty of Graduate Studies Application Form:
  - Online version: https://dalonline.dal.ca
  - Paper version: www.dal.ca/admissions/apply/applying_as_a_graduate_student.html
- $100 Application Fee
- Letter of Intent
- Resume/Job Description
- Two reference letters (One academic unless it has been more than five years from attending an educational institution. Reference letters must be originals and sent directly by the referees or delivered sealed and signed.)
- Confirmation of Employment
- Official Transcripts - Original and official transcripts are required from any/all post-secondary institutions attended. All transcripts (including English translations) must bear the official stamp/seal of the issuing institution and must be forwarded directly to Dalhousie University. Transcripts that state "issued to student" are not acceptable.
- TOEFL results, where applicable

It is the policy of Dalhousie University to confirm the authenticity of transcripts and letters of reference of all recommended applicants

All admitted applicants must confirm acceptance in writing and provide a non-refundable deposit to the Student Accounts Office. This deposit will be applied toward tuition, but will be forfeited if the student does not register in the academic year for which he or she was admitted. Please note that this deposit is separate from any application or pre-registration fees.

MBA (Financial Services/Leadership) Program

Core Courses:

- BUSI 5103.03: Accounting
- BUSI 5503.03: Quantitative Decision Making
- BUSI 5511.03: Management Information Systems
- BUSI 5703.03: Business Economics
- BUSI 5801.03: International Business
- BUSI 6207.03: Corporate Finance
- BUSI 6326.03: Management Skills Development
- BUSI 6410.03: Marketing
- BUSI 6900.03: Corporate Social Responsibility/Business Ethics and Sustainability
- BUSI 6990.03: Strategic Leadership and Change

(Financial Services)
Elective Courses:

- BUSI 6230.03: Investment and Money Management
- BUSI 6255.03: Global Markets and Institutions
- BUSI 6300.03: Risk Management for Financial Institutions
- BUSI 6601.03: Legal Aspects of Risk Management

(Leadership)
Elective Courses:

- BUSI XXXX: Leading for Success *
- BUSI XXXX: Leading in Complexity *
- BUSI XXXX: Leading with Responsibility *
- BUSI XXXX: Sustainable Leadership *

* Pending approval by the Faculty of Graduate Studies.

Advanced Standing Evaluation (Financial Services)

Dalhousie University's MBA (Financial Services) program recognizes the professional educational achievements of applicants who have completed specific designations, certificates, or programs in professional banking, financial planning, investments, insurance and group benefit management with leading industry educators and industry affiliations.

Stream	Core Courses	# of Electives Required
Full Program	All	4
CSI *	All	0-2
CEBS (IFEBP) +	All	0-2
FLMI (LOMA)	All	2
CFP (FPSC)	All	1-2
CLU (ADVOCIS)	All	1

* refer to department or program website for additional details
+ see notes on IFEBP below

Canadian Securities Institute (CSI)

Successful applicants to the MBA (Financial Services) program who have completed one of the approved programs may be eligible for up to four course advanced standing credits in the Dalhousie MBA (Financial Services) program which will reduce the total number of required Dalhousie courses.

International Foundation of Employee Benefit Plans (IFEBP)

Successful applicants to the MBA (Financial Services) program who have earned the Certified Employees Benefits Specialist Designation or part of the CEBS designations issued by the International Foundation of Employee Benefit Plans may be eligible to receive up to four advanced standing course credits; reducing the number of Dalhousie MBA (Financial Services) course requirements from 14 to 10 (two course credits may be granted for the completion of the GBA, RPA, and/or the CMS designations and three course credits may be granted for the completion of two of the listed designations).

LOMA - Fellow, Life Management Institute (FLMI) Program

Successful applicants to the MBA (Financial Services) program who have earned the Fellow, Life Management Institute (FLMI) Program Designation issued by the LOMA institute with an average overall grade of 80 per cent, will be granted two advanced standing credits in the Dalhousie MBA (Financial Services) program which will require students to complete a total of 12 courses, 10 core and two electives.

Financial Planning Standards Council (FPSC)

Certified Financial Planners Professional Designation issued by the Financial Planning Standards Council (proof of current licence is required). Successful application to the program who have achieved the CFP designation may be eligible for up to three advanced standing credits in the Dalhousie MBA (Financial Services) program which will require students to complete a total of 11-12 courses, 10 core and one or two electives.

ADVOCIS - Chartered Life Underwriter Designate (CLU)

Successful applicants to the MBA (Financial Services) program who have achieved the CLU designation will be granted three advanced standing credits (proof of current licence is required).

Note: Advanced standing may be granted for programs/designations completed outside of the above noted, please refer to the department for assessment.

Program Continuance

Students of the Centre for Advanced Management Education (CFAME) who wish to refrain from taking courses during a fall, winter or summer term may pay a $50 fee and submit a Program Continuance form to maintain their registration status. In cases where no appropriate courses are offered for that term, the fee will be waived but the Program Continuance form must be submitted. The form must be originated and signed by the student and the Program Manager, and approved by the Faculty of Graduate Studies. Students are permitted unlimited program continuances over their seven year completion period; however, the period a student is on Program Continuance is counted toward the seven year completion limit. Program Continuance applies to students in the MBA (FS), and MPA (M), and MIM programs only.

Contact

Students seeking further information should contact the Centre for Advanced Management Education (CFAME):

Telephone: (902) 494-6361
Toll free: 1 (800) 205-7510
Fax: (902) 494-5164
Email: cfame@dal.ca
Website: mbafs.management.dal.ca

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Corporate Residency MBA (and combined degrees) Course Descriptions

Core Credit Courses

- BUSI 5103.03: Business Accounting
- BUSI 5201.03: Financial Management
- BUSI 5305.03: Managing People
- BUSI 5401.03: Marketing Management
- BUSI 5503.03: Quantitative Decision Making
- BUSI 5512.03: Leveraging Technology

- BUSI 5551.03: Operations Management
- BUSI 5703.03: Business Economics
- BUSI 5801.03: International Business
- BUSI 6000.03: Strategy and Competitiveness
- BUSI 6005.03: Strategy Implementation
- BUSI 6900.03: Corporate Responsibility, Ethics and Society
- MGMT 5000.03: Management Without Borders
- BUSI 5000.00: Introduction to Personal and Professional Effectiveness (PPE)
- BUSI 5003X/Y.00: Personal & Professional Effectiveness I: Leadership and Career Management
- BUSI 5004X/Y.00: Personal & Professional Effectiveness II
- BUSI 7000.00: Corporate Residency

Elective Courses

Not all electives are offered each term. As well, additional electives may be added. With the approval of the School, students may select electives from other Schools in the Faculty of Management or other Faculties. Please check with the Corporate
Residency MBA office for the latest information

- BUSI 5100.03: Organizational Designs for Governance and Public Management
- BUSI 5120.03: Introduction to Public Policy
- BUSI 5902.03: Starting Lean
- BUSI 6002.03: New Venture Creation
- BUSI 6006.03: Managing the Family Enterprise
- BUSI 6007.03: Innovation Management
- BUSI 6009.03: Business and Government
- BUSI 6019.03: Managing Business Government Relations
- BUSI 6044.03: Industrial Sustainability
- BUSI 6050.03: Corporate Governance
- BUSI 6101.03: External Auditing
- BUSI 6102.03: Taxation
- BUSI 6106.03: Cost Management
- BUSI 6108.03: Advanced Financial Accounting I
- BUSI 6109.03: Advanced Financial Accounting II
- BUSI 6110.03: Advanced Financial Accounting III
- BUSI 6207.03: Advanced Corporate Finance
- BUSI 6220.03: Risk and Derivatives
- BUSI 6240.03: Analyzing Financial Statements
- BUSI 6255.03: Global Markets and Institutions
- BUSI 6312.03: Organizational Design
- BUSI 6313.03: Organizational Change
- BUSI 6315.03: Intercultural and International Management
- BUSI 6350.03: Authentic Leadership for the 21st Century
- BUSI 6401.03: Marketing Research
- BUSI 6403.03: Integrated Advertising, Promotion, and Marketing Communications
- BUSI 6408.03: Transport Modes
- BUSI 6412.03: Consumer Behavior
- BUSI 6414.03: Global Marketing
- BUSI 6420.03: Marketing Informatics
- BUSI 6450.03: Marketing Strategy Seminar
- BUSI 6511.03: Business Process Integration Using ERP Systems
- BUSI 6513.03: Business analytics and Data Visualization
- BUSI 6516.03: Database Management Systems
- BUSI 6523.03: Project Management: A Managerial Approach
- BUSI 6802.03: Strategic Management of International Operations
- BUSI 6941.03: Applied Topics in Business I
- BUSI 6942.03: Applied Topics in Business II
- BUSI 6951.03/BUSI 6952.03: Research Reading and Conference Course

MBA (Financial Services/Leadership) Course Descriptions

Note: Format for all MBA (Financial Services/Leadership) Courses: Distance/online and 3.5-4.5 days (classroom) intensive session

Core Credit Courses

- BUSI 5103.03: Business Accounting
- BUSI 5503.03: Quantitative Decision Making
- BUSI 5511.03: Management Information Systems
- BUSI 5703.03: Business Economics
- BUSI 5801.03: International Business
- BUSI 6207.03: Advanced Corporate Finance
- BUSI 6326.03: Management Skills Development
- BUSI 6410.03: Marketing
- BUSI 6900.03: Corporate Social Responsibility, Business Ethics and Sustainability
- BUSI 6990.03: Strategic, Leadership and Change

Elective Courses (Financial Services

- BUSI 6230.03: Investment and Money Management
- BUSI 6255.03: Global Markets and Institutions
- BUSI 6300.03: Risk Management for Financial Institutions
- BUSI 6601.03: Legal Aspects of Business

Elective Courses (Leadership)

- BUSI XXXX: Sustainable Leadership
- BUSI XXXX: Leading in Complexity
- BUSI XXXX: Leading for Success
- BUSI XXXX: Leading with Responsibility

Course Descriptions

BUSI 5000 Introduction to Personal and Professional Effectiveness (PPE)

CREDIT HOURS: 0
The two-week orientation program aims to develop key skills and knowledge students need to succeed in the MBA program and future careers. Business skills such as presentation and public speaking, interviewing, networking, critical thinking, conflict management and etiquette will be enhanced through workshops and interaction with employer partners and alumni. A general understanding of business functions, work processes and managerial decision-making will be acquired through case studies and a business simulation. As well, students will receive an orientation to the Faculty of Management, information resources and managing with integrity.
FORMAT: Lecture| Seminar| Discussion
RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5003X/Y Personal & Professional Effectiveness I: Leadership and Career Management

CREDIT HOURS: 0
The Personal and Professional Effectiveness (PPE) curriculum was developed using input from our Employer Partners and Advisory Council and is honed through continuous feedback from these stakeholders. This ensures that our students have the relevant, practical leadership skills and behaviours they need to be effective in the workplace. Anchored by the core pillars of self-management, engagement, complexity and innovation, the curriculum provides you with the opportunity to explore and develop skills and behaviours related to responsible leadership and career management. Beginning with Orientation, the PPE curriculum spans the 22 months of the Corporate Residency MBA program. The format of the PPE curriculum is innovative, applied and experiential.
PREREQUISITE: BUSI 5000.03
RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5004X/Y Personal & Professional Effectiveness II

CREDIT HOURS: 0
In the second year of the program, Personal and Professional Development continues to support the development and refinement of skills and competencies needed for successful careers with leading organizations. At this stage, MBA candidates will build on the experience gained in their Corporate Residency to refine their strengths. Special attention will be given to establishing effective feedback systems and mechanisms to identify and address professional and personal learning needs related to career goals. Action learning sets will continue to be a key element of this process.
PREREQUISITE: BUSI 7000.03
RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5007 Strategy and Competitiveness

CREDIT HOURS: 3
This course is about the general manager’s task of managing strategy in all types of organizations. The course develops concepts, frameworks, techniques, and skills that are foundation to the development and execution of strategies that are competitively sound, organizationally doable, and effective in guiding organizational decisions and actions.

BUSI 5100 Organizational Designs for Governance and Public Management

CREDIT HOURS: 3

This course examines the organizational designs of government for the purposes of governance and public management. It encompasses the basic constitutional and political designs of government; the structures and principles governing the relationship between the partisan-political and non-partisan public-service institutions of government; the organization and roles of the central executive and corporate policy and management agencies; the organization of portfolios, departments and agencies for the management of policy and operational functions; and, the structures and processes of accountability for governance and public management. The course is focused on the Canadian system of government but addresses basic questions of organizational theory and design in a comparative context.

CROSS-LISTING: PUAD 5100.03

BUSI 5101 Accounting I and II

CREDIT HOURS: 3

These core courses introduce the principles and practices necessary to process and communicate information about an organization to different user groups. The emphasis is on financial statement accounting, reporting, analysis, and management information needs. Topics covered include: accounting information used to measure return and risk; the measurement principles and their impact on the reliability of the accounting information; financial statement analysis; cost allocation; generally accepted accounting principles and information needs for planning, control, and decision making.

NOTE: Course Details listed here also apply to BUSI 5102.03.

BUSI 5103 Business Accounting

CREDIT HOURS: 3

This course introduces fundamental accounting principles and practices used to measure financial results of an organization. A portion of the course examines the challenges of financial reporting to stakeholders. The course also explores the use of accounting information for managerial decision making.

FORMAT: Online Delivery

BUSI 5120 Introduction to Public Policy

CREDIT HOURS: 3

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 in policy advocacy both inside and outside government. The first section of the course examines policy definitions and professional policy making approaches in the 21st century. The second section considers the role of the state in the 21st century, and the policy competencies that analysts must have if that role is to be carried out effectively. Section three explores vertical, horizontal and external policy relationships, both as determinants 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 blend of theory and practice 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 in policy processes in the future.

CROSS-LISTING: PUAD 5120.03

BUSI 5201 Financial Management

CREDIT HOURS: 3

Financial Management provides a comprehensive framework for analyzing and understanding the financial issues faced by finance professionals in the corporate, financial and capital markets sectors. The course emphasizes a blend between the theoretical and the practical and provides students with a basis for integrating financial concepts in other disciplines as well as advanced finance related courses. The tools and techniques of finance are introduced along with the theory, but always with the end goal of implementation in the corporate, small business, institutional, or investment settings.

FORMAT: Lecture| Seminar| Discussion

PREREQUISITE: BUSI 5103.03, BUSI 5503.03, and BUSI 5703.03

BUSI 5305 Managing People

CREDIT HOURS: 3

This course offers an exploration of the theory and practice involved in working with people in organizations, from both formal and informal leadership perspectives. The emphasis is on understanding individual (micro) and organizational (macro) factors and the processes through which they influence behaviour, with a view to improving managerial effectiveness. Students have the opportunity to develop and apply this understanding through experiential exercises, case studies and assignments situated in real organizations.

FORMAT: Lecture| Seminar| Discussion

BUSI 5401 Marketing Management

CREDIT HOURS: 3

Marketing is the business function responsible for understanding the needs of consumers, suppliers and retailers and for creating value for these and other stakeholder groups. As such, it is more than a department within a firm - it is a function that must be undertaken on a company-wide basis. Marketing drives choices about what markets to serve and which needs to satisfy, about what partnerships and relationships to pursue, about product and service design, about prices that can be levied, and about the channels that can best be used for distribution and communication.

FORMAT: Lecture| Seminar| Discussion

BUSI 5503 Quantitative Decision Making

CREDIT HOURS: 3

This is an introductory course in quantitative methods with emphasis on business applications. Throughout this course an emphasis is placed on helping the student to recognize situations and areas in business in which quantitative analysis might be useful.

FORMAT: Online Delivery

BUSI 5511 Management Information Systems

CREDIT HOURS: 3

This course is meant to provide the student with a basic knowledge of information systems and their role in business organizations. Fundamental to this basic knowledge is an understanding of the variety of information systems in business. An understanding of the use of computers in current and future information systems is stressed.

FORMAT: Online Delivery

BUSI 5512 Leveraging Technology

CREDIT HOURS: 3

This course is meant to provide the student with a basic knowledge of information systems and their role in business organizations. Fundamental to this basic knowledge is an understanding of the variety of information systems in business. An understanding of the use of computers in current and future information systems is stressed.

RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5550 Management of Operations

CREDIT HOURS: 1.5

Management of Operations is the study of the processes used in the production of goods and services. In this abbreviated course we will examine the approaches used in the key areas of Quality and Inventory. Other topics such as Forecasting are important in OM, but have a wider applicability. We will use cases to illustrate production processes and how techniques are applied.

FORMAT: Lecture| Seminar| Discussion

RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5551 Operations Management

CREDIT HOURS: 3

All managers should be familiar with the key concepts and techniques required to manage the production function of an organization regardless of their specialist functional interests. This is especially true for those who aspire to reach senior general management positions. The purpose of this course is to provide an introductory overview of production/operations management for such individuals, covering the key concepts and the latest developments in the field.

FORMAT: Lecture| Seminar| Discussion

BUSI 5703 Business Economics

CREDIT HOURS: 3

Domestic and international markets, governments policy and central bank decisions present opportunities, challenges and threats to the operating and competitive decisions of business owners, managers and investors. This course provides a framework for the economic analysis of these issues.

FORMAT: Online Delivery

BUSI 5800 Global Business

CREDIT HOURS: 1.5

This course provides an introduction to international business. It builds on the economic foundations of trade and investment, and introduces you to global trade, finance and regulatory frameworks, and the relationships between international companies and nation-states. By the end of the course you will develop an understanding of the nuances of the costs and benefits of foreign investments, the alternative controls and responses required for trans-national trade, as well as the effects of local environmental characteristics on the operations of multi-national enterprises.

FORMAT: Lecture| Seminar| Discussion

RESTRICTIONS: Restricted to Corporate Residency only

BUSI 5801 International Business

CREDIT HOURS: 3

This course provides a survey treatment of international businesses that will benefit all MBA students and build a foundation for those proposing future study in this area. For students not going on in the field, it provides the tools needed to manage the interdependence between domestic and international markets.

FORMAT: Online Delivery

BUSI 5902 Starting Lean

CREDIT HOURS: 3

This course provides real world, hands-on learning on what it's like to actually start a scalable company or enterprise. 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 getting 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 classroom as you test each part of your business model, then share you hard earned knowledge with the rest of the class.

CROSS-LISTING: MGMT 3902.03

BUSI 6000 Strategy and Competitiveness

CREDIT HOURS: 3

This course is about the general manager's task of managing strategy in all types of organizations. The course develops concepts, frameworks, techniques, and skills that are foundational to the development and execution of strategies that are competitively sound, organizationally doable, and effective in guiding organizational decisions and actions.

FORMAT: Lecture| Seminar| Discussion

PREREQUISITE: BUSI 7000.03

RESTRICTIONS: Restricted to Corporate Residency only

BUSI 6002 New Venture Creation

CREDIT HOURS: 3

New Venture Creation is about entrepreneurship: the process of creating new businesses. It employs cases, experiential exercises, and a major project to expose students to the issues, problems, and challenges of creating viable new businesses. The project provides students with the opportunity, within the framework of a formal course, to explore and develop business ideas they have been considering or wish to investigate. The final output of the project is a feasibility study, business plan, and financing proposal for a new venture.

FORMAT: Lecture| Seminar

CROSS-LISTING: ECMM 6024.03

BUSI 6003 Managing the Diversified Firm

CREDIT HOURS: 3

Managing diversification addresses the practice of strategic management in the diversified firm. Through cases, readings, and projects, the course examines the theory of diversification and alternative diversification strategies, internal growth, acquisition, related and unrelated diversification. Other topics addressed include integration of the new acquisition and divestiture.

PREREQUISITE: BUSI 5101.03, BUSI 5102.03, BUSI 5201.03, BUSI 5305.03, BUSI 5401.03, BUSI 5503.03, BUSI 5551.03, or permission of the instructor

BUSI 6004 Business Strategies for Sustainability

CREDIT HOURS: 3

This course takes a close look at what is happening in business strategy today through the 'lens' of sustainability, paying close attention to the increasingly competitive and demanding environment of the global economy. Business models will be discussed and several frameworks proposed for assessing the degree to which principles of sustainability are embraced within corporate strategy.

FORMAT: Lecture| Online Delivery

BUSI 6005 Strategy Implementation

CREDIT HOURS: 3

This course is about the general manager's task of managing strategy in all types of organizations. The course develops concepts, frameworks, techniques, and skills that are foundational to the development and execution of strategies that are competitively sound, organizationally doable, and effective in guiding organizational decisions and actions.

FORMAT: Lecture| Seminar| Discussion

PREREQUISITE: BUSI 6000.03

BUSI 6006 Managing the Family Enterprise

CREDIT HOURS: 3

Managing the Family Enterprise is about the special problems and issues that confront family businesses. It explores the family system, the business system, and their interactions - functional and dysfunctional.

FORMAT: Lecture| Seminar

CROSS-LISTING: COMM 3308.03, MGMT 3308.03

EXCLUSIONS: COMM 3308.03, MGMT 3308.03

BUSI 6007 Innovation Management

CREDIT HOURS: 3

Managing innovation is at the core of most successful business ventures. Successfully managing innovation depends on its alignment with the firm's business, marketing and operational strategies. This course leads students through the process of identifying innovation opportunities; managing the innovation process and executing entrepreneurial marketing strategies to successfully manage emerging ventures.

FORMAT: Lecture| Seminar

BUSI 6008 Managing the Emerging Technology Venture

CREDIT HOURS: 3

This is the second of two elective courses in entrepreneurship for emerging technologies. Together these two courses offer an opportunity to focus, in an integrated way, on the issues and problems of starting and managing emerging technology ventures. This course has three modules: Incentives, Options and Other Human Resource Issues in Emerging Technology Ventures, and Management of Growth and Innovation.

FORMAT: Lecture| Seminar

PREREQUISITE: All first year core courses (BUSI 5103.03, BUSI 5201.03, BUSI 5305.03, BUSI 5401.03, BUSI 5503.03, BUSI 5511.03, BUSI 5551.03, BUSI 5703.03, and BUSI 5801.03)

BUSI 6009 Business and Government

CREDIT HOURS: 3

The aim of this course is to explore the relationship between businesses and the public sector. Government impinges on business policy and activities through laws, regulations, subsidies, taxes, and its spending powers. How businesses can and do influence decisions in these areas constitutes the technical matter of the course. As a matter of necessity, the course assumes some prior general knowledge of the Canadian political system. This can be gained from either general politics courses or by some preliminary reading on the subject.

FORMAT: Lecture| Seminar

CROSS-LISTING: PUAD 6500.03

BUSI 6010 Corporate Environmental and Social Responsibility Beyond Apathy, Outrage & Orthodoxy

CREDIT HOURS: 3

This seminar examines how business leaders manage a broad set of corporate objectives in an increasingly interdependent global economy. The course explores ways to balance social, economic development, and environmental objectives with standard managerial financial objectives. It examines the role of public, private and civil society agents.

FORMAT: Seminar

BUSI 6019 Managing Business Government Relations

CREDIT HOURS: 3

Public policy can impact the business climate and operating context for specific firms. This course prepares future industry leaders to work, with government and civil society, through the study of business regulation. Participants will explore how to structure and manage business-government relations within administrative law, public consultation and lobbying processes.

PREREQUISITE: BUSI 6900.03

BUSI 6044 Industrial Sustainability; Patterns for Sustainable Industrial Development

CREDIT HOURS: 3

It is becoming increasingly obvious that human economies depend on the products and services provided by healthy, functioning ecological systems. By studying the

flow of materials and energy through industrial systems, industrial ecology identifies economic ways to lessen negative environmental impacts - through pollution prevention, innovative waste management strategies, improved energy efficiency, design for the environment, and promoting sustainability - within the carrying capacity of the surrounding ecosystems. The course will also include the social dimensions relating to industrial ecology by focusing on the organizational management dimensions that are related to the reduction of industrial emissions, waste flows, energy use and usage of materials within in-company procedures and beyond the level of single organizations. The format will include lectures, seminars, discussion and guest speakers.
FORMAT: Seminar
CROSS-LISTING: ENVI 5044.03

BUSI 6050 Corporate Governance

CREDIT HOURS: 3
Corporate Governance is designed to give students an in-depth look at the corporate governance triad, as indicated above, that controls the modern corporation. Accordingly, this course will deal with the control, composition, functions, roles, and structure of boards; board responsibility and accountability, CIO tenure and compensation, shareholder and other stakeholder representation; corporate boards vis-à-vis social responsibility and ethics; and comparative corporate governance across North America, Europe, and selected Asian countries.
FORMAT: Lecture
PREREQUISITE: BUSI 5201.03, BUSI 6000.03 and BUSI 7000.03

BUSI 6101 External Auditing

CREDIT HOURS: 3
This course covers the theory and practice of public auditing according to generally accepted auditing standards (GAAS). The first half of the course considers the forces impacting on the setting of auditing standards and the current level of standards. This part includes pronouncements of the accounting profession, reporting standards, professional ethics, statute laws, legal liability and responsibilities, standards for examination of internal control in both manual and computerized environments, standards for quality of evidence, statistical sampling and the sufficiency of evidence, documentation and working papers. The second half of the course considers typical audit programs for examination of balance sheet and income statement accounts.
FORMAT: Lecture
PREREQUISITE: BUSI 5103.03
CROSS-LISTING: COMM 3114.03

BUSI 6102 Taxation

CREDIT HOURS: 3
An introduction to the taxation system in Canada, with special reference to the provisions of the Income Tax Act and their effects on business decisions. The measurement process used to determine the tax base are examined, and the basic elements in the calculation of tax payable for individuals and corporations are discussed.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BUSI 5103.03
CROSS-LISTING: COMM 4120.03

BUSI 6106 Cost Management

CREDIT HOURS: 3
The major objective of this course is to develop a deeper understanding of the key topics in cost/managerial accounting practices and their management control implications. 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 concentrate their studies in the accounting area.
FORMAT: Lecture| Discussion
PREREQUISITE: BUSI 5103.03

BUSI 6108 Advanced Financial Accounting I

CREDIT HOURS: 3
This course is intended to provide an understanding of corporate financial reporting model and related conceptual issues. The course will develop expertise in accounting and reporting issues related to liabilities and shareholders' equity, including complex debt and equity instruments, corporate income taxes, leases, pensions and other post-retirement obligations, earnings per share, accounting changes and restatements.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: BUSI 5103.03
CROSS-LISTING: COMM 3111.03

BUSI 6109 Advanced Financial Accounting II

CREDIT HOURS: 3
This course provides an in-depth study of the interrelated topics of intercorporate investments, business combinations, consolidated financial statements and foreign currency transactions and foreign operations. The course also covers segmented reporting and bankruptcy.
FORMAT: Lecture
PREREQUISITE: BUSI 6108.03
CROSS-LISTING: COMM 4102.03

BUSI 6110 Advanced Financial Accounting III

CREDIT HOURS: 3
This course provides a theoretical framework for the study of accounting policy. Case analysis is an integral part of the course. Topics covered include accounting policy choice in a dynamic framework, partnerships, standard setting, not-for-profit accounting and fund accounting. As well the course may consider various practical and theoretical topics, and current topics as appropriate.
FORMAT: Lecture
PREREQUISITE: BUSI 6108.03
CROSS-LISTING: COMM 4101.03

BUSI 6114 Information Systems Controls

CREDIT HOURS: 3

This course examines special considerations when auditing in a computerized environment. Three major areas covered in the course are: (1) Internal control techniques/requirements, the standards associated with computerized processing of transactions, creation and control over databases, and special planning for interruption and restart of computer operations. (2) Audit procedures in a computerized environment. (3) Use of computer-assisted audit techniques, including "Interactive Data Extraction and Analysis," a software package from the Canadian Institute of Chartered Accountants, developed by the Auditor-General of Canada.

FORMAT: Lecture

PREREQUISITE: BUSI 5103.03, 5511.03

BUSI 6207 Advanced Corporate Finance

CREDIT HOURS: 3

This is an advanced course that offers a variety of applied topics in corporate finance. The emphasis will be on implementing the tools and techniques of the finance theory and as such will have a strong applied or case-based component.

FORMAT: Online Delivery

PREREQUISITE: BUSI 5103.03

BUSI 6210 Financing Sustainability and Corporate Responsibility

CREDIT HOURS: 3

This course explores the issues at the intersection of finance, sustainability and corporate social responsibility. Beginning with a thorough dissection of "shareholder wealth maximization" as the goal of the firm, we deconstruct several areas of modern financial theory and practice to see how they impact the sustainability of firms.

FORMAT: Lecture| Online Delivery

BUSI 6220 Risk and Derivatives

CREDIT HOURS: 3

This course is an introduction to risk, enterprise management and derivatives. As a survey course in risk and derivatives, the goal is to cover the central concepts and issues that will permit the student to start using the concepts and products as well as have a working understanding of the main advantages and disadvantages of each. The goal of the course is not solely on the quantitative models themselves, but also on the qualitative issues. Nevertheless, risk management and derivatives is a quantitative subject, and as such, students be comfortable with basic statistics and algebra. Knowledge of calculus is not required for this course. Additionally, students should be comfortable with basic Excel mathematical and financial functions.

FORMAT: Lecture| Discussion

PREREQUISITE: BUSI 5201.03

BUSI 6230 Investment and Money Management

CREDIT HOURS: 3

This course is designed to introduce students to the basics of the Modern Investment and Portfolio Theory and its application to Money management. The intention is to provide students with the needed technical and operational skills to successfully face the challenging world of investments and money management. In particular, a considerable effort will be made to compare and contrast investment approaches in various theories with the activities of money managers on the street.

FORMAT: Lecture| Discussion

PREREQUISITE: BUSI 6207.03

BUSI 6240 Analyzing Financial Statements

CREDIT HOURS: 3

This course is intended to provide an analytical understanding of the usefulness of conventionally reported financial data in investment and credit decision-making. It covers major financial reporting issues within the context of predicting future earnings and the role of financial institutions in capital markets.

BUSI 6255 Global Markets and Institutions

CREDIT HOURS: 3

Global Markets and Institutions is an introduction to the world of global finance. It has been designed to give a theoretical background to topics such as financial institutions and current markets and to explain how these impact the world economy. Throughout the course, application to real-life examples will be used extensively.

FORMAT: Lecture| Seminar| Discussion

PREREQUISITE: BUSI 5103.03 and BUSI 6207.03

BUSI 6300 Risk Management for Financial Institutions

CREDIT HOURS: 3

Risk Management for Financial Institutions is a comprehensive introduction to the tools and techniques of enterprise risk management in financial institutions. The course covers basic and advanced risk concepts dealing with the management and operations of financial institutions and the development of financial products.

BUSI 6305 Organizational Change and Human Resource Management for Responsible Business

CREDIT HOURS: 3

This bourse explores what this reshaping of demands facing contemporary business leaders means for the practicing manager and for the Human Resource function. Through the course we will explore conceptual frameworks of organization and internal processes that are essential to build the sustainable organization, and will apply these frameworks to case studies in order to identify the HR principles that are required to build capacity in terms of connectivity, commitments, culture and capabilities of the sustainable organization.

FORMAT: Lecture| Online Delivery

BUSI 6312 Organizational Design

CREDIT HOURS: 3

The behaviour and performance of individuals are significantly influenced by organizational design. The design involves the formal systems and process, specialization, hierarchy, authority-power, communications, reward systems, and accountability. The purpose of the course is to examine the evolution of design strategies, review some of the different approaches to design now being utilized in organizations, and consider differences in behaviour and performance in organizational systems employing different design strategies. The course will not offer a particular design as the answer to organizational-managerial problems, but will propose some steps that managers should consider before designing their organizations.

FORMAT: Lecture

BUSI 6313 Organizational Change

CREDIT HOURS: 3
This course provides the student with an understanding of major conceptual approaches to the changing organization, including changing people, technology, and structure. Emphasis is placed on the analysis of the dynamics and process of change through case studies, and the exploration of programs of organizational change, including grid and laboratory programs, and the use of consultation.
FORMAT: Lecture| Seminar

BUSI 6315 Intercultural and International Management

CREDIT HOURS: 3
This course is designed to familiarize participants with behavioural problems and challenges facing managers interacting with people from other cultures in foreign or domestic work settings. The course also examines research findings in the field to investigate the similarities and differences found in managerial practices of selected cultures.
FORMAT: Lecture
CROSS-LISTING: COMM 4315.03

BUSI 6322 Staffing

CREDIT HOURS: 3
This course considers the strategies and problems in human resource recruiting and selection and examines its impact on organizational effectiveness. Topics include: job analysis, employment forecasting, recruiting strategies, basic selection models, interviewing methods, and evaluation of selection programs. As all managers participate in selecting subordinates, this course is appropriate for the generalist as well as the human resource specialist.
FORMAT: Lecture| Seminar
PREREQUISITE: BUSI 5305.03

BUSI 6323 Training & Development

CREDIT HOURS: 3
This course covers methods currently employed in the training and development field. The primary purpose is to develop students' expertise in the training and development area. Since all managers have to develop themselves and their subordinates, this course is relevant for generalists as well as human resource specialists.
FORMAT: Seminar
PREREQUISITE: BUSI 5305.03

BUSI 6326 Management Skills Development

CREDIT HOURS: 3
This course exposes students to key knowledge, skills, and attitudes (KSAs) considered critical to managerial success. Such exposure is designed to provide the student with behaviours that will help ensure that, when managing human resources, staff will perform at or near peak capabilities. This is a skill-building course. Significant amounts of classroom time are devoted to behaviour modeling exercises, role-plays, case studies, and group discussions.

BUSI 6350 Authentic Leadership for the 21st Century

CREDIT HOURS: 3
There are few topics in business that receive as much attention as does the topic of 'leadership.' The opinions range from the centrality of leadership to success to the theory that leadership is a romantic conception that does not exist, nor impact outcomes, in the real world. This course will examine that range of opinions and research findings about leadership, as part of the search for understanding of what leadership is to the individual and to the organizational world at large. As future leaders, you need to understand what constitutes effective and ethical leadership. This course then will also include learning about oneself as a leader, as well as about the topic of leadership in the abstract.
FORMAT: Lecture| Discussion

BUSI 6401 Marketing Research

CREDIT HOURS: 3
This course is designed to give the student an appreciation of the scope of marketing research techniques. The goal of the course is to provide students with sufficient background to make them knowledgeable users of marketing research information. Marketing research will be related to model building, information systems, and the concept of value of information.
FORMAT: Seminar
PREREQUISITE: BUSI 5401.03

BUSI 6403 Integrated Advertising, Promotion, and Marketing Communications

CREDIT HOURS: 3
Designed to improve analytical skills and decision-making capabilities through the practical application of advertising concepts and principles, this course considers market positioning, the psychology of mass communication, copy strategy, media selection, budgeting, and advertising research.
FORMAT: Lecture| Seminar
PREREQUISITE: BUSI 5401.03

BUSI 6408 Transport Modes

CREDIT HOURS: 3
This course will introduce the student to the business of managing a transport enterprise. It will focus on understanding the regulatory environment and customer requirements prior to exploring operational considerations across a number of transport modes and what that means for marketing the transport company and structuring 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.
FORMAT: Lecture| Seminar
CROSS-LISTING: COMM 3408.03

BUSI 6410 Advanced Marketing

CREDIT HOURS: 3
Students will develop the ability to understand an industry from the point of view of a marketing manager. Students also develop the capability to prepare a market analysis and a marketing strategy.

BUSI 6412 Consumer Behavior

CREDIT HOURS: 3
Every stage of the marketing process, from determining consumers' needs to evaluating customer satisfaction, requires a clear understanding of the consumer. The goal of this course is to introduce you to the theories and concepts related to all aspects of consumer behaviour, including theories of attitude formation and change, memory, decision-making, cultural influences, and behavioural outcomes. Throughout the course, an emphasis will be placed on applying theoretical knowledge to various marketing situations.
FORMAT: Lecture| Discussion
PREREQUISITE: BUSI 5401.03

BUSI 6416 The Role of Private Sector in International Development

CREDIT HOURS: 3
This course will examine the theory and the practice behind private sector-led development as well as the role of entrepreneurship in the developing world. There is a broad debate on what, why, how, for whom and by whom is private sector development for.
FORMAT: Lecture| Online Delivery

BUSI 6420 Marketing Informatics

CREDIT HOURS: 3
A revolution in marketing requires marketers who have a whole new set of skills and knowledge focused on the application of technology and associated practices. Large companies require marketers with the skills necessary to work with IT people to develop effective customer information files and information from other sources. They need to be able to use data mining tools and techniques to understand buyer behaviour, identify relevant segments, and develop effective strategies using all of today's new media and channels. This is a leading edge course.
FORMAT: Lecture| Seminar
PREREQUISITE: BUSI 5401.03

BUSI 6450 Marketing Strategy Seminar

CREDIT HOURS: 3
This is the capstone course in marketing. As such, it is designed to draw together the individual marketing courses offered in the MBA programs. Extensive use will be made of case studies requiring students to develop complete marketing strategies for companies in "real-life" situations. Student presentations of their case analyses will form an important part of the course. Presentations will be videotaped and a critique provided by the instructor.
FORMAT: Seminar
PREREQUISITE: BUSI 5401.03 and BUSI 7000.03 andtwo 6000-level marketing courses, which may be taken concurrently, or permission of the instructor

BUSI 6504 Multivariate Analysis

CREDIT HOURS: 3
The convenience of packaged statistical programs (e.g., SPSS and Minitab) has opened the area of data analysis to researchers with a wide variety of backgrounds. Since it is possible to operate statistical software without understanding advanced mathematics, there is a need for a course designed around a packaged statistical program which introduces the user to the basic concepts underlying the techniques. Students interpret statistical programs using data sets from such business areas as marketing, finance, and organizational behaviour.
FORMAT: Seminar
PREREQUISITE: BUSI 5503.03
CROSS-LISTING: COMM 4538.03

BUSI 6511 Business Process Integration Using ERP Systems

CREDIT HOURS: 3
Enterprise Systems are comprised of a unified database with shared analysis and reporting tools allowing for real time business intelligence across global operations. Emphasis in this course is equally on learning business processes and integration between different functional areas as it is about the technology that facilitates this. This course will be taught in the teaching labs 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 ERPSim, a game-based SAP ERP simulation. Here you will learn to manage companies from end-to-end using the actual SAP ERP in a real-time simulated competitive environment and will learn the processes, gain 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.
FORMAT: Lecture| Lab
PREREQUISITE: BUSI 5512.03
CROSS-LISTING: COMM 4511.03

BUSI 6513 Business analytics and Data Visualization

CREDIT HOURS: 3
This course provides an introduction to Business Analytics and Data Visualization. It covers the processes, methodologies and practices used to transform the large amounts of business and public data into useful information to support business decision-making. Students will learn how to extract and manipulate data from these systems. They will also acquire basic knowledge of data mining and statistical analysis, with a focus on data visualization. The students will also learn to build and use management dashboards and balanced scorecards using a variety of data design and visualization tools. The course will be made up of a combination of conceptual and applied topics with classes being held in a computer lab. Technologies to be used will be focused on end-user analytics and data visualization and will include state of the art tools for self-serve business analytics.
PREREQUISITE: BUSI 5512.03 or permission of instructor.

BUSI 6516 Data Management

CREDIT HOURS: 3
Database design and administration are at the core of any organization's information system. Any MIS professional needs to understand the fundamentals of organizational and network database design and the new technique of object oriented analysis. The student will develop an appreciation of current problems in database design and administration.

FORMAT: Lecture| Seminar
PREREQUISITE: BUSI 5512.03
EXCLUSIONS: BUSI 6906.03 (former number)

BUSI 6519 Systems Analysis and Applications Development

CREDIT HOURS: 3
This course is designed to provide students with a basic understanding of systems analysis and an overview of application development. Students will be involved in the development of databases using various software applications, primarily Access and Visual Basic. In addition, students will develop, document, and deliver an application to an outside end-user.
FORMAT: Lecture| Seminar
PREREQUISITE: BUSI 5511.03
EXCLUSIONS: BUSI 6908.03 (former number)

BUSI 6520 Electronic Commerce

CREDIT HOURS: 3
The goal of this course is to prepare students to become effective managers and strategists in the area of Electronic Commerce. Along these lines the course focuses on the various elements of eBusiness strategy including identifying and evaluating market opportunities, exploring the various business models that are being used in the networked economy, and gaining an understanding of the guiding principles behind the design and strategy of successful customer Web interfaces. The course will also explore issues related to branding in an eBusiness environment as well as exposing students to issues related to effectively implementing online strategies and how to use metrics to assess the health of an eBusiness. Learning in this course is accomplished through a combination of lectures, case analysis and a term project.
FORMAT: Lecture| Seminar
PREREQUISITE: All first year core courses

BUSI 6523 Project Management: A Managerial Approach

CREDIT HOURS: 3
This course will cover the principles of project management generally and for Information Technology Projects in particular. There is a set of generic project management disciplines that apply everywhere, and there are considerations specific to IT development challenges. Students will learn those differences as well as generic principles of project management. Through real projects with real clients, students will gain a real-world understanding of the challenges of project management.
FORMAT: Lecture| Seminar
CROSS-LISTING: ECMM 6022.06; HINF 6300.03

BUSI 6525 Human Computer Interaction

CREDIT HOURS: 3
Explores how technology affects human use, and examines the process from conception of an idea to design and evaluation, with a particular emphasis on Web-based applications.
FORMAT: Lecture| Seminar
CROSS-LISTING: LIBS 6630.03, INFO 6630.03

BUSI 6526 Evaluating the Interface to Products/Services

CREDIT HOURS: 3
Theoretical and practical examination of user interface evaluation. Evaluation criteria, metrics and the protocols for assessing selected characteristics of usability will be explored. The emphasis is on learning and applying a series of techniques for evaluation, and for choosing appropriate criteria for testing depending on the objective of the tests.
FORMAT: Lecture| Seminar
PREREQUISITE: BUS 5511.03 or equivalent

BUSI 6601 Legal Aspects of Business

CREDIT HOURS: 3
This course focuses on law and legal compliance from the perspective of managing risk. Being the only legal aspects course in the program, it establishes a foundation in the most relevant areas of law, including torts, contracts, interventions by equity, insurance, and business associations. It also considers the real-world problems faced by those engaged in the practice of corporate governance.

BUSI 6605 Business Ethics and Values on Management

CREDIT HOURS: 3
This course introduces students to the relevance and importance of ethics and social responsibility in business. The ultimate intent of the course it to leave students better equipped to identify, think critically about, and resolve ethical issues that re encountered in one's working life at the individual, organizational, and societal levels.
FORMAT: Lecture| Online Delivery

BUSI 6802 Strategic Management of International Operations

CREDIT HOURS: 3
This course critically examines the generic and functional strategies open to multinational enterprises and, through numerous industry and business case studies, seeks to test the applicability of these concepts to actual situations. Each student is expected to prepare a major research paper, and a simulated negotiation is included to help sharpen top management skills crucial for success in international operations.
FORMAT: Seminar
PREREQUISITE: BUSI 5801.03, BUSI 5800.015

BUSI 6812 Foreign Business Program

CREDIT HOURS: 3
A group of MBA students travel to predetermined foreign destinations. The aim of this trip is two-fold: first, to meet with business leaders, government officials and academics in selected countries, and second, to make separate business calls on behalf of specific Canadian firms seeking to do business in these countries. Prior to departure, mission participants will attend a series of lectures on the foreign business environment and familiarize themselves with their Canadian client companies. Following their return, students will present oral and written reports to the companies for which they have carried out a market investigation.

BUSI 6900 Corporate Responsibility, Ethics and Society

CREDIT HOURS: 3
This course introduces students to the relevance and importance of ethics and social responsibility in business. The ultimate intent of the course is to leave students better equipped to identify, think critically about, and resolve ethical issues that are encountered in one's working life at the individual, organizational, and societal levels.
FORMAT: Lecture

BUSI 6901 Legal Aspects of Doing Business

CREDIT HOURS: 3

FORMAT: Lecture

BUSI 6902 Business and Government, Cross Border Trade

CREDIT HOURS: 3

FORMAT: Lecture

BUSI 6941 Applied Topics in Business I

CREDIT HOURS: 3
This course is designed to permit the business school to develop and test new course material. Its content may therefore be different from year to year and between sections. Please consult the department for further information.
NOTES: SIGNATURE REQUIRED
FORMAT: Seminar

BUSI 6942 Applied Topics in Business II

CREDIT HOURS: 3
This course is designed to permit the business school to develop and test new course material. Its content may therefore be different from year to year and between sections. Please consult the department for further information.
FORMAT: Seminar
PREREQUISITE: All first year core courses

BUSI 6951 Research Reading and Conference Class

CREDIT HOURS: 3
This course provides an opportunity for supervised in-depth research on a topic of special interest to the student (proposed by the student and faculty member involved, and approved by the MBA Program Committee). Further description is available at the MBA Office at 494-1814 or mbacr@dal.ca. Deadlines for electronic submission of proposals are September 2, December 1, and April 1 for the following term (one time only). Proposals must be accompanied by name of supervising professor. Once approved by the MBA Program Committee, the student may engage in the project.
NOTE: Course Details listed here also apply to BUSI 6952.03.
NOTES: SIGNATURE REQUIRED

BUSI 6952 Research, Reading & Conference Class

CREDIT HOURS: 3
See BUSI 6951.03.

BUSI 6960 Internship

CREDIT HOURS: 3
This course is intended to provide students an opportunity to apply in the business environment, the knowledge, skills, and abilities gained in the program. Students must find their own unpaid business placement (at least 130 hours per term, one term only), choose a professor willing to supervise, and submit a proposal (electronically) to the MBA Program Committee. Further description is available at the MBA Office at 494-1814. Proposals must be accompanied by name of supervising professor. Once approved by the MBA Program Committee, the student may engage in the internship.

BUSI 6970 Applied Topics in Business III

CREDIT HOURS: 3
This course is designed to permit the business school to develop and test new course material. Its content may therefore be different from year to year and between sections. Please consult the department for further information.
FORMAT: Seminar
PREREQUISITE: All first year core courses

BUSI 6990 Strategic Leadership and Change

CREDIT HOURS: 3
The Strategic Leadership and Change course is the capstone course in the MBA (Financial Services) program. It provides students with the ability to integrate the concepts and techniques developed in earlier courses. Strategy-formulation abilities are enhanced, and strategy implementation is emphasized. Students are able to develop and apply the skills necessary in managing organizational change.

BUSI 7000 Corporate Residency

CREDIT HOURS: 0
The eight month corporate residency focuses on enhancing human capital, leadership development and the creation of social capital in organizations. Since job assignments and action learning are effective ways to develop leadership skills, the overall purpose of the residency is to provide students with an opportunity to bridge the practice and science of leadership development by showing the importance of building both human and social capital in organizations. Ways that this can be achieved include 360-degree feedback; experiential skill development programs; on-the-job learning projects; professional reading and reflective conversations; executive coaching; mentoring; networking.
PREREQUISITE: BUSI 5000.03, BUSI 5103.03, BUSI 5201.03, BUSI 5305.03, BUSI 5401.03, BUSI 5503.03, BUSI 5550.015, BUSI 5703.03, BUSI 5800.015, BUSI

6900.03
RESTRICTIONS: Restricted to Corporate Residency only

Chemistry

Location:
Building/Room: Chemistry Building
Street Address 1: 6274 Coburg Road
Street Address 2: 2nd Floor, Room 212
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3305
Fax: (902) 494-1310
Website: chemistry.dal.ca
Email Address: chemistry@dal.ca

Programs leading to MSc and to PhD degrees are offered. Research for these degrees can be undertaken in analytical, inorganic, organic, physical/theoretical chemistry or combinations thereof.

Staff

Chairperson of Department

Schepp, N. P.

Graduate Coordinator

Stradiotto, M.

Professors Emeriti

Aue, W. A., PhD (Vienna), FCIC. Chromatography
Becke, A. D., BSc (Queen's), MSc, PhD (McMaster), FRSC, FRS, FCIC, Killam Chair in Computational Science, Shirreff Chair of Chemistry. New theoretical and computational methods for the electronic structure of atoms, molecules and solids
Boyd, R. J., BSc (UBC), PhD (McGill), FCIC, Alexander McLeod Professor of Chemistry. Quantum chemistry; reaction mechanisms; density functional theory and biomolecules
Coxon, J. A., BA (Cambridge), MSc, PhD (East Anglia). Electronic spectra of molecules; laser spectroscopy; chemiluminescence
Kwak, J. C. T., BSc, MSc, PhD (Amsterdam), FCIC. Colloid and polymer chemistry

Professors

Bearne, S. L., BSc (Acadia), PhD (Toronto), MDCM (McGill), cross-appointment from Biochemistry and Molecular Biology. Biological chemistry, enzymology, kinetics, enzyme inhibition, drug design, enzyme evolution, proteomics, organic synthesis
Burnell, D. J., BSc, MSc (Carleton), PhD (UNB), Synthetic and mechanistic organic chemistry
Dahn, J. R., BSc (Dalhousie), MSc, PhD (UBC), Canada Research Chair in Battery and Fuel Cell Materials, NSERC/3M Canada Inc. Industrial Research Chair and cross appointment from Physics and Atmospheric Science. Materials for advanced batteries
Doucette, A. A., BSc (Dalhousie), PhD (Alberta). Analytical mass spectrometry; biological sample analysis; expression proteomics; multiplexed separations; protein labelling and fluorescence
Jakeman, D. L., BSc, PhD (Sheffield), cross-appointment from College of Pharmacy. Applications of enzymes and carbohydrates, protein engineering, medicinal chemistry
Martin, R. V., BS (Cornell), MSc (Oxford), PhD (Harvard), cross-appointment from Physics and Atmospheric Science. Atmospheric chemistry and the use of satellite and suborbital measurements to improve the understanding of climate and air quality
Obrovac, M. N., BSc (SFU), MSc, PhD (Dalhousie), cross-appointment with Physics and Atmospheric Science and Industrial Research Chair in Materials Science. New Materials for advanced batteries, electrochemistry, inorganic materials synthesis, nanostructured materials
Rainey, J. K., BSc (Guelph), MSc, PhD (Toronto), cross-appointment from Biochemistry and Molecular Biology and Director of NMR-3. Biophysical chemistry, protein structure, dynamics and self-assembly
Stradiotto, M., BSc, PhD (McMaster), Faculty of Science Killam Professor, Alexander McLeod Professor of Chemistry. Organometallic chemistry
Thompson, A., BSc (Leicester), PhD (Sheffield), Faculty of Science Killam Professor. Synthesis and applications of homochiral dipyrromethene complexes; asymmetric catalysis; new methodology for the synthesis of important pyrroles
Wentzell, P. D., BSc (Dalhousie), PhD (Mich State), Chemometrics; sensors; continuous flow analysis
White, M. A., BSc (Western), PhD (McMaster), FCIC, FRSC, University Research Professorship and cross-appointment with Physics and Atmospheric Science. Material science, thermal properties of solids
Zhang, P., BSc, MSc (Jilin Univ, China), PhD (Western), cross-appointment with School of Biomedical Engineering (SBME). Materials science, nanoscience and

technology, synchrotron spectroscopy, biotechnological applications of nanocrystals
Zwanziger, J. W., BA (Chicago), PhD (Cornell), Canada Research Chair in NMR Studies of Materials and cross-appointment with Physics and Atmospheric Science. Materials science: structure, bulk properties, and synthesis

Associate Professors

Andreas, H. A., BSc, PhD (Calgary). Electrochemistry of energy storage, particularly the self discharge of aqueous supercapacitors
Cozens, F. L., BSc (York), PhD (Toronto). Nanosecond laser flash photolysis, physical organic chemistry in homogeneous and heterogeneous media
Johnson, E., BSc (Carleton), PhD (Queen's)
Schepp, N. P., BSc, PhD (Toronto). Biologically important reactive intermediates, nanosecond laser flash photolysis
Turculet, L., BSc (MIT), PhD (Berkeley). Synthetic inorganic and organometallic chemistry and reactivity; new materials synthesis
White, R. L., BSc (Dalhousie), PhD (McMaster), FCIC. Biosynthesis of natural products and enzymes of secondary metabolism

Assistant Professor

Speed, A. W., BSc (Dalhousie), PhD (Harvard)

Adjunct (FGS)

Becke, A. D., BSc (Queen's), MSc, PhD (McMaster), FRSC, FRS, FCIC, Killam Chair in Computational Science, Shirreff Chair of Chemistry. New theoretical and computational methods for the electronic structure of atoms, molecules and solids
Boyd, R. J., BSc (UBC), PhD (McGill), FCIC, Alexander McLeod Professor of Chemistry. Quantum chemistry; reaction mechanisms; density functional theory and biomolecules
Cameron, T. S., BA, MA, DPhil (Oxon), Dalhousie University. X-ray structural studies on inorganic compounds
Chatt, A., BSc (Calcutta), MSc (Roorkee), MSc (Wat), PhD (Toronto), FCIC, Dalhousie University. Nuclear and bioanalytical methods; trace elements in the environment
Grindley, T. B., BSc, MSc, PhD (Queen's), FCIC, Dalhousie University. Carbohydrate chemistry; molecular modeling, synthesis
Grossert, J. S., BSc, MSc, PhD (Natal), FCIC, Dalhousie University. Mass spectrometry and organosulphur chemistry
Matta, C., BPharm Sci (Alexandria Univ, Egypt), Graduate Diploma in Health and Hospital Administration (National Institute of Management, Egypt), PhD (McMaster), Mount Saint Vincent University. Computational and theoretical chemistry
Pincock, J. A., BSc, MSc (Manitoba), PhD (Toronto), FCIC, Dalhousie University. Studies on reaction mechanisms involving both ground and excited states
Pinto, D. M., BSc (McGill), PhD (Alberta), Institute for Marine Biosciences. Bioanalytical chemistry with expertise in the development of analytical technologies for proteomics
Pottie, I. R., BSc (St. Mary's), PhD (Memorial), MCIC, Mount Saint Vincent University. Natural product symthesis, asymmetric synthesis, Henry reaction, Diels-Alder reaction, Alzheimer's disease, multiple sclerosis
Quilliam, M., BSc, PhD (Manitoba), Institute for Marine Biosciences. The chemistry and analysis of algae biotoxins
Ramaley, L., BA (Colorado), MA, PhD (Princeton), FCIC, Dalhousie University. Mass spectrometry and chemical instrumentation
Weaver, D. F., MD, PhD (Queen's), FRCP (C) (Dalhousie), FCIC, Toronto Western Research Institute UHN/University of Toronto
Werner-Zwanziger, U., Vordiplom (Mathematics), Diploma (Chemistry), PhD (Westfälische Wilhelms-Universität Münster, Germany), Dalhousie University. Solid-state nuclear magnetic resonance, ceramics, biomaterials

Postdoctoral Fellows, Research Associates/Assistants

Bushnell, E., BCs, BSc, PhD (Windsor)
Conrad, J., BSc (Dalhousie)
Dale, S., BSc (Univ of Western Australia)
Figliola, C., BSc, MSc (Univ of Parma, Italy), PhD (Univ of Birmingham)
Hatchard, T., BSc, BComm (St. Mary's), MSc, PhD (Dalhousie)
Huchenski, B., BSc (Dalhousie)
Johnson, M., BSc (Dalhousie), MSc (UWO)
Kahwaji, S., MSc (American Univ of Beirut, PhD (Dalhousie)
LeFort, F., BSc, PhD (Dalhousie)
Li, L., BSc (Changsha Univ, China), PhD (Central South Univ, China)
Li, Z., BSc (Univ of Science and Technology, China)
Neiger (Marchal), E., BSc, MSc (Nancy, Univ France), PhD (Rennes, Univ France)
Nicol, A., BSc (Dalhousie)
Ogawa, T., BEng, MEng, PhD (Nagoya Institute of Technology, Nagoya, Japan)
Romao, C., BSc (McGill), PhD (Dalhousie)
Todorova, T., BSc, MSc (Univ of Sofia, Bulgaria), PhD (Univ of Sheffield, UK)
Werner-Zwanziger, U., Vordiplom (Mathematics), Diploma (Chemistry), PhD (Westfalische Wilhelms-Universitat Munster, Germany)
Zeng, J., MS (Guangxi Normal Univ, China), PhD (Dalian Inst of Chem Phys, Chinese Academy of Sciences)

Admission Requirements

Programs leading to MSc and to PhD degrees are offered. Research for these degrees can be undertaken in analytical, inorganic, organic, physical/theoretical chemistry or combinations thereof.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In addition, prospective students from outside North America and Western Europe should arrange for submission of the results of the General Graduate Record Examination (GRE). For those whose first language is not English, an English language competency test is required. Details of approved English tests and associated minimum scores can be found by consulting Section 2.4 in the Faculty of Graduate Studies Regulations.

General Regulations

All graduate students are required to carry out novel, original research. In addition, all graduate students are required, as part of their training, to instruct in the undergraduate laboratories, to present and participate in departmental graduate student seminars, and to attend invited speaker departmental seminars.

Further details of degree regulations are presented in the Graduate Students' Handbook, which may be obtained from the Departmental Office.

Master of Science (MSc) Degree

Full-time Program

Six credit hours and one departmental graduate student seminar, together with the presentation and oral defence of a thesis based on original research are required. Faculty regulations permit an MSc candidate to graduate after 12 months of resident study. Experience has shown that most MSc candidates in the Department require at least 20 months to complete their work.

Part-time Program

The full-time MSc course requirements and thesis regulations apply. The thesis must be supervised by a member of the Department.

Doctor of Philosophy (PhD) Degree Program

Students are required to pass 12 credit hours of courses and present two departmental graduate seminars. A PhD qualifying examination is normally completed within 18 months of their start date. Original research, together with preparation and oral defence of a thesis, is required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

CHEM 5102 Organotransition Metal Chemistry

CREDIT HOURS: 3

Organotransition metal chemistry has grown over the last several decades into one of the most important areas of research and development in inorganic chemistry. In this course the most important types of organic ligands and their bonding characteristics are surveyed, as are the most important reaction pathways such as migratory insertion, oxidative addition, nucleophilic addition, etc. The course concludes by examining homogeneous catalysis by organotransition metal complexes.

CHEM 5201 Advanced Topics in Separations

CREDIT HOURS: 3

This course deals mainly with chromatography and associated techniques; in particular, gas chromatography in its regular, capillary and supercritical forms, high-pressure liquid (including ion) chromatographies, capillary electrophoresis, and gas and liquid chromatography combined with other instrumental techniques such as mass spectrometry. The original ideas behind the design of separation media and detection modes are emphasized, and their consequences for the analysis of living and environmental systems.

CHEM 5205 Chemometrics

CREDIT HOURS: 3
Chemometrics has been defined as the application of mathematical, statistical and formal logic methods to chemical measurements. This course will introduce some topics in this area with a greater emphasis on what can be accomplished with chemometric tools and their proper use rather than on the rigorous mathematical details.
CROSS-LISTING: CHEM 4205.03

CHEM 5206 Bioanalytical Mass Spectrometry

CREDIT HOURS: 3
This course offers a thorough treatment of modern mass spectrometry. The first part of the course covers the design of modern instrumentation with the emphasis on use in bioanalytical chemistry. The second major topic is an examination of some fundamental physics and chemistry of ions in the gas phase. The third part is a summary of modern applications with particular attention to the roles of mass spectrometry in drug discovery, proteomics, and environmental chemistry.

CHEM 5301 Theory of Chemical Bonding

CREDIT HOURS: 3
This course surveys contemporary methods for electronic structure calculations. The emphasis is on the qualitative features and physical basis of molecular orbital theory and its application to chemistry. Empirical, semi-empirical, and ab initio methods are included. Each student is expected to undertake a computational project relevant to her or his research interests.

CHEM 5302 Introduction to Surface Science

CREDIT HOURS: 3
The fundamental theory and principles of surface science are introduced. Topics include the atomic structure of solid surfaces, thermodynamic and kinetic properties of surfaces, electronic and bonding behavior of surfaces, catalytic processes by surfaces, and typical surface analysis techniques.
FORMAT: Lecture
PREREQUISITE: CHEM 2301.03 and CHEM 2304.03 or PHYC 3200.03 or PHYC 3640.03
CROSS-LISTING: CHEM 4302.03

CHEM 5303 Physical Properties of Materials

CREDIT HOURS: 3
The course will provide a broadly based introduction to the physical properties of materials, including optical, thermal, electronic, magnetic and mechanical properties. In addition, it will provide more in-depth coverage of matters concerning lattice dynamics and related phononic properties of solids.

CHEM 5304 Kinetics and Catalysis

CREDIT HOURS: 3
This course relates the properties of molecules in motion to the rates of chemical changes. Collision, transition state and diffusion theories are applied to significant industrial, biological and atmospheric process. Photochemistry, and its converse, luminescence, are interpreted. Mechanisms of catalyst activity are discussed. In assignments, students apply theories to systems of their own choice.

CHEM 5305 Introductory Statistical Thermodynamics

CREDIT HOURS: 3
The principles of statistical mechanics are introduced and the relationship between the laws of thermodynamics and the underlying microscopic processes is examined. Wherever possible applications to chemical systems are emphasized, and overview is given of modern techniques, with particular attention to computer simulation.

CHEM 5311 Fundamental Applied Electrochemistry

CREDIT HOURS: 3
A broad introduction to the fundamentals of electrochemistry, including electrochemical theory, double layer modelling and electrochemical methods. Additionally, important electrochemical applications will be discussed, including corrosion, energy production and storage (fuel cells, batteries and supercapicitors) and sensors (biosensors).
PREREQUISITE: CHEM 2301.03 and CHEM 2304.03
CROSS-LISTING: CHEM 4311.03

CHEM 5312 Advances in Battery, Fuel Cell and Supercapacitor Materials

CREDIT HOURS: 3
This course will present the cutting-edge advances in the materials used in energy storage systems, such as batteries (particularly Li-on batteries), fuel cells and supercapacitors. Discussions will include component materials (electrodes, electrolytes, separator) and full devices.
FORMAT: Lecture
PREREQUISITE: CHEM 4311.03/ CHEM 5311.03 or permission of the instructor

CHEM 5401 Synthesis in Organic Chemistry

CREDIT HOURS: 3
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.
CROSS-LISTING: CHEM 4401.03

CHEM 5402 Organic Structure Determination

CREDIT HOURS: 3
This course uses all spectral techniques in a problem-based approach to teach methods for the determination of structures of organic compounds. The course material mainly focuses on nuclear magnetic resonance spectroscopy with some attention to mass spectrometry. Topics include proton, carbon, and heteroatom chemical shifts

and coupling constants, relaxation, dynamic NMR, and one-dimensional and two-dimensional experiments.
CROSS-LISTING: CHEM 4402.03

CHEM 5403 Organic Reaction Mechanisms

CREDIT HOURS: 3
The fundamental concepts of bonding, structure, and dynamic behaviours of organic compounds are discussed. Methods for determining the mechanisms of organic reactions are discussed. Topics include applications of kinetic data, linear free energy relationships, acid and base catalysis, concerted reactions and the importance of orbital symmetry, steric effects, solvent effects, and isotope effects.

CHEM 5502 Polymer Science

CREDIT HOURS: 3
This course will cover aspects of synthesis, analysis, characterization, structure and uses of synthetic and naturally occurring macromolecules. Emphasis will be on the application of standard methods of organic synthesis, analytical separations, and physico-chemical characterization. In addition, students will carry out independent literature projects.

CHEM 5504 Diffraction Techniques in Solid State Chemistry

CREDIT HOURS: 3
All chemical elements and compounds can exist as crystalline 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.

CHEM 5509X/Y Graduate Student Seminar I

CREDIT HOURS: 0
All MSc and PhD students are required to participate in the Graduate Student Seminar program every year. MSc and PhD students will be required to prepare and present one Departmental Seminar within the first two years of study, normally in the winter term of the second year. Seminar I shall be formatted as a scientific research lecture and shall focus on a chemistry topic that is in the current chemical literature and not related to the student's research topic. Graduate Student Seminar I has the purpose of broadening the graduate student's outlook and understanding of Chemistry. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail.

CHEM 5601 Principles of Biomolecular and Drug Molecule Design

CREDIT HOURS: 3
An introductory level course in biomolecular design, drug design, and medicinal chemistry. The course covers both general principles of drug design and biochemical considerations in drug design. The fundamental goal of the course is to give student the necessary tools "to take a human or veterinarian pathological problem and to sit down and initiate the process of designing new chemical structures as putative therapeutics for the disease in question." Students in chemistry are strongly recommended to take Chemistry 3601 prior to registering in this course.
PREREQUISITE: CHEM 2402.03 or permission of the instructor
CROSS-LISTING: CHEM 4601.03

CHEM 5602 Biophysical Characterization of Macromolecules

CREDIT HOURS: 3
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: fluroescence, electronic and vibrational circular sichroism and NMR spectroscopy; light vs. X-ray vs. neutron scattering; and, single molecule methods.
CROSS-LISTING: BIOC 4702.03, BIOC 5702.03, CHEM 4602.03

CHEM 6151 Organometallic Structure and Bonding

CREDIT HOURS: 1.5
This advanced course features a survey of important structural and bonding concepts in organometallic chemistry, with particular emphasis on transition metal complexes.
FORMAT: Lecture
PREREQUISITE: CHEM 4101.03, or CHEM 4102.03, or CHEM 4120.03 or permission of the instructor

CHEM 6152 Organometallic Reactivity

CREDIT HOURS: 1.5
This advanced course features a survey of important reactivity concepts in organometallic chemistry.
FORMAT: Lecture
PREREQUISITE: CHEM 4101.03, or CHEM 4102.03, or CHEM 4120.03 or permission of the instructor

CHEM 6153 Organometallic Characterization Methods

CREDIT HOURS: 1.5
This advanced course features a survey of important structural elucidation techniques used in modern organometalic and inorganic chemistry.
FORMAT: Lecture
PREREQUISITE: CHEM 4101.03, or CHEM 4102.03, or CHEM 4120.03 or permission of the instructor

CHEM 6154 Organometallic Catalysis

CREDIT HOURS: 1.5
This advanced course features a survey of catalytic transformations mediated by organometallic complexes, with applications in modern synthesis.
FORMAT: Lecture
PREREQUISITE: CHEM 4101.03, or CHEM 4102.03, or CHEM 4120.03 or permission of the instructor

CHEM 6155 Advanced Main Group Chemistry

CREDIT HOURS: 1.5
Fundamentals aspects of molecular structure and covalent bonding models will be used to rationalize the diverse structures observed in a section of the chemistry of the

p block elements. Representative examples of compounds will be selected from current literature for case studies.
PREREQUISITE: CHEM 4101.03, or CHEM 4102.03, or CHEM 4120.03 or permission of the instructor

CHEM 6252 Bioanalytical Chemistry

CREDIT HOURS: 1.5
This course offers a thorough treatment of modern instrumental techniques for the analysis of biomolecules. Classical techniques used in biological analysis (Western blotting, DNA sequencing, Gene expression, PCR. etc.) are first reviewed. Modern instrumental techniques, including mass spectrometry, microarrays, and spectrometric measurements, are explored in the context of the current literature.
FORMAT: Lecture| Discussion
PREREQUISITE: CHEM 4206.03 or CHEM 5206.03 or permission of the instructor

CHEM 6253 Electrochemistry of Small Quantities

CREDIT HOURS: 1.5
Cutting-edge and traditional electrochemical methods of identifying and quantifying analytes at very low concentrations will be explored. Topics include Electrochemical Impedance Spectroscopy, Electrochemical Quartz Crystal Microbalance, Scanning Electrochemical Microscopy, Anodic Stripping voltammetry and others. Applications such as biosensors and gas sensors will be discussed.
FORMAT: Lecture
PREREQUISITE: Permission of the instructor

CHEM 6254 Electronics and Instrumentation for Chemists

CREDIT HOURS: 1.5
This course is intended to introduce principles of electronics for those involved in making instrumental measurements in chemical applications. No prior knowledge of electronics is assumed. basic concepts related to signal transduction, measurement devices, passive and active circuit components and analog-to-digital conversion are discussed.
FORMAT: Lecture| Lab
PREREQUISITE: permission of the instructor

CHEM 6255 Computer Programming for Chemists

CREDIT HOURS: 1.5
This course provides an introduction to computer programming using the MatLab programming environment. Topics include data structures, programming structures, flow control, specialized functions, input and output, graphing and graphical user interfaces. Chemical applications will be emphasized.
FORMAT: Lecture
PREREQUISITE: permission of the instructor

CHEM 6256 Advanced Chemometrics

CREDIT HOURS: 1.5
This course provides an opportunity to study topics in chemometrics not treated in the introductory core course. Specific topics examined will vary with the background and interests of students enrolled, but could include signal processing, Fourier transforms, optimization, curve-fitting, factor analysis methods, multivariate curve resolution, and classification methods.
FORMAT: Lecture
PREREQUISITE: CHEM 5205.03 or permission of the instructor

CHEM 6258 Environmental Marine Chemistry

CREDIT HOURS: 1.5
This course will focus on the role played by chemistry in determining the quality of the marine environment. The increasing needs to analyse chemicals covering a range of polarities and structures in seawater, sediments and organisms will be discussed along with the currently used approaches to judge the analytical results.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: CHEM 4206.03 or CHEM 4402.03 or CHEM 4201.03 or CHEM 4203.03, or permission of the instructor

CHEM 6259 Analytical Chemistry of Toxic Organic Compounds in Food and Water

CREDIT HOURS: 1.5
This course will review toxic natural and anthropogenic compounds of concern for our food and drinking water supplies. Regulatory action levels, analytical methods for routine monitoring, method validation, certified reference materials, quality control issues, and approaches to the forensic investigation of poisoning incidents will be discusses.
FORMAT: Lecture
PREREQUISITE: Permission of the instructor

CHEM 6262 Analytical Separation of Proteins and Other Biomolecules

CREDIT HOURS: 1.5
An overview of analytical technologies for separation of biological mixtures, with emphasis on protein fractionation. Both the fundamental theory as well as practical application of techniques will be covered. Specific techniques include reversed phase, ion exchange and affinity chromatography, gel and capillary electrophoresis.
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of instructor

CHEM 6351 Topics in Quantum Mechanics

CREDIT HOURS: 1.5
Topics in quantum mechanics will be explored, with primary emphasis on angular momentum, group theoretical methods, and perturbation theory.
FORMAT: Lecture
PREREQUISITE: Permission of instructor

CHEM 6352 Advanced Electronic Structure Theory

CREDIT HOURS: 1.5

The principles of Hartree-Fock theory are introduced and then used as a basis for understanding methods that include the effects of electron correlation. The emphasis is on configuration interaction and perturbation theory and the accurate calculation of a range of chemical properties.
FORMAT: Lecture
PREREQUISITE: CHEM 5301.03 or permission of instructor

CHEM 6353 Density-Functional Theory

CREDIT HOURS: 1.5
The fundamental principles of density-functional theory (DFT) will be developed, from density matrix theory through the Hoenberg-Kohn-Sham theorems, and the construction of modern exchange-correlation functionals via the exchange-correlation "hole" concept.
FORMAT: Lecture
PREREQUISITE: CHEM 4301.03 or CHEM 5301.03 or permission of instructor

CHEM 6354 Topics in Nuclear Magnetic Resonance

CREDIT HOURS: 1.5
Advanced topics in nuclear magnetic resonance will be explored, including theories of the observable interactions, development of pulse sequences, and relaxation theory. Emphasis will be on solid materials.
FORMAT: Lecture
PREREQUISITE: Permission of the instructor

CHEM 6355 Physical Properties of Materials

CREDIT HOURS: 1.5
This course will provide an in-depth coverage of matters concerning lattice dynamics and related phonic properties of solids. In addition, categories of materials and techniques to determine their physical properties will be investigated.
PREREQUISITE: CHEM 3303.03 or CHEM 3305.03 or permission of the instructor

CHEM 6356 Advanced Materials Science

CREDIT HOURS: 1.5
This course will explore advanced topics in materials science, with an emphasis on thermal properties.
FORMAT: Seminar| Discussion
PREREQUISITE: CHEM 5303.03 or permission of the instructor

CHEM 6357 Advanced Cyclic Voltammetry Analysis

CREDIT HOURS: 1.5
This course will take an in-depth approach to the analysis of cyclic voltammograms. Students will develop expertise on relating he shape of a cyclic voltammogram to important physical and kinetic information, including identifying: film formation, film type, diffusion, resistance, capacitance, specific adsorption, irreversible vs. reversible reactions, etc.
FORMAT: Lecture
PREREQUISITE: permission of the instructor

CHEM 6359 Biomedical Applications of Nanostructured Materials

CREDIT HOURS: 1.5
This course introduces the applications of nanostructured chemical materials such as nanoparticle, nanofilm, nanowire and nanotube in a few exciting areas including bio- diagnosis, drug delivery and tissue engineering. The chemical synthesis and typical characterization techniques of nanostructured materials are also introduced.
FORMAT: Lecture
PREREQUISITE: Permission of the instructor

CHEM 6360 Chemical Kinetics and Catalysis

CREDIT HOURS: 1.5
This course will present our current understanding of the factors that affect the rates of chemical reactions. Students will take the results of quantum chemical calculations of potential energy surfaces, and will use these to calculate the rates of elementary processes. Rates for elementary processes will be combined to predict the rates for processes proceeding by composite mechanisms. Emphasis will be on methods that can be applied to practical situations.
FORMAT: Lecture
PREREQUISITE: permission of the instructor

CHEM 6361 Sustainable Materials Issues

CREDIT HOURS: 1.5
This course will provide a quantitative coverage of matters concerning eco-informed choices of materials for applications, with an emphasis on energy and sustainability.
FORMAT: Lecture
PREREQUISITE: CHEM 3303.03 or CHEM 3305.03 or CHEM 5303.03 or PHYC 4230.03 or MATL 3500.03 or permission of the instructor

CHEM 6362 Topics in High Resolution Nuclear Magnetic Resonance

CREDIT HOURS: 1.5
Advanced topics in high resolution liquid state nuclear magnetic resonance will be explored, including the quantum mechanical basis of the observables, product operator treatment of pulse sequences, 2D NMR pulse sequences, coherence selection and relaxation.
FORMAT: Lecture
PREREQUISITE: CHEM 4402.03/CHEM 5402.03, CHEM 4602.03/CHEM 5602.03, or permission of instructor
CROSS-LISTING: BIOC 6702.015

CHEM 6363 Electronic Structure Theory of Solids

CREDIT HOURS: 1.5
Electronic structure of solids, with emphasis on density functional theory. the pseudopotential approximation will be emphasized, together with computation of

properties such as phonons and elasticity.
FORMAT: Lecture
PREREQUISITE: Permission of the instructor

CHEM 6364 Synchrotron X-ray Spec. I

CREDIT HOURS: 1.5
This course will deal with the practical aspects of X-ray spectroscopy. It will present the experimental techniques used in modern synchrotron X-ray spectroscopy research, and it will include practice with data processing and fitting, simulation, and calculation of X-ray absorption spectra.
FORMAT: Lecture
PREREQUISITE: CHEM 6362 or permission of the instructor
EXCLUSIONS: CHEM 6358.015

CHEM 6365 Synchrotron X-ray Spec. II

CREDIT HOURS: 1.5
This course will deal with the practical aspects of X-ray spectroscopy. It will present the experimental techniques used in modern synchroton X-ray spectroscopy research, and it will include practice with data processing and fitting, simulation, and calculation of X-ray absorption spectra.
FORMAT: Lecture
PREREQUISITE: CHEM 6362 or permission of the instructor
EXCLUSIONS: CHEM 6358.015

CHEM 6451 Total Synthesis of Complex Organic Molecules

CREDIT HOURS: 1.5
This course will examine some landmark total syntheses of complex natural products. The course will compare strategies of certain classes of target molecules, and students will become familiar with recently developed synthetic reactions.
FORMAT: Lecture| Discussion
PREREQUISITE: CHEM 4401 or CHEM 5401 or permission from the instructor

CHEM 6452 Heterocyclic Chemistry

CREDIT HOURS: 1.5
This course will survey heterocyclic chemistry. The driving force of aromaticity will be investigated. Literature examples involving nitrogen-containing heterocycles will be used to emphasize the breadth and scope of the field. Students will be required to complete a project and a presentation.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: CHEM 4401, or permission of the instructor

CHEM 6453 Natural Products

CREDIT HOURS: 1.5
This course introduces the major groups of natural products, such as alkaloids, pollyketides and termenes. Strategies, techniques and structural/mechanistic reasoning used to elucidate biosynthetic pathways of natural products are presented before biosynthetic studies from current scientific literature are discussed. Examples include the biosynthesis of commercially important natural product pharmaceuticals.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor

CHEM 6454 Advanced Physical Organic Chemistry

CREDIT HOURS: 1.5
The fundamentals of advanced physical organic chemistry are covered.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor

CHEM 6455 Advanced Organic Photochemistry

CREDIT HOURS: 1.5
The fundamentals of advanced organic photochemistry are covered.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor

CHEM 6456 Organic Reactive Intermediates

CREDIT HOURS: 1.5
The fundamentals of reactive intermediates found in organic chemistry are covered. A wide range of reactive intermediates will be investigated including, carbonations, radicals, enols and others.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor

CHEM 6457 Magnetic Resonance Techniques for Drug Design and Development

CREDIT HOURS: 1.5
Magnetic resonance techniques such as NMR spectroscopy and magnetic resonance imaging (MRI) have become essential tools for the design and molecular characterization of drugs and therapeutants. We will cover current topics of interest including structural characterization of drugs, receptors and binding motifs, and MRI techniques for drug monitoring.
FORMAT: Seminar| Discussion
PREREQUISITE: CHEM 4601 or CHEM 5601, or CHEM 4602 or CHEM 5602, or permission of the instructor
CROSS-LISTING: BIOC 6703.015

CHEM 6458 Mechanistic and Structural Enzymology

CREDIT HOURS: 1.5

Enzymes from a variety of classes will be examined from an organic chemistry reaction mechanism perspective. The general principles of enzyme catalysis and the experimental approaches used to elucidate enzyme reaction mechanisms will be discussed. Applications and examples from the current literature will be critically appraised.
FORMAT: Lecture| Discussion
PREREQUISITE: CHEM 3401/3601 or BIOC 3200 or instructor's consent
CROSS-LISTING: BIOC 6701.015

CHEM 6459 Fundamentals of Carbohydrate Chemistry

CREDIT HOURS: 1.5
The course will start with descriptions of the structures and conformations of monasaccharides and oligosaccharaides. It will then describe the methods important for the synthesis of biologically important monosaccharides and oligosaccharides, including stereoselective methods for glycoside formation and protecting group strategies.
FORMAT: Lecture
PREREQUISITE: CHEM 4401 or permission from the instructor

CHEM 6509X/Y Graduate Student Seminar II

CREDIT HOURS: 0
All graduate students enrolled in the Doctoral program will be required to present a graduate student seminar on their research topic during the final two years of study. Seminar II will normally be presented in the fall term of the fourth year of study. Graduate Student Seminar II has the purpose of giving the senior PhD student an opportunity to present a Departmental seminar on their research work. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail

CHEM 8891 Co-op Work Term I

CREDIT HOURS: 0

CHEM 8892 Co-op Work Term II

CREDIT HOURS: 0

CHEM 8893 Co-op Work Term III

CREDIT HOURS: 0

CHEM 8894 Co-op Work Term IV

CREDIT HOURS: 0

CHEM 8895 Co-op Work Term V

CREDIT HOURS: 0

CHEM 9000 MSC Thesis

CREDIT HOURS: 0

CHEM 9530 PhD Thesis

CREDIT HOURS: 0

Civil and Resource Engineering

Location:
Building/Room: “D” Building
Street Address 1: 1360 Barrington Street
Street Address 2: Room D215
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3960
Fax: (902) 494-3108
Website: civilandresource.engineering.dal.ca
Email Address: cregrad@dal.ca

Introduction

Civil Engineering is concerned with the engineering (planning, design and construction) of systems of constructed facilities related to the needs of society. The scope and complexity as well as the interdisciplinary involvements of Civil Engineering continues to increase rapidly with the development of modern science and technology and the population growth with its spiraling demands upon the air-land-water environment. The preparation of the Civil Engineering student is aimed toward meeting these challenges through innovative application of known principles, creative research to discover new approaches, and imaginative design to fulfill society’s needs.

Civil Engineering graduates are found in responsible engineering and administrative positions in industry and government. Some become consultants in planning, design or construction of engineering projects or in specialized fields where the application of research to the solution of practical problems is important. The professional practice of a Civil Engineer includes the conception, design, construction, operation, and maintenance of private and public projects. Included in this are bridges, buildings, highways, airports, railroads, harbors, docks, subways, tunnels, water supply and purification systems, sewage collection and treatment facilities, water power developments, and Petroleum Engineering. See the Engineering section for details of Master’s and Doctoral programs.

Staff

Department Head

Liu, Y., BScE, MScE (Xi’an), PhD (UNB), PEng

Professors

Ali, N. A., BSc (Baghdad), MSc, PhD (N Carolina State), PEng, UG Program Chair. Flexible pavement, highways, pavement design and performance, transportation
Corbin, S. F., BEng, MASc (TUNS), PhD (McMaster), PEng. Mineral processing, structure and properties of eng. materials, physical metallurgy, materials characterization techniques (XRD, SEM, TEM) and materials and manufacturing
Fenton, G. A., BEng, MEng (Carleton), MA, PhD (Princeton), PEng, cross-appointment with the Engineering Mathematics Department
Gagnon, G. A., BScE (Guelph), PhD (Waterloo), PEng, Associate Director, Centre for Water Resources Studies, cross-appointment with the School for Resource and Environmental Studies. Water and wastewater treatment, water quality, environmental engineering
Lake, C., BEng (TUNS), PhD (UWO), PEng. Geotechnical engineering, geoenvironmental engineering, geosynthetics performance
Liu, L., BSc (Nankai), MSc (Peking), PhD (Regina), PEng. Geo-Environmental engineering, environmental engineering, environmental modelling and decision-making
Liu, Y., BScE, MScE (Xi’an), PhD (UNB), PEng. Structural analysis and design, applications to masonry structures, advanced strength of materials, application of the finite element method
Newhook, J. P., BEng, MASc, PhD (TUNS), PEng, Director, Centre for Innovation in Infrastructure. Fibre reinforced polymers, concrete, bridge engineering, structural health monitoring, design and analysis
Satish, M. G., BSc, BECivEng (My.), MEng, PhD (Concordia), PEng. Water resources engineering, numerical modeling of flows, system optimization, open channel flow
Taheri, F., BEng, MASc, PhD (TUNS), PEng, Acting Director for Ocean Research Ctr. Atl., cross-appointment with the department of Materials Engineering. Advanced composite materials, finite element methods (elastic, plastic), fracture mechanics and fatigue, impact and stability of structures
Zou, D. H., BSc (CUMT, China), PhD (UBC), PEng. Rock mechanics, nondestructive rock bolt testing, mine design, numerical modelling, tailing disposal, slope stability analysis, well bore stability, geohazards prevention

Associate Professors

Corkum, A., BEng (TUNS), MEng, PhD (Alberta), PEng. Geotechnical engineering, rock mechanics, excavations and rock slopes. Research related to the safe and economical design of tunneling and underground excavations and rock slopes
El Naggar, H., MESc, PhD (UWO), PEng, Graduate Coordinator. Civil construction, geotechnical and structural engineering and research. Analysis and design of foundations and soil structure interaction of buried infrastructures
Garagash, D. I., BSc (Moscow), MS, PhD (Minnesota). Reservoir geomechanics and engineering, fault mechanics and earthquake source processes, analytical and

numerical modeling, fracture mechanics
Hansen, D., BScE (Guelph), MScE (UNB), PhD (Ottawa), PEng. Hydrology, river hydraulics, flow through porous media, municipal water systems
Hill, J. D., BSc, MSc (Acadia), PhD (UWO). Mining geology, time domain reflectometry, acid rock drainage
Jones, D. S., DipEng (Memorial), BEng (TUNS), MBA (Western), PhD (TUNS), UG Program Chair, Mineral Program. Ground control and mine design
Walsh, M., BEng (TUNS), MEng (McGill), PhD (Dalhousie), PEng. Water and wastewater treatment

Assistant Professor

Thorburn, J., BSc (UNB), MSc (Alberta), PhD (Dalhousie), PEng, Assistant Dean of Students. Structural analysis and design, design of steel structures

Adjunct (FGS)

Barnes, C. L., BSc (Dalhousie), BEng, MASc (TUNS), PhD (Dalhousie), PEng. Nondestructive evaluation of civil engineering infrastructure, reinforced concrete corrosion modeling and design of cover layer systems, pavement materials and systems design, evaluation, and monitoring
El-Jabi, N., BASc (Sherbrooke), MASc, PhD (Univ of Montreal, Poltechnique), PEng
Forgeron, D., BEng (TUNS), PhD (Dalhousie), PEng. Fibre reinforced concrete and shotcrete, synthetic fiber reinforcement development and optimization, construction materials and methods
Forrester, D. J., BSc, PhD (Nottingham), PEng. Geotechnical, rock mechanics, mining and mine environment management
Hills, C., BSc, MSc (Queen Mary College - London), PhD (Imperial College - London). Extension research on the encapsulation and re-use of hazardous wastes and contaminated soils, accelerated carbonation of soil/waste systems, and the use of geomaterials for environmental applications
Kenny, S., BEng, MEng, PhD (Memorial), PEng
Koko, T., BSc, MEng (Nigeria), PhD (UBC), PEng
Pegg, N., BSc (Guelph), MASc (UBC), PhD (TUNS), PEng
Rand, J., CAS (Acadia), BEng, PhD (Dalhousie)

Mineral Resource Engineering Program
Introduction

Canada has an abundance of natural resources and is a world leader in mineral and hydrocarbon extraction and processing. Mineral Resource Engineering concentrates on the technical, environmental and economic aspects of the extraction and processing of the earth's mineral resources. It has a strong industrial and research interest in many aspects of this sector. Graduate Studies in Mineral Resource Engineering has specializations in mining, petroleum, and mineral processing.

Specialization in mining and mineral processing engineering

If a student chooses to specialize in mining engineering, opportunities exist for advanced studies in underground and surface mining of coal, oil shales, metals, gold and industrial minerals. Research topics may include rock mechanics, mine design, ground support, field monitoring, optimization, equipment maintenance and many more. A student may also choose to specialize in mineral processing with the focus on the beneficiation of ores.

Specialization in petroleum engineering

Research opportunities exist in reservoir engineering, offshore drilling, production of oil and gas, petroleum geomechanics, wellbore stability, and more. Graduate studies in petroleum engineering prepares students for a career in the conventional petroleum sector as well as the oil sands mining.

In addition to the Graduate Scholarships available in the Faculty of Engineering and Dalhousie University, the Mineral Resource Engineering Program also provides a limited number of Research Assistantships to highly qualified candidates. Candidates are suggested to contact individual faculty members for details.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

See the Engineering section of this calendar for Master's and Doctoral program details. Courses listed under PETR-petroleum engineering may also be accepted for credit toward graduate studies in Mineral Resource Engineering.

Course Descriptions - Civil Engineering

CIVL 5541 Application of Finite Element Method in Static & Dynamic Systems

CREDIT HOURS: 3
This course presents an introduction to the theory and application of the finite element method. The basic linear elasticity, Principles of Minimun 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 real-life two and three-dimensional stress deformation problem under static and dynamic loading systems that are of specific interest to structural engineers.Graduate students will be expected to complete an assigned term project; they would also be given different questions in course's final exam.
FORMAT: Lecture| Lab
PREREQUISITE: CIVL 3705.03, CIVL 3505.03, CIVL 3740.03 (or equivalents)
CROSS-LISTING: CIVL 4541.03

CIVL 6000 Directed Studies in Civil Engineering I

CREDIT HOURS: 3
This course offers the Graduate Student an opportunity to undertake a study in a specific area of interest that is not covered in the regular course offerings. The student chooses to work under the supervision of a Faculty Member in the Department. This course is normally available to a Graduate Student enrolled in a Master's Degree Program.

CIVL 6101 Advanced Strength of Materials

CREDIT HOURS: 3
The course introduces tensor mathematics. The governing equations of an elastic solid are developed in various coordinate systems. Engineering problems such as plane problem, St. Venant, bending, torsion, and extension of bars are treated. Displacement, stress field and Airy function and some numerical methods for obtaining solutions are other methods that are covered. The course explores various failure criteria and their application. Theory of anisothropic elastic continuum concludes the course.
PREREQUISITE: Undergraduate senior level Strength of Materials or equivalent

CIVL 6108 Graduate Seminar - Master's Level

CREDIT HOURS: 3
This seminar course is designed to provide graduate students with the opportunity to search the literature for information on current topics related to their projects/thesis. All graduate students pursuing MEng and MASc degrees in the Civil Engineering program are required to take this course and offer their findings, orally in *one* presentation to the faculty members of the department and students, four months prior to the completion of their program. This presentation will be followed by a question and answer session. Graduate students might also be asked to submit a written version of their presentations (or a hard-copy of their presentation slides) to the Graduate Coordinator of their department. This seminar course will be offered twice each academic year in the format of an end-of-term conference in Fall and Winter semesters, respectively. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail.
NOTES: This is a required course for all Master students in the Department of Civil and Resource Engineering:(2)Registration of this course is required for the Fall and Winter terms only.

CIVL 6115 Design of Water Treatment Plants

CREDIT HOURS: 3
Evaluation of water quality characteristics and synthesis of unit operations into plants designed to modify those characteristics. Design aspects of flocculation, coagulation, precipitation, sedimentation, filtration and disinfection are included.
PREREQUISITE: CIVL 4440.03 or equivalent

CIVL 6116 Biological Waste Treatment

CREDIT HOURS: 3
A study of fundamental principles of microbiology as applicable to domestic waste treatment. Activated sludge processes, trickling filters, aerated lagoon, stabilization ponds, disinfection and anaerobic treatment.
PREREQUISITE: CIVL 4440.03 or equivalent

CIVL 6117 Water Quality Management

CREDIT HOURS: 3
Water quality requirements for various uses: factors affecting water quality; behaviors and fate of pollutants in treatment plants and receiving waters and considerations involved in selection from alternative methods of water quality control.

CIVL 6118 Advanced Wastewater Treatment

CREDIT HOURS: 3
Theory and application of treatment processes for municipal and industrial wastewater. Course is delivered in three modules to cover physical and chemical treatment processes, microbial.
NOTES: Course for water and wastewater students in MASc; MENg; PhD programs
FORMAT: Lecture| Lab
PREREQUISITE: Undergraduate course in water and wastewater treatment or equivalent

CIVL 6119 Highway Materials

CREDIT HOURS: 3

A study is made of the properties of subgrades and of how they influence the performance of pavements. The purpose and properties of base and sub-base will be considered. Bituminous materials and aggregates are tested and combined to give desirable mixes.

CIVL 6126 Foundation Engineering I

CREDIT HOURS: 3

Geotechnical aspects of shallow and deep foundation design are presented. Current subsoil investigation and field methods for foundations of structures will be reviewed. Bearing capacity and deformation of both shallow and deep foundations are examined with respect to analytical, numerical and empirical methods.

CIVL 6130 Geotechnical Earthquake Engineering

CREDIT HOURS: 3

The purpose of this course is to provide the student with a basic knowledge and understanding of geotechnical earthquake engineering concepts. The course will cover geologic understanding of earthquakes, ground motion, soil and site effects, characterization of ground motion, and laboratory and field measurement of dynamic soil properties.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: CIVL 4111.03 or equivalent

CIVL 6134 Advanced Highway Geometric Design

CREDIT HOURS: 3

This course deals with the principles of Geometric design controls and criteria with special reference to capacity controlled designs. Grade separated intersections and fully developed interchanges will be discussed in relation to traffic volumes. Computer-based design of freeway and ramp junctions will be considered in detail.

CIVL 6135 Groundwater Chemical Quality

CREDIT HOURS: 3

This course provides an in-depth study into the chemical quality of groundwater. As water passes through the various stages of the hydrologic cycle, its composition changes. This course will explore these changes with particular reference to: (1) the types of inorganic and organic constituents dissolved in water and their significance; (2) the suitability of water quality data and its presentation; (3) the various processes that control the behaviour of dissolved substances in groundwater; (4) the evolution of groundwater quality; (5) the more commonly used groundwater quality models; (6) basic chemical properties, transport mechanisms, retardation and restoration of organic contaminants in water; and (7) point of use water treatment.

PREREQUISITE: CIVL 3451.03 and 4410.03. The latter may be taken concurrently.

CIVL 6137 Advanced Soil Mechanics

CREDIT HOURS: 3

This course deals with the stress-strain behaviour and its mathematical representation. The aspects considered include nonlinear elastic and elasto-plastic behaviour of soils with particular reference to the critical state theory. Application of several well-established soil models for solving practical problems are discussed.

CIVL 6139 Transport Operations

CREDIT HOURS: 3

This course is an introduction to the operation of transportation services at the urban and regional levels. Surveys and data collection, development of computerized data bases, and elements of travel forecasting; trip generation, trip distribution, modal split, trip assignment are covered. Operational characteristics of public transportation, airports and freight distribution systems, and performance evaluation are discussed. Environmental, energy and safety implications of transportation systems, and existing policies are reviewed.

CIVL 6141 Modeling of Groundwater Systems

CREDIT HOURS: 3

Basic concepts in analytical and numerical modeling of groundwater systems are introduced. Fundamental equations for flow in aquifers and mathematical statement of the groundwater forecasting problems are studied. The hydraulic approach to flow in aquifers and the continuum approach to flow through porous media are discussed. Modeling techniques for groundwater quality problems dealing with pollutant movement due to hydrodynamic dispersion are also studied.

PREREQUISITE: CIVL 4410.03

CIVL 6142 Pavement Design and Management

CREDIT HOURS: 3

This course covers all aspects of flexible, (asphalt concrete) and rigid (portland cement concrete) pavements design methods. It includes structural pavement design of new pavements and overlay, including mechanistic. (i.e., shell, Asphalt Institute, PCA), empirical, (i.e., AASHTO, Ontario) and performance prediction - oriented, (i.e., VESYS, DAMA, LTPP - observation) methods. It also includes the recent research efforts in monitoring pavement performance.

CIVL 6143 Modelling of Groundwater Systems II

CREDIT HOURS: 3

This course builds on the fundamental concepts introduced in Modelling of Groundwater I. Emphasis will be placed on numerical techniques for studying contaminant transport in groundwater. Numerical aspects of modelling, parameter identification and optimization will be discussed along with modelling of chemistry coupled to transport, dispersion theory and transport in fractured media.

PREREQUISITE: CIVL 6141.03

CIVL 6144 Geo-Environmental Barrier Design

CREDIT HOURS: 3

Geo-environmental aspects of waste management are examined with emphasis on the design of barrier systems to provide long term protection against groundwater contamination. A major focus is the integration of engineering design and dydrogeologic considerations relative to contaminant transport through engineered barrier systems and natural soils.

CIVL 6145 Probability Concepts in Civil Engineering Planning & Design

CREDIT HOURS: 3
This course introduces concepts related to the role of probability in civil engineering, uncertainty in real-world information, design and decision making under uncertainty.
Examples will be derived from planning and design of airport pavements, hydrologic design, of structures and machines, geotechnical design, construction planning and management, photogrammetric and geodetic surveying measurements. The course will discuss analytical models of random phenomena, functions of random variables, estimating parameters from observation data, empirical determination of distribution models, regression and correlation analyses, elements of quality assurance and acceptance sampling.

CIVL 6147 Advanced Theory of Structures

CREDIT HOURS: 3
This course provides graduate students and practicing engineers with a knowledge necessary to make safe and efficient use of computer programs designed to analyze frame type structures. The displacement method is studied in detail with applications to trusses, continuous beams, complex rigid frames, grillages and space frames. The theoretical knowledge gained is put into practice through commercially available codes. Throughout the course, practical 'real-life' problems constitute the assignments and projects.
PREREQUISITE: CIVL 3505.03 or equivalent

CIVL 6148 Application of Finite Element Method I (Linear Systems)

CREDIT HOURS: 3
This course introduces the theory and implementation of the analysis procedures used in the linear, static, and dynamic finite element analysis systems. Continuum mechanics formulations of one-two- and three-dimensional elements are reviewed, and plate and shell elements formulations are presented in detail. A selected number of equation and eigenvalue solvers are compared. Applications will include plates and shells, linear bucklin, structural dynamics and thermal field problems. Introduction to nonlinear systems will be presented.
PREREQUISITE: CIVL 3705.03 and CIVL 4541.03

CIVL 6149 Application of Finite Element Method II (Nonlinear Systems)

CREDIT HOURS: 3
This course introduces the theory and implementation of the analysis procedures used in geometric and material nonlinear finite element analysis systems. Problems in plasticity, impact, contact and viscoelasticity are treated. Numerical solutions pertinent to nonlinear systems are explored. Various topics and algorithms such as the reduce integration, hour-glass and Arc Length Automatic Stepping method are also reviewed. The students examine the above concepts by exploring a set of industrial applications.
PREREQUISITE: CIVL 6148.03 or 4541.03

CIVL 6150 Dynamics of Structures

CREDIT HOURS: 3
This course covers fundamental analysis methods for the behavior of structures and structural elements subjected to dynamic loading. Comprehensive study of single-degree-of-freedom systems followed by solution of multi-degree -of-freedom systems with particular reference to response of multi-story structures to earthquake loading is covered. An introduction to random response and stochastic analysis of structural dynamics problems are also given.

CIVL 6151 Bridge Engineering

CREDIT HOURS: 3
This course provides an introduction to bridge engineering, specifically discussing the aspects of loading, analysis and design relevant to short and medium span bridges. Reference is made to current Canadian bridge design codes. Analytical methods appropriate for bridge superstructures is presented, including computer methods. The structural design of steel, reinforced concrete and prestressed concrete bridge systems are discussed.

CIVL 6152 Behaviour and Design of Steel Structures

CREDIT HOURS: 3
Advanced concepts of the behaviour and design of steel members and frameworks are presented, emphasizing the rationale for current steel code design criteria. Topics include torsion, plate stability, connection design, fatigue and frame behaviour.
PREREQUISITE: CIVL 4541.03 or equivalent

CIVL 6153 Fibre Reinforced Plastics (FRP)

CREDIT HOURS: 3
This course begins with a review of test methods, properties and production methods of the fibre and polymer components of fibre-reinforced laminates and of fabricated composite laminates. This is followed by the development of the macro-mechanical and micro-mechanical analysis techniques for the design of composite laminae and a study of the strength criteria used in design procedures.
PREREQUISITE: Senior level mechanics of materials course

CIVL 6155 Advanced Concrete Technology

CREDIT HOURS: 3
This course provides an in-depth study of the various factors affecting the behavior and performance of concrete. Strength of concrete, permeability and durability, deformation and cracking, curing, admixtures, temperature effects and specialized testing procedures are among the topics presented. High performance concrete, polymer concrete and roller compacted concrete are also studied.

CIVL 6156 Fibre Reinforced Cement Composites

CREDIT HOURS: 3
The purpose of this course is to introduce the student to various portland cement-based fibre composites and to provide information on their constituent materials, fabrication, mechanical performance and applications. Interaction between fibres and matrix, behaviour under tensile, flexure, fatigue and impact loading, properties of freshly mixed and hardened fibre reinforced concrete are studied. Special fibre reinforced cementitous systems like SIFCON and different application procedures like shotcreting are also covered.

CIVL 6157 Advanced Reinforced Concrete Structures

CREDIT HOURS: 3

A study of principles of reinforced and prestressed concrete design and the application of prestressed concrete to buildings, bridges and prefabricated structures. Yield line theory of concrete slabs, design of structures for earthquake loads, structural failure and methods of repair are covered.
PREREQUISITE: CIVL 3515.03, CIVL 4515.03

CIVL 6159 Form and Process in Alluvial Channels

CREDIT HOURS: 3
This course begins with various aspects of fluvial geomorphology from a civil engineering point-of-view. It then moves on to discussion of hydraulic resistance based on quantitative estimates of channel roughness, regime concepts for artificial 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 local brook is part of the course.
PREREQUISITE: CIVL 3300.03, CIVL 3310.03

CIVL 6160 Energy Methods and Stability in Elastic Structures

CREDIT HOURS: 3
Energy methods are an important tool in elastic structural analysis and design. Many traditional methods, as well as more advanced finite element analyses for determining displacements and stresses, are based on energy principles. This course will introduce energy methods and look at several applications in structural engineering, including determination of the elastic stability limits of structures and the development of displacement matrix methods of analysis.

CIVL 6162 Groundwater and Wells

CREDIT HOURS: 3
This course deals with those aspects of groundwater resource assessment, development and protection pertaining to the design of water wells intended to function as reliable sources of potable water in the long-term. It includes detailed consideration of drilling methods, well design, aquifer testing, field-data interpretation, strategies for well-head protection, and the essentials of site assessment.
PREREQUISITE: CIVL 4410.03

CIVL 6163 Design and Analysis of Plates and Shells

CREDIT HOURS: 3
This course deals with the derivation and the solution of the differential equations of plates and shells. The solutions are used for the design and analysis of practical problems. The topics covered are: plates in Cartesian coordinate system with various boundary and load conditions, introduction of yield line theory, circular plates, plates on elastic foundation, membrane theory, cylindrical shells and the theory of shells having the form of a surface of revolution.
PREREQUISITE: CIVL 3705.03 or equivalent

CIVL 6166 Advanced Structural Engineering Concepts

CREDIT HOURS: 3
The course will address selected advanced topics in structural engineering related to the characteristics of loading and the behaviour and design of structural systems. Ultimate strength, stability, connections and post-buckling strength will be examined, focusing on elements employed in building and bridge structures.
FORMAT: Lecture

CIVL 6167 Microbes in Industrial Failures

CREDIT HOURS: 3
The deterioration of materials by microorganisms is of great economic significance. It has been estimated that the biological deterioration of all industrial materials, is in the billions of dollars annually. This course is going to cover the microbial damage to building, oil and gas, wood, transportation, steel and mining industries.
FORMAT: Lecture| Lab

CIVL 6414 Environmental Systems Engineering

CREDIT HOURS: 3
This course discusses various operational research techniques and their applications to environmental systems planning and pollution control. Case studies are designed to deal with the planning, design, and operation issues of environmental systems. Uncertainty-based optimization will be discussed for addressing systems' variability and for making decisions with improved cost-effectiveness and efficiency. Computer software packages will be used to enhance the learning experience of the course.
FORMAT: Lecture| Lab
PREREQUISITE: Statistics and Engineering Mathematics or consent by the instructor.

CIVL 7000 Directed Studies in Civil Engineering II

CREDIT HOURS: 3
This course is designed for a Doctoral Candidate pursuing graduate studies leading to a PhD degree in Civil Engineering. It offers the graduate student an opportunity to complete an advanced study in a specific topic of interest that is not included in the regular courses offered. The student works under the supervision of a faculty member in the Civil Engineering Department.

CIVL 7105 Graduate Seminar - PhD Level

CREDIT HOURS: 3
This seminar course is designed to provide graduate students with the opportunity to search the literature for information on current topics related to their project/thesis. All graduate students pursuing a PhD degree in the Civil Engineering Program are required to take this course and offer their findings, orally, in TWO presentations to the faculty members of the department and students, in two intervals, before their thesis defense. The presentation will be followed by a question and answer session. Graduate students might also be asked to submit a written version of their presentations (or a hard-copy of their presentation slides) to the Graduate Coordinator of their department. This seminar course will be offered twice each academic year in the format of an end-of-term-conference in Fall and Winter semesters, respectively. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail
NOTES: (1) This is a required course for all PhD students in the Department of Civil and Resource Engineering; (2)Registration of this course is required for the Fall and Winter Terms only.

CIVL 8500 MEng Project

CREDIT HOURS: 0
A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral

presentation of the work.

CIVL 8891 Co-op Work-Term I
CREDIT HOURS: 0

CIVL 8893 Co-op Work-Term III
CREDIT HOURS: 0

CIVL 8894 Co-op Work-Term IV
CREDIT HOURS: 0

CIVL 9000 Masters Thesis
CREDIT HOURS: 0

CIVL 9530 PhD Thesis
CREDIT HOURS: 0

Course Descriptions - Mineral Resource Engineering

MINE 6001 Advanced Rock Mechanics
CREDIT HOURS: 3
This course deals with specific rock mechanics problems related to ground stability control in mines. Emphasis is placed on in situ stress measurement, stress change and ground movement monitoring, numerical modelling in mining applications, rockbursting and microseismic monitoring. Theory, state-of-the-art and existing problems of relevant techniques are discussed. Case studies are included to solve practical problems.
PREREQUISITE: Knowledge of differential equations and linear algebra and MINE 3611.03 or equivalent.

MINE 6002 Mine Excavation
CREDIT HOURS: 3
Advanced technology of excavation with particular emphasis on tunnelling. Analysis of continuous and cyclical excavation methods. Advanced ground support technology. Excavation equipment. Economic analysis. Studies of case histories of excavation projects.

MINE 6004 Analysis of Mineral Industries
CREDIT HOURS: 3
Evaluation of mining properties and mineral processing industries. Supply of, and demand for, mineral raw materials, world distribution and trade in minerals, mineral in national/international affairs. Canadian mineral policy, conservation of mineral resources, substitutes, secondary recovery of mineral raw materials, business cycles in the mineral industries, financing of new mining projects and source of funds.

MINE 6007 Directed Studies in Mining Engineering
CREDIT HOURS: 3
This course is available to graduate students enrolled in a Masters Program in Mineral Resource Engineering wishing to gain knowledge in a specific area for which no graduate level course is offered. Students are assigned an advisor and are required to present a formal report at the end of the course.

MINE 6008 Advanced Petroleum Engineering
CREDIT HOURS: 3
The course is an advanced study of petroleum reservoir engineering, drilling and development. The emphasis is on topics such as: 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, well planning, drilling optimization, enhanced recovery mechanisms, displacement theory and modelling. The course content will be adapted to the interest of the student as far as possible.
CROSS-LISTING: MINE 4822.03

MINE 6009 Offshore Drilling and Production
CREDIT HOURS: 3
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.
CROSS-LISTING: MINE 4823.03

MINE 6010 Solid-Liquid Separation
CREDIT HOURS: 3
The course outlines the fundamental principles of solid-liquid separation processes. Based on this theory, scaling-up procedures for the various separators, from laboratory test results are given. Means of improving solid-liquid separation by using coagulants, flocculants or dewatering aids are discussed. Processes considered include: gravitational and centrifugal thickening, flotation, vacuum, pressure and centrifugal filtration and dewatering by screens and electrophoretic methods. Test results obtained in laboratory work will be used in sizing of equipment.

MINE 6011 Advanced Mine Planning and Design
CREDIT HOURS: 3

This course deals with the application of advanced design principles to the planning, design and optimization of surface and underground mining systems. These principles include the Lerch-Grossman's algorithm, CAD and simulation modelling techniques. Under given geological and geomechanic factors, these techniques will be used for designing and optimizing underground mining methods or open pit layouts for massive, thin, pitching and multi-seam mineral deposits.

MINE 6012 Advanced Economic Evaluation of Mineral Resources

CREDIT HOURS: 3
This course deals with the application of advanced statistical and probability theory in mineral resource investment risk and uncertainty analyses in random variable states. Numerical modelling of stochastic processes governing complex mineral resource projects will be carried out using derivative mine valuation concepts. Using available simulation and numerical modelling software packages, students will undertake projects on course studies in mineral resources, coal, oil and gas properties.

MINE 6015 Advanced Mining Engineering Analysis

CREDIT HOURS: 3
This course covers several topics in mining engineering analysis including mine drainage, shaft sinking techniques under difficult conditions and mine backfilling. Emphasis is placed on quantitative methods and software tools available to assist with analysis and design in these areas. Relevant case studies are presented to highlight the topics in the course. Students will also have to complete a computer or laboratory based project.
PREREQUISITE: Permission of instructor

MINE 6016 Geomechanical Measurements

CREDIT HOURS: 3
This course deals with measurements typical for geomechanical research in the fields of mining, petroleum and geotechnical engineering. Emphasis is placed on techniques and instrumentation for the measurement of load, deformation, permeability, and acoustic emissions/properties in rock and concrete materials. Topics cover issues related to data acquisition and analysis such as instrument drift/calibration, digital sampling theory, intrinsic safety, and scaling principles. Students will undertake a major laboratory project.
FORMAT: Lecture| Lab
PREREQUISITE: Permission of Instructor

MINE 6017 Mining and the Environment

CREDIT HOURS: 3
This course covers environmental practices, problems and solutions in the mining industry. Topics include regulations, reclamation, mine closure, acid rock drainage, surface subsidence, nuclear waste disposal and coal mine explosions. Case studies are used to highlight these topics. Class participation is emphasized through oral and written presentations.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 2
PREREQUISITE: MINE 3500.03 or MINE 2200.03
CROSS-LISTING: MINE 4815.03

MINE 6021 Pit Slope Stability

CREDIT HOURS: 3
This course deals with slope stability and the associated problems in surface mining. Fundamentals of various analysis techniques for slope stability are reviewed. Risk and uncertainty analysis is introduced. Application of these techniques to optimization of slope design is discussed. Major topics include: geological structure controlled and strength controlled slope failure, slope failure in soft ground, risk and uncertainty analysis, and optimization of slope design.
PREREQUISITE: MINE 3520.03, MINE 3611.03 or permission of instructor

MINE 6900 Graduate Seminar - Master's Level

CREDIT HOURS: 3
This seminar course is designed to provide graduate students with the opportunity to search the literature for information on current topics related to their projects/thesis. All graduate students pursuing MEng and MASc degrees in the Mineral Resource Engineering program are required to take this course and offer their findings, orally in ONE presentation to the faculty members of the department and students, four months prior to the completion of their program. This presentation will be followed by a question and answer session. Graduate students might also be asked to submit a written version of their presentations (or a hard-copy of their presentation slides) to the Graduate Coordinator of their department. This seminar course will be offered twice each academic year in the format of an end-of-term-conference in Fall and Winter semesters, respectively. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail.
NOTES: (1) This is a required course for all Master students in the Department of Civil and Resource Engineering: (2) Registration of this course is for the fall and winter terms only.

MINE 7007 Directed Studies in Mineral Resource Engineering

CREDIT HOURS: 3
This course is available to Graduate Students enrolled in a PhD Program in Mineral Resource Engineering wishing to gain knowledge in a specific area for which no graduate level course is offered. Students are assigned an advisor and are required to present a formal report at the end of the course.

MINE 7900 Graduate Seminar - PhD Level

CREDIT HOURS: 3
This seminar course is designed to provide graduate students with the opportunity to search the literature for information on current topics related to their project/thesis. All graduate students pursuing a PhD degree in the Mineral Resource Engineering Program are required to take this course and offer their findings, orally, in TWO presentations to the faculty members of the department and students, in two intervals, before their thesis defense. The presentation will be followed by a question and answer session. Graduate students might also be asked to submit a written version of their presentations (or a hard-copy of their presentation slides) to the Graduate Coordinator of their department. This seminar course will be offered twice each academic year in the format of an end-of-term-conference in Fall and Winter semesters, respectively. Evaluation will be based on preparation, presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail.
NOTES: (1) This is a required course for all PhD students in the Department of Civil and Resource Engineering; (2) Registration of this course is required for the fall and winter term only.

MINE 8500 MEng Project

CREDIT HOURS: 0
A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

MINE 8891 Co-op Work-Term I
CREDIT HOURS: 0

MINE 8893 Co-op Work-Term III
CREDIT HOURS: 0

MINE 8894 Co-op Work-Term IV
CREDIT HOURS: 0

MINE 9000 Master's Thesis
CREDIT HOURS: 0

MINE 9530 PhD Thesis
CREDIT HOURS: 0

Classics

Location:
Building/Room: Marion McCain Arts & Social Sciences Building
Street Address 1: 6135 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3468
Fax: (902) 494-2467
Website: classics.dal.ca
Email Address: claswww@dal.ca

Introduction

The Department of Classics welcomes students who wish to pursue MA and PhD degrees. Study may focus on the traditional subdisciplines of Greek and Roman Literature and History, as well as on Ancient Philosophy. Alternatively, students may opt to explore Classical culture and its legacy in several other areas of interest distinctively cultivated by members of the Classics faculty, along with colleagues in the Program in Religious Studies and Arabic. Such areas include late-antique, patristic, Byzantine and medieval philosophy, theology and religion.

Greek and Latin are taught at all levels, and competency in both languages is required for theses in the traditional areas of Classical Studies. Students focussing on the intersections of Classical and later thought in the Mediterranean world and the Middle East may, in consultation with the Graduate Coordinator and supervising faculty member, substitute Classical Arabic for either Latin or Greek. Students focussing mainly on Ancient Philosophy, Greek patristics, Byzantine philosophy and theology, Latin patristics, and Latin medieval philosophy and planning to continue their studies or pursue an academic career in these areas may, as appropriate, in consultation with the Graduate Coordinator and supervising faculty member, limit their language study to ancient and Byzantine Greek, or ancient and medieval Latin, or either of these in combination with Arabic. In addition to ancient languages, students are required to conduct research in the most relevant modern languages as well.

MA students may concentrate in any of the above fields. PhD candidates must limit their work to Hellenic and Hellenistic Studies.

Staff

Chairperson of Department

Fournier, M.

Professor Emeriti

Friedrich, R., PhD (Goettingen)

Professor

Hankey, W. J., BA (Vind), MA (Toronto), PhD (Oxon)

Associate Professors

Austin, C., BA, MA (Concordia), PhD (McMaster)
Diamond, E., BA (Vind), MA (Dalhousie), PhD (Northwestern), Graduate Coordinator
Fournier, M., BA, MA (Dalhousie), PhD (Boston College)
Mitchell, J., BA (McGill), PhD (Stanford)
Treiger, A., BA, MA (Hebrew Univ of Jerusalem), MPhil, PhD (Yale)

Assistant Professors

MacLeod, L., BA (Brock), MA, PhD (Dalhousie)
O'Brien, P., BA (Vind), MA (Dalhousie), MA, PhD (BU)

Varto, E., BA (Queen's), MA (Dalhousie), PhD (UBC)

Cross-listed Faculty

Curran, T. H., BA (Toronto), MA (Dalhousie), MTh (AST), PhD (Durham)
Fraser, K. A., BA (Vind), MA (Dalhousie), MPhil, PhD (Cambridge)
Robertson, N., BA (Vind), MA (Dalhousie), PhD (Cambridge)
Stewart, I. G., BSc (Trent), MA (Toronto), PhD (Cambridge)
Thorne, G., BA (Acadia), MA (Dalhousie), MDiv (AST), PhD (Durham)

Adjunct (FGS)

House, D. K., MA (Dalhousie), PhD (Liverpool)
Parker, M., BA, MA (Toronto), PhD (McMaster)

Admission Requirements
Masters Degree

Candidates must satisfy the admission requirements of the Faculty of Graduate Studies. For students wishing to pursue traditional Classics degrees, the requirement of both Classical languages at the Honours level may sometimes be relaxed, for example when a student has taken a Combined Honours course involving only one Classical language. In such cases, at least two courses in the second language will be taken in addition to the MA course proper. Students focussing mainly on ancient Philosophy, Greek patristics, Byzantine philosophy and theology, Latin patristics, and Latin medieval philosophy should see the statement above. In certain programs, knowledge of other ancient languages may be required.

Procedure

Students contemplating studying for a Masters degree should count on spending at least a full year to complete their courses and thesis. It typically takes two full years.

Three graduate seminars in the general area of interest are required. It may be possible to substitute a reading and research course for a seminar. Candidates are expected to attend graduate seminars related to their thesis throughout their period of full-time study. A thesis, usually between 100 and 150 pages, is required.

Doctor of Philosophy degree

The normal admission requirement is the MA in Classics or equivalent preparation. The minimum residence requirement for such candidates is two years, during which time they must satisfy the general requirements of the Faculty, and, in addition, must demonstrate competence in the languages (ancient and modern) necessary for research in their particular fields of study.

Procedure

All candidates are expected to have a broad understanding of all aspects of Classical culture. Within the general area of Hellenic-Hellenistic Studies, each candidate is expected to concentrate, with the guidance of a supervising committee, in one of three fields: History, Literature, and Philosophy.

In consultation with their supervising committee, PhD candidates will take such courses as are deemed necessary preparation.

Before submitting a thesis, the candidate must pass a comprehensive examination (written and oral) in his or her special field. This will normally be taken towards the end of the second or beginning of the third year of study.

PhD students should consult the Department's Graduate Studies Handbook, the Graduate Calendar, and obtain a copy of the departmental regulations governing the PhD program for further information.

Application
Masters and doctoral applicants should apply using the forms available at the Faculty of Graduate Studies website

dalgrad.dal.ca/prospectivestudents/admissions/admissioninfo/. Please note that in addition to the materials required by the Dalhousie Faculty of Graduate Studies, the Department of Classics requests an additional letter of reference (for a total of three) and a writing sample (e.g. a term paper or thesis chapter of about 20 pages).

Funding

All applicants for the MA program will be considered, on a competitive basis, for scholarship funding. Such funding is available in three forms: Faculty of Graduate Studies (FGS) Scholarships, Social Sciences and Humanities Research Council of Canada (SSHRC) Scholarships, and Izaak Walton Killam Predoctoral Scholarships (more information on the Killam Scholarship here killamtrusts.dal.ca/) Candidates who are Canadian citizens or permanent residents and who wish to be considered for FGS Scholarships are strongly encouraged to apply for the relevant scholarships or fellowships offered by SSHRC (further information available at www.sshrc.ca). The deadlines for SSHRC applications fall in the autumn of the year preceding the year in which studies begin. Candidates who are Canadian citizens or permanent residents and who wish to be considered for the Killam Scholarship MUST apply for the relevant scholarships or fellowships offered by SSHRC.

All candidates wishing to be considered for departmentally administered scholarships should note the application deadlines set by the Department, which fall well in advance of the admission deadline of June 1: Killam Scholarships and FGS Scholarships, January 1st.

PhD students will only be accepted with external scholarship funding (e.g. SSHRC or Killam Scholarships). They are not eligible for FGS Scholarships in the Department of Classics.

All admitted students (MA and PhD) will be considered for a Graduate Teaching Assistantship.

For more information, email our Graduate Advisor at clasgrad@dal.ca.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Greek and Latin Literature

CLAS 5012.06: Greek Comedy
CLAS 5013.06: Greek Lyric
CLAS 5020.06: Greek Literature
CLAS 5021.03: Reading and Research in Greek Literature I
CLAS 5022.03: Reading and Research in Greek Literature II
CLAS 5030.06: Latin Literature
CLAS 5031.06: Roman Satire
CLAS 5033.06: Advanced Seminar in Latin Literature
CLAS 5034.06: Greek Literature
CLAS 5040.06: A Study of Vergil
CLAS 5041.03: Reading and Research in Latin Literature I
CLAS 5042.03: Reading and Research in Latin Literature II

Ancient History

CLAS 5032.06: Roman Historians
CLAS 5531.03: Roman Empire and the Rise of Christianity
CLAS 5535X/Y.06: Rome and the East
CLAS 5540.03: Ammianus Marcellinus and his World
CLAS 5545.03: Roman Culture and Roman Politics in the Transition to Autocracy
CLAS 5550.06: Reading and Research in Ancient History II
CLAS 5552.03: Reading and Research in Ancient History I

Classical Philosophy

CLAS 5600.06: Philosophy of Aristotle
CLAS 5601.06: Plato and Neoplatonism
CLAS 5602.06: Aristotle
CLAS 5603.06: Philosophy of Plato
CLAS 5604.06: Philosophy of Aristotle
CLAS 5605.06: Neoplatonism: Plato and Neoplatonism
CLAS 5606.06: Greek Philosophical Texts
CLAS 5607.06: Latin Philosophical Texts
CLAS 5608.06: Reading and Research
CLAS 5609.03: Greek Philosophical Texts
CLAS 5610.03: Latin Philosophical Texts
CLAS 5840.06: Latin Philosophical Texts

Patristics

CLAS 5060.03: Boethius and Prosimetrum: Poetry and Prose in the Consolation of Philosophy
CLAS 5070.03: A Study of the Latin Text of Augustine's 'Confessions'
CLAS 5370.06: The Augustinian Tradition
CLAS 5614.03: Aristotle
CLAS 5700.06: Philosophy of the Church Fathers
CLAS 5705.06: St. Augustine I
CLAS 5706.06: St. Augustine's City of God
CLAS 5707.06: St. Augustine's on the Trinity
CLAS 5708.03: Reading and Research: Christian Beginnings and the Early History of the Church
CLAS 5800.06: Christian Beginnings
CLAS 5801.06: Christianity and Neoplatonism
CLAS 5818.03: Christian Theology in the Lands of Islam: John of Damascus
CLAS 5819.03: Philo Judaeus
CLAS 5900.06: Departmental Seminar
CLAS 5901.06: Reading and Research
CLAS 9000.00: Master's Thesis
CLAS 9530.00: Doctoral Thesis

Course Descriptions

CLAS 5012X/Y Greek Comedy

CREDIT HOURS: 6
A study of the Greek comic poets (Aristophanes, Menander) in the original language.

CLAS 5013X/Y Greek Lyric

CREDIT HOURS: 6
A study of lyric poets such as Sappho, Archilochus, Simonides in the original language.

CLAS 5020X/Y Greek Literature

CREDIT HOURS: 6
Studies in Greek literature in the original language, works studied change from year to year.

CLAS 5021X/Y Reading and Research in Greek Literature I

CREDIT HOURS: 3

CLAS 5022 Reading and Research in Greek Literature II

CREDIT HOURS: 3

CLAS 5030X/Y Latin Literature

CREDIT HOURS: 6
Studies in Latin literature in the original language, works studied change from year to year.

CLAS 5031X/Y Roman Satire

CREDIT HOURS: 6

CLAS 5032 Roman Historians
CREDIT HOURS: 6

CLAS 5033X/Y Advanced Seminar in Latin Literature
CREDIT HOURS: 6

CLAS 5034X/Y Greek Literature
CREDIT HOURS: 6

CLAS 5040X/Y A Study of Vergil
CREDIT HOURS: 6
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 discussion 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.

CLAS 5041 Reading and Research in Latin Literature I
CREDIT HOURS: 3

CLAS 5042 Reading and Research in Latin Literature II
CREDIT HOURS: 3

CLAS 5060 The Consolation of Philosophy
CREDIT HOURS: 3
Boethius' Consolation is a strange example of Menippean satire, which is itself a strange genre. This course will consider the poetry, the prose and, most significantly, how these elements are combined in order to achieve the goal of the work, which is to offer consolation to the reader.

CLAS 5070 A Study of the Latin Text of Augustine's 'Confessions'
CREDIT HOURS: 3
This course approaches the thought of St. Augustine through a study of various literary, philosophical and spiritual aspects of the Latin text of his "Confessions".
FORMAT: Seminar
PREREQUISITE: CLAS 3810.03 or the permission of the instructor.

CLAS 5370X/Y The Augustinian Tradition
CREDIT HOURS: 6
The course considers the effect of Augustine on the philosophical and theological thought of late Antiquity and the Middle Ages.

CLAS 5530X/Y Ancient Religion: Classical Antiquity to the Rise of Christianity
CREDIT HOURS: 6
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.
NOTES: 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.

CLAS 5531 Roman Empire and the Rise of Christianity
CREDIT HOURS: 3

CLAS 5535X/Y Rome and the East
CREDIT HOURS: 6
This course will consider relations between Rome and her eastern neighbours -- the Parthians and the Sasanians -- from 53 B.C. To A.D. 628. It will examine the development of Roman policy in the region from the establishment of imperial control in the Near East to the costly wars of the early Byzantine period. Consideration will also be given to the Parthian and Persian kingdoms and to the frontier region.
NOTES: 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.

CLAS 5540 Ammianus Marcellinus and his World
CREDIT HOURS: 3
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 reign of Ammianus' hero, Julian the Apostate.
FORMAT: Seminar
PREREQUISITE: Three years of undergraduate Latin or the permission of the instructor.

CLAS 5545 Roman Culture and Roman Politics in the Transition to Autocracy
CREDIT HOURS: 3
A study of the cultural and political history of Rome during the principate of Augustus; we will focus on the reformation of Roman elite culture during this period in light of the intellectual tradition of the late republic and the cultural politics of the age of Nero.
FORMAT: Seminar

COREQUISITE: CLAS 4545.03

CLAS 5550X/Y Reading and Research in Ancient History II
CREDIT HOURS: 6

CLAS 5552 Reading and Research in Ancient History I
CREDIT HOURS: 3

CLAS 5600X/Y Philosophy of Aristotle
CREDIT HOURS: 6

CLAS 5601X/Y Plato and Neoplatonism
CREDIT HOURS: 6

CLAS 5602X/Y Aristotle
CREDIT HOURS: 6
This seminar involves the detailed study of either Aristotle's Metaphysics or De Anima or Physics or ethical and political treatises. The choice of texts varies from year to year.

CLAS 5603X/Y Philosophy of Plato
CREDIT HOURS: 6
This seminar involves the detailed study of a group of dialogues. The choice of dialogues varies from year to year.

CLAS 5604X/Y Philosophy of Aristotle
CREDIT HOURS: 6
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'.

CLAS 5605X/Y Neoplatonism: Plato and Neoplatonism
CREDIT HOURS: 6
The philosophy of Plotinus and later thinkers considered as the resume of Greek Philosophy; in particular the role of Plato and other older philosophers in the formation of Neoplatonism is a principal interest.

CLAS 5606X/Y Greek Philosophical Texts
CREDIT HOURS: 6

CLAS 5607X/Y Latin Philosophical Texts
CREDIT HOURS: 6

CLAS 5608X/Y Reading and Research
CREDIT HOURS: 6

CLAS 5609 Greek Philosophical Texts
CREDIT HOURS: 3

CLAS 5610 Latin Philosophical Texts
CREDIT HOURS: 3

CLAS 5611 Hellenistic Philosophy - Stoics and Epicureans
CREDIT HOURS: 3
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 dimension.
FORMAT: Seminar
PREREQUISITE: CLAS 2361.03/CLAS 2362.03, or permission from instructor
CROSS-LISTING: CLAS 4601.03, RELS 4601.03

CLAS 5612 Hellenistic Philosophy From Skepticism to Neoplatonism
CREDIT HOURS: 3
A study of philosophy in the Hellenistic Age. We will investigate the development of Greek and Roman Philosophy, focusing on Pyrrhonian and Academic Skepticism, as well as Middle Platonism. The course covers the logic, physics, and ethics of these philosophical schools, as well as their religious dimension.
FORMAT: Seminar
PREREQUISITE: CLAS 2361.03/CLAS 2362.03, or permission from instructor

CROSS-LISTING: CLAS 4602.03, RELS 4602.03

CLAS 5614 Aristotle

CREDIT HOURS: 3
A careful reading of an Aristotelian treatise, or selections from several treatises. The treatise studied will vary from year to year.
CROSS-LISTING: CLAS 3503.03
RESTRICTIONS: Registered in a graduate program

CLAS 5700X/Y Philosophy of the Church Fathers

CREDIT HOURS: 6
This seminar involves the detailed study of a text, or group of texts, from one or more of the Greek or Latin Church Fathers. The choice of text varies from year to year, in relation to the needs and interests of students.

CLAS 5701X/Y Medieval Interpreters of Aristotle

CREDIT HOURS: 6
The course considers Latin philosophical texts of the Middle Ages.

CLAS 5705X/Y St Augustine I

CREDIT HOURS: 6
A study of the three parts of Augustine's Confessions with a view to understanding his dissatisfaction with the various positions he adopted prior to his conversion to Christianity (Part 1), the practical consequences of this conversion (Part II), and the new theoretical understanding of time, space and motion which come out of his Trinitarian exegesis of the first chapters of Genesis (Part III). This course presupposes some knowledge of the history of Ancient Philosophy, and some of Latin.

CLAS 5706X/Y St Augustine's City of God

CREDIT HOURS: 6
A study of Augustine's account of the failure of the Roman Empire and of the new Christian 'city' that replaced it. The course sometimes concentrates on a definition of the new Christian state in second part (books XI to XXII) of the City of God and sometimes begins with a study of earlier accounts of Rome (Aeneid), and of the relations of Rome and the church in, for example, the Apostolic Fathers, the Acts of the Martyrs and Tertullian, before turning to the first ten books of the City of God.

CLAS 5707X/Y St. Augustine's on the Trinity

CREDIT HOURS: 6
A study of the 15 books of Augustine's De Trinitate. The first term will concentrate on Books 1-7 in which he establishes what is the orthodox teaching about God through Scripture and a consideration of the categories of substance, relation and act. The second term examines Books 8-15 in which he attempts to understand what has been shown in the first 7 books through the distinction of scientia and sapientia. The course presupposes some knowledge of the history of ancient philosophy (especially Aristotle & Neo-Platonism) and some of Latin.

CLAS 5708 Reading and Research: Christian Beginnings and the Early History of the Church

CREDIT HOURS: 3

CLAS 5800 Christian Beginnings

CREDIT HOURS: 6

CLAS 5801X/Y Christianity and Neoplatonism

CREDIT HOURS: 6

CLAS 5818 Christian Theology in the Lands of Islam: John of Damascus

CREDIT HOURS: 3
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: CLAS 4018.03, RELS 4018.03

CLAS 5819 Philo Judaeus

CREDIT HOURS: 3
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.
FORMAT: Seminar
PREREQUISITE: Must be registard in a graduate program
CROSS-LISTING: CLAS 4019.03

CLAS 5840X/Y Latin Philosophical Texts

CREDIT HOURS: 6
The purpose is to give students experience in reading philosophical Latin. The texts are normally chosen from medieval authors like Anselm, Aquinas, and Bonaventure.

CLAS 5900X/Y Departmental Seminar

CREDIT HOURS: 6

CLAS 5901X/Y Reading and Research
CREDIT HOURS: 6

CLAS 9000 Master's Thesis
CREDIT HOURS: 0

CLAS 9530 Doctoral Thesis
CREDIT HOURS: 0

Clinical Vision Science

Location:
Building/Room: IWK Health Centre
Street Address 1: 5850/5980 University Avenue
Street Address 2: 6th Floor
P.O. Box: 9700
Halifax, NS B3K 6R8
Telephone: (902) 470-8959
Fax: (902) 470-7207
Website: dal.ca/cvs
Email Address: orthoptics@iwk.nshealth.ca

Introduction

Dalhousie University offers its Clinical Vision Science Program in cooperation with the IWK Health Centre. The program provides students interested in the profession of orthoptics and ophthalmic medical technology with a strong foundation in the vision sciences and in research techniques.

Orthoptists/ophthalmic medical technologists are professionals integral to eye care. They perform diagnostic and highly technical procedures, and, in consultation with an ophthalmologist, they plan, implement and monitor treatment of a wide range of ocular disorders, including disorders of binocular vision and ocular motility. They are engaged in activities including research into ocular motility, education of other eye care professionals, patient education and vision screening.

The Clinical Vision Science Program is directed at optimizing professional clinical practice by encouraging an integrated approach to the field of the vision sciences and expanding knowledge of the research that underpins much of clinical practice. With its research component, the program ensures that graduates, as evidence-based practitioners, are prepared for both clinical and research-based practices and that they have the ability to analyze and relate research findings to clinical experience, skills vital for ensuring superior diagnostic and therapeutic services.

The program equips students with outstanding skills in the assessment, diagnosis and treatment of ocular disorders to ensure strong clinical competence and to enable them to be full participants in the interdisciplinary model of eye-care. Students are exposed to a variety of clinical experiences that prepares them for the independent nature of professional practice.

Students have the option of exiting from the program after the second program year with a Graduate Diploma in Orthoptics and Ophthalmic Medical Technology, or complete a thesis for Masters in Clinical Vision Science.

Dalhousie University is offering the Clinical Vision Science Program also in distance education. The distance delivery model is a flexible, Internet-based adaptation of the on-campus program. Distance learning students are receiving the same quality instruction as on-campus students, take the same exams and participate in direct ophthalmic care at supervised clinical sites for the same period of time.

The program is intended for those who are wishing to gain essential knowledge and expertise in the Orthoptist/ophthalmic medical technologist profession, and also for those who enter it at an advanced level for professional development.

There is no residential component in the distance education program.

Staff

Program Chair

Oystreck, D. T., BSc, MMedSci (Sheffield), OC(C), COMT

Graduate Coordinator

Chauhan, B., BSc MBCO, PhD (Wales)

Professors

LaRoche, R., BSc, MD (McGill)
Tremblay, F., BSc, PhD (Montreal)
Varhelyi, G., MSc, PhD (Budapest)

Westwood, D. A., BSc, MA, PhD (Waterloo)

Associate Professors

Hahn, E., BPE, MSc, (Dalhousie), OC(C), COMT, DO, CCLF, RO
Oystreck, D., BSc, MMedSci (Sheffield), OC(C), COMT
Parkinson, J., BA, CO, COMT
Walsh, L., BSc, MSc (Dalhousie), OC(C), COMT

Assistant Professors

Fennell-Al Sayed, H., BSc, MSc (Dalhousie), OC(C), COMT
Pryde, M., BSc, MSc (Dalhousie), OC(C), COMT
Smith, S., BSc, MSc (Dalhousie), OC(C), COMT
Van-Iderstine, S., BSc, MSc (Dalhousie), CCRP

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Admission requirement is a four year bachelor's degree from a recognized institution of higher education with a minimum of a B average (GPA 3.0).

Students whose native language is not English, must also, as required by the Faculty of Graduate Studies, provide proof of their ability to participate in a graduate program conducted in English prior to their acceptance to the program.

In addition, there are program specific admission requirements for candidates to the Clinical Vision Science Program. Applicants are expected to have one or more undergraduate courses in the following subjects: human anatomy, neuroscience (e.g. neuroanatomy, neurophysiology, etc), psychology, physiology, biology, biochemistry, psychophysics. It is also recommended that students have completed courses in research methods (e.g. statistics or research design).

For detailed information on the admission requirements and the application process consult the Clinical Vision Science Program website.

The application deadline is March 1st.

Curriculum

The core program consists of two program years of required courses and two extended clinical practica. Together with supervised thesis work the Master's Program typically takes three years to finish, with an upper limit of five years. Students pay two years (six terms) full time fees and a thesis continuation fee is charged each term after the two years.

Course list:

- VISC 5010.03: Fundamentals of Vision Science: Afferent System
- VISC 5011.03: Fundamentals of Vision Science: Efferent System
- VISC 5020.03: Physical and Visual Optics
- VISC 5031.03: Introduction to Research Theory and Practice for Vision Sciences
- VISC 5040.03: Neuropharmacology for Vision Science: Basic Concepts and Therapeutics
- VISC 5200.06: Practicum I
- VISC 5210.03: Clinical Foundations of Ophthalmic Medical Technology
- VISC 5211.03: Clinical Foundations of Orthoptics
- VISC 5222.06: Advanced Ophthalmic Technology for Clinical Vision Science
- VISC 5230.03: Extraocular Motility Disorders
- VISC 5240.03: Therapeutic and Psychosocial Aspects of Low Vision
- VISC 5300.06: Practicum II
- VISC 5310.03: Ocular Manifestations of Systemic Disease
- VISC 5330.03: Treatment of Ocular Motility Disorders
- VISC 5340.03: Treatment of Visual Disorders
- VISC 5350.03: Topics in Vision Care
- VISC 9000: MSc Thesis
- IPHE 5900: Interprofessional Health Education

MSc Thesis - N/A for Graduate Diploma in Orthoptics and Ophthalmic Medical Technology.

Interprofessional Health Education

Clinical Vision Science students are required to maintain enrolment in IPHE 5900 during their academic studies. Successful completion of this course will be recognized by the Faculty of Health Professions with the awarding of a special Certificate in Interprofessional Collaboration.

Practicum/Fieldwork Placements outside Halifax

Students are advised that they may have to do some of their required clinical education/fieldwork at sites outside Halifax, and hence may have to incur additional personal expenses for travel and temporary accommodation.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

VISC 5010 Fundamentals of Vision Science: Afferent System

CREDIT HOURS: 3
This course is designed to acquaint the student with the anatomy/physiology of the human central nervous system as it relates to the sensation of vision. Testing parameters used in the afferent visual system examination will be discussed. Recent developments in perimetry, clinical psychophysics, and electrophysiology will be explored.
FORMAT: Lecture

VISC 5011 Fundamentals of Vision Science: Efferent System

CREDIT HOURS: 3
This course is designed to provide the student with knowledge of eye movements and the neurological control of ocular motility. Through lecture, discussion, and assigned readings, the student will analyze and determine how abnormalities of ocular motility can be indicators of a disease process and its area of localization.
FORMAT: Lecture
PREREQUISITE: VISC 5010.03

VISC 5020 Physical and Visual Optics

CREDIT HOURS: 3
This course will analyze physical, optical and ophthalmic principles, with an emphasis on the measurement of light and on its behaviour in image formation. Visual optics in physical, schematic and human modalities will be investigated critically in experiment and clinical venues.
FORMAT: Lecture| Lab
PREREQUISITE: This course is a prerequisite for the Therapeutic and Psychosocial Aspects of Low Vision, Treatment of Visual Disorders, and Treatment of Ocular Motility disorders.

VISC 5031 Introduction to Research Theory and Practice for Vision Sciences

CREDIT HOURS: 3
Students will acquire theoretical and practical skills to conduct a research undertaking in vision science. Scope of human inquiry, methodologies of interpretative and critical investigation, sampling and data analysis will be discussed in the clinical visual health sciences environment. Basic skills in the application of computer-based tools (SPSS) will be developed.
FORMAT: Other (explain in comments)

VISC 5040 Neuropharmacology for Vision Science: Basic Concepts and Therapeutics

CREDIT HOURS: 3
This course will consider the general principles of pharmacology before exploring the interaction pharmacology agents with the central nervous system and ocular structures. Medications used in the evaluation and treatment of ophthalmic disorders, along with medications used to treat systemic disorders that may produce ocular side effects, will be emphasized.
FORMAT: Lecture

VISC 5200 Practicum I

CREDIT HOURS: 6

This practicum period of 14 weeks following the first two semesters of study provides the student with the opportunity to participate in direct ophthalmic patient care. The student will consolidate the concepts, theories and skills previously learned while providing supervised vision care for clients in a clinic setting.
FORMAT: Other (explain in comments)
PREREQUISITE: VISC 5210.03, VISC 5211.03 and VISC 5230.03

VISC 5210 Clinical Foundations of Ophthalmic Medical Technology

CREDIT HOURS: 3
This course will introduce the student to the complexities of analysis of the visual system. This will be achieved through clinical scenarios in which the student will be required to engage in direct patient care, including sensory visual evaluation, physical ocular assessment, and biomedical application of ophthalmic instrumentation.
FORMAT: Lecture| Lab
PREREQUISITE: VISC 5010.03 to be taken concurrently

VISC 5211 Clinical Foundations of Orthoptics

CREDIT HOURS: 3
This course will introduce the student to the wonders of binocular vision in its normal presentation and also the intricacies of its abnormalities. Integral to the course material will be the analysis of responses of the binocular system to various clinical challenges.
FORMAT: Lecture| Lab
COREQUISITE: VISC 5010.03
PREREQUISITE: This course is a prerequisite for Practicum I

VISC 5222 Advanced Ophthalmic Technology for Clinical Vision Science

CREDIT HOURS: 6
This course provides knowledge on advanced ophthalmic diagnostic techniques and preliminary data analysis used to detect ophthalmic disorders. It furthers a systematic approach to instrumentation selection and performance, and will equip students with the ability to recognize and solve inconsistencies in results occurring due to instrumentation, examiner or patient errors.
FORMAT: Lecture| Lab
PREREQUISITE: VISC 5210.03

VISC 5230 Extraocular Motility Disorders

CREDIT HOURS: 3
Extraocular motility disorders and their treatment form the foundation for the understanding of ocular misalignment. In this course, anomalies of eye movement will be analyzed and the etiology will be reviewed. Emphasis, though, will be placed on the clinical presentation, formulation of diagnosis, and patient prognosis of anomalous extraocular motility.
FORMAT: Lecture
PREREQUISITE: VISC 5010.03 to be taken concurrently

VISC 5240 Therapeutic and Psychosocial Aspects of Low Vision

CREDIT HOURS: 3
This course encompasses a broad spectrum of visual impairments. The pathphysiological basis, clinical manifestations, and treatment modalities of visual loss will be addressed.
FORMAT: Lecture| Lab
PREREQUISITE: VISC 5020.03

VISC 5300 Practicum II

CREDIT HOURS: 6
This intensive practicum period of 22 weeks follows the completion of all course work. During this practicum students will have the opportunity to fully synthesize their academic and clinic knowledge. Upon completion students will be prepared to sit the orthoptic and ophthalmic medical technologist certification exams.
FORMAT: Other (explain in comments)
PREREQUISITE: VISC 5200.06 and VISC 5330.03

VISC 5310 Ocular Manifestations of Systemic Disease

CREDIT HOURS: 3
The eye is a window through which manifestations of neurological, vascular infectious, inflammatory, and general systemic disease can be evaluated. This course will explore the signs and symptoms of ocular dysfunction as precursors, indicators and consequences of systemic disease that must be evaluated for optimal healthcare.
FORMAT: Lecture
PREREQUISITE: VISC 5011.03

VISC 5330 Treatment of Ocular Motility Disorders

CREDIT HOURS: 3
This course will examine and discuss the management of ocular motility anomalies. An overview of historical and current treatment modalities both surgical and non-surgical will be discussed. Emphasis will be given to the determination and application of appropriate management plans in case scenarios.
FORMAT: Lecture
PREREQUISITE: VISC 5020.03 and VISC 5230.03

VISC 5340 Treatment of Visual Disorders

CREDIT HOURS: 3
This course introduces a variety of therapeutic approaches to visual disorders with an in depth examination of historical and current methods of treating amblyopia and other developmental anomalies of the visual system. The treatment of acquired anomalies as well as routine spectacle and surgical treatment of refractive disorder will be covered.
FORMAT: Lecture| Lab
PREREQUISITE: VISC 5240.03 and VISC 5020.03

VISC 5350 Topics of Vision Care

CREDIT HOURS: 3

This course will provide students with an opportunity to explore in depth topics of interest in the ophthalmic field. The students will then have a sound knowledge base of potential areas of research and detailed knowledge of the field in which his/her thesis work will likely be undertaken.

FORMAT: Seminar

PREREQUISITE: VISC 5210.03 and VISC 5222.06.

VISC 9000 MSc Thesis

CREDIT HOURS: 0

Community Health and Epidemiology

Location:
Building/Room: Centre for Clinical Research
Street Address 1: 5790 University Avenue
Street Address 2:
P.O. Box:
Halifax, NS B3H 1V7
Telephone: (902) 494-3860
Fax: (902) 494-1597
Website: che.medicine.dal.ca
Email Address: chegrad@dal.ca

Introduction

Master of Science

The MSc Community Health and Epidemiology (CH&E) program emphasizes knowledge, analytical skills and formal evaluative methods with application to disease prevention, health promotion and assessment of community health service and system needs. The program includes eight courses and a thesis. The typical completion time is approximately two years for full-time students, or four years for part-time students.

Institutional Environment

The Department of Community Health and Epidemiology is part of Dalhousie's Faculty of Medicine, which has primary responsibility for training new physicians in the Maritime Provinces, and is closely affiliated with major teaching hospitals. The Department includes 12 core faculty members, who have expertise in a number of disciplines including community medicine, epidemiology, biostatistics, occupational/environmental health, population health, and sociology. Faculty in the department provide leadership in the areas of population health research, disease prevention, health promotion, policy development and assessment of community health service and system needs. They have substantial national funding from CIHR, CFI, CSHRF, and SSHRC as well as provincial funding from NSHRF. The Department also includes over 40 cross appointed members drawn from a wide range of disciplines such as clinical medicine, health professions, engineering and basic and social sciences. The Department of Community Health and Epidemiology is home to the Canadian Longitudinal Study on Aging (CLSA), the Health and Environments Research Centre (HERC), Health Data Nova Scotia (HDNS), Maritime SPOR SUPPORT Unit (MSSU), the CDHA Research Methods Unit (RMU) and many research projects.

Staff

Department Head

Levy, A.

Director of Graduate Programs

MacPherson, K. M.

Professors

Anderson, D., BA (Queen's), MD (Dalhousie), major appointment in Department of Medicine
Burge, F., BA, MD (Queen's), CCFP, MSc (McGill), major appointment in Department of Family Medicine
Cox, J., BA (High Distinction), MD (Hons) (Toronto), major appointment in Department of Medicine
Dodds, L., BS (Vermont), MS (Washington), PhD (Toronto), major appointment in Department of Obstetrics and Gynaecology, and Department of Pediatrics
Dunbar, M., BSc, MD (Dalhousie), PhD (Lund), major appointment in Department of Surgery
Gahagan, J. A., BA (Hons) (Carleton), MA (Windsor), PhD (Wayne State), major appointment in School of Health and Human Performance
Guernsey, J., BSc (Hons) (Carleton), MSc, PhD (Iowa)
Johnston, B. L., MD (Dalhousie), FRCPC, major appointment in Department of Medicine
Kephart, G., BS (Hons) (California), MS, PhD (Wisconsin)
Kirkland, S., BSc (Joint Hons), MSc (Waterloo), PhD (Toronto)
Langille, D., BSc (Acadia), MD (Dalhousie), MHSc (UBC)
Langley, J., BA (Queen's), MD (Dalhousie), MSc (McMaster), major appointment in Department of Pediatrics

Levy, A., BSc, MSc, PhD (McGill)
McGrath, P., BA, MA (Saskatchewan), PhD (Queen's), major appointment in Department of Psychology and Neuroscience
Parker, L., BSc, PhD (Newcastle), major appointment in Departments of Paediatrics and Medicine
Porter, G., BA, MD (Queen's), MSc (Alberta), FRCSC, major appointment in Department of Surgery
Sargeant, J., BN (UNB), MEd (Dalhousie), PhD (Maastricht), major appointment in Continuing Medical Education
Sketris, I., BScPhm (Toronto), MPA (Dalhousie), PharmD (Minnesota), major appointment in College of Pharmacy
Stewart, S., BSc (Dalhousie), PhD (McGill), major appointment in Department of Psychology
Tomblin-Murphy, G., BN, MN (Dalhousie), major appointment in School of Nursing

Associate Professors

Adisesh, A., MB ChB (Liverpool), MSc, MD (Manchester), FRCP (Glasgow, London), FFOM
Allen, V., MD (Dalhousie), MSc (Toronto), major appointment in Department of Obstetrics and Gynaecology
Asada, Y., BS, MS (Tsukuba), PhD (Wisconsin-Madison)
Asbridge, M., BA, MA, PhD (Toronto)
Flowerdew, G., BSc, MSc (London), DSc (Harvard)
LeBlanc, J., MD, MSc (McMaster) FRCPC, major appointment in Department of Pediatrics
Kirk, S., BSc, PhD (Leeds), major appointment in School of Health Administration
MacPherson, K. M., BSc, MD (Dalhousie), MPH (Michigan)
Mitnitski, A., MSc (St. Petersburg), PhD (Leningrad Institute of Mechanical Engineering), major appointment in Department of Medicine
Molinari, M., MD (Milan), MSc (Toronto), major appointment in Department of Surgery
Rao, S., MD (Deemed), MBA (Durham), major appointment in Department of Psychiatry
Steenbeek, A., BSc (McMaster), MSc, PhD (UBC), major appointment in School of Nursing
Travers, A., BSc (Hons), MD (Dalhousie), MSc (Alberta), FRCPC (EM), major appointment in Department of Emergency Medicine
Weerasinghe, S., BSc (Hons) (Jaffna), MSc (Colombo), PhD (Dalhousie)
Whalen, A. M., BSc (Dalhousie), PharmD (South Carolina), major appointment in the College of Pharmacy
Yanchar, N., BSc, MSc (Alberta), MD (Queen's), MSc (Dalhousie), major appointment in Department of Surgery

Assistant Professors

Andreou, P., BSc (Toronto), MA, MSc, PhD (Western)
Baskett, R., BA, MA (Toronto), MD, MSc (Dalhousie), major appointment in Department of Surgery
Campbell, L. A., BScN (Toronto), MSc, PhD (Dalhousie)
Hayden, J., BSc (Dalhousie), DC (Canadian Memorial Chiropractic College), PhD (Toronto)
Johnson, P., MD (Dalhousie), MSc (Toronto), major appointment in Department of Surgery
Kim, J., MS (Nebraska), MS & BS (Kangwon), PhD (Iowa)
Kuhle, S., MD (Georg-August), Doctorate of Medicine (Eberhard Karls), MPH, PhD (Alberta), major appointment in Department of Obstetrics and Gynaecology and Department of Pediatrics
Marshall, E., BA (UBC), MSc (Dalhousie), PhD (UBC), major appointment in Department of Family Medicine
Payne, J., BSc, MSc (Queen's), PhD (Toronto), major appointment in Department of Diagnostic Radiology
Rainham, D., BES (Waterloo), MSc (Alberta), PhD (Ottawa), major appointment Elizabeth May Chair in Sustainability and Environmental, Environmental Science
Simms, C., BA (St. Mary's), MPA (Dalhousie), MHSc (Johns Hopkins), DPhil (Sussex), major appointment in School of Health Services Administration
Urquhart, R., MSc (Toronto), BA (King's), PhD (Dalhousie), major appointment in Department of Surgery
Woolcott, C., BSc (Waterloo), MSc (Queen's), PhD (Calgary), major appointment in Department of Obstetrics and Gynaecology, and Department of Pediatrics

Adjunct (FGS)

Dummer, T., BA (Hull), MSc (Edinburgh), PhD (Newcastle)

Master of Science (MSc)

Admission Requirements/Deadlines

The typical MSc CH&E student has had undergraduate training in a health profession or a related scientific discipline, and often has experience in research or other work related to health. Admission standards are consistent with those of Dalhousie University's Faculty of Graduate Studies, with the exception of higher minimum requirements as follows: GPA 3.3, TOELF (ibt) 100, TOEFL (pb) 600, IELTS 7.5. Students are also required to have a recent class in basic statistics. Enrolment is limited. Limited numbers of part-time students are accepted. Selected applicants will be interviewed as part of the selection process.

Application Deadline

January 31 is the deadline for completed applications. These applicants will be considered for departmental scholarships.

November 1 (of the year prior to anticipated admission) is the deadline for completed applications for those who wish to be considered for a Killam Scholarship.

Curriculum

The program requires a minimum of five Core Courses, three Elective Courses and a Thesis. The five required courses are: Community Health Principles; Epidemiology Principles; Principles of Biostatistics; Research Methods in Community Health and Epidemiology; and Introduction to Health Services Research and Policy.

The Master's Thesis is a major part of the MSc CH&E program. A thesis may include the design and execution of an applied research project in the field of community health and epidemiology. Full-time students will ordinarily complete their thesis during their second year in the MSc program.

Doctor of Philosophy (PhD)

PhD students in Epidemiology and Applied Health Research will develop deep expertise in a specialized area in one of three domains in applied health research disciplines: Epidemiology and Biostatistics; Patient and Population Health; and Health Services and Outcomes. The program requirements include coursework, a three-month placement, a comprehensive examination, and a PhD dissertation. The expected completion time is approximately four years for full-time students.

PhD Admission Requirements

PhD admission requirements are as for Dalhousie's Faculty of Graduate Studies, with the exception of the following: a minimum A- average in a thesis-based Master's degree in epidemiology or a related discipline; successful completion of a course in advanced epidemiology (equivalent to CH&E 6020) and one in biostatistical modeling (equivalent to CH&E 6019); demonstrated research competency; confirmation from a supervisor who is willing to support the student educationally and financially (if the student does not obtain external financial support); and a minimum TOEFL (pb) of 600, if applicable.

PhD Application Deadline

For applicants who wish to apply for external funding and scholarships, the deadline for completed applications is September 1 of the year prior to anticipated admission. Otherwise, the deadline for completed applications is December 1 of the year prior to anticipated admission.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

CH&E 5000 Community Health Principles

CREDIT HOURS: 3

This is an introductory course in Community Health Principles for graduate-level students in the health fields. Community health focuses on the health of populations or groups. The course will cover a broad range of community health issues, and will focus on strategies to improve the health of a population with emphasis on health protection, disease prevention, and health promotion. The student will apply community health principles and acquire in-depth knowledge of specific health topic areas through group and individual projects.

CH&E 5010 Epidemiology Principles

CREDIT HOURS: 3
This introductory course is intended for graduate-level students with no background or formal training in epidemiology. This course introduces students to the basic principles and methods of epidemiology, with various examples from the literature in communicable and non-communicable diseases. Topics include measures of health and risk, epidemiological study designs and considerations regarding issues of measurement and precision that include assessments of internal and external validity, standardization, confounding, bias, interaction and causality. The course includes presentations in selected special topics in epidemiology.

CH&E 5019 Principles of Biostats

CREDIT HOURS: 3
This course covers essential statistical methods for medical and public health research. Topics include descriptive analysis techniques and basic principles of statistical inference for comparison of means, proportions and investigation of relationships between variables using least squares and logistic regression. Students will also become familiar with nonparametric tests and power and sample size calculations. This course consists of two 90 minute lectures and one 90 minute lab each week. Students require a recent course in basic statistics prior to registering for this course. In computer labs, students learn to use STATA for statistical analysis.

CH&E 5030 Research Meth/Comm Hlth & Epid

CREDIT HOURS: 3
This course explores the logic and principles of research design, measurement, and data collection. It focuses on the critical evaluation of research articles, research design, research proposal writing. The course covers a range of methodological issues and methods, including experimental and quasi-experimental designs, survey research and sampling, measurement, and qualitative methods.

CH&E 5040 Intro to Hlth Serv Res. & Pol.

CREDIT HOURS: 3
This course introduces students to basic concepts and tools in health services research important for critical evaluation of health services systems and policy. The course overviews the evolution and delivery, organization, and financing of the Canadian health services system, explores theoretical frameworks to evaluate health services systems, and examines strategies for knowledge translation. The topics covered include: health-related quality of life measures, quality of health care, needs for health care, economic evaluation of health services, resource allocation, equity in health care and health outcomes, primary care reform, and public vs. private health care financing.

CH&E 6001 Environ & Occupatnl Health

CREDIT HOURS: 3
Principles and concepts underlying environments and human health comprise the major focus of this course. The nature of a variety of agents, including chemical, physical, biological, ergonomic and radiation hazards, how these agents are dispersed and transformed in the environment, the pathways of human exposure to these agents, and characterization of the health effects resulting from exposure are reviewed. The course will also discuss human environments as a determinant of health and will consider dimensions of places, spaces and health as factors in the human environment. Two field trips are planned 1) Pockwok water treatment plant 2) Montague Historic Gold Mine. There will also be a laboratory teaching class (at the NRC-IMB) covering personal exposure to volatile organic compounds in the environment.
CROSS-LISTING: ENVI 5010.03

CH&E 6010 Community Health Practicum

CREDIT HOURS: 3

CH&E 6019 Biostatistical Modeling

CREDIT HOURS: 3
The primary objective of this course is to gain mastery over the statistical modeling techniques that are most frequently used in clinical and population health data analysis. Students will learn both cross sectional and longitudinal data analyses for continuous, binary and count data. Specific methods will include poisson regression, log linear models and survival data analyses. Students will also learn most of the commonly used procedures in the Statistical Analysis System (SAS).
PREREQUISITE: CH&E 5019.03, CH&E 5010.03

CH&E 6020 Advanced Epidemiology

CREDIT HOURS: 3
This course focuses on the design, conduct, analysis, and interpretation of epidemiologic studies. Both experimental (community intervention trials) and non-experimental, or observational (cohort, case-control), studies may be covered. Topics for general discussion will include study designs, subject selection, measurement issues pertaining to ascertainment of exposure and outcome, design issues such as stratification and matching, methodological issues such as confounding, effect modification, misclassification, and sources of bias. Data analysis will emphasize the practical application of statistical concepts; measuring associations and effect size, multivariate modelling, logistic regression, poisson regression, and survival analysis (time permitting), and the combining of individual study results using meta-analysis.
PREREQUISITE: CH&E 5010.03, CH&E 5019.03

CH&E 6024 Methods in Clinical Trials

CREDIT HOURS: 3
This course is developed for students in the graduate program of Community Health and Epidemiology who have a particular interest in randomized controlled trials (RCT's). Participants will be introduced to the practical issues in designing a controlled clinical trial by developing a clinical trial protocol throughout the course. Several designs for RCT's and Cancer clinical trials will be examined. The course will review the methods of how to analyze continuous and categorical data as well as censored data and perform interim analysis. The course will cover topics on sample size determination, Meta-Analysis and Bayesian methodology. Evaluation is based on the written protocol and statistical analysis on a simulated data set based on the written protocol.

CH&E 6030 Clinical Epidemiology

CREDIT HOURS: 3
This course is intended for students with an interest in carrying out research that is directly relevant to clinical practice. This course is suitable for medical residents and other post-graduate students, as it will fulfill many of the Royal College Specialty Objectives of Training for experience in non-medical expert roles such as Scholar, Collaborator and Communicator. This course will introduce students to the field of clinical epidemiology. Specific topics will include: common types of clinical epidemiology research questions such as clinical findings, etiology, differential diagnosis, diagnostic tests, prognosis, therapy, economics and prevention; research designs used in clinical epidemiology including experimental and non-experimental study designs, qualitative studies and meta-analysis; and sources of bias.

CH&E 6031 Intro to Clinical Epidemiology

CREDIT HOURS: 1.5

This course will introduce students to the field of clinical epidemiology. Clinical epidemiology s the science of making predictions about individual patients by counting clinical events in groups of similar patients and using strong scientific methods to ensure the predictions are accurate. Its purpose is to develop and apply methods of clinical observation that will lead to valid conclusions by avoiding being misled by systematic error and the play of chance. It is an important approach to obtaining the kind of information clinicians needs to make good decisions in the care of patients. Specific topics will include: common types of clinical epidemiology research questions such as clinical findings, etiology, differential diagnosis, diagnostic tests, prognosis, therapy, economics and prevention; research designs used in clinical epidemiology including experimental and non-experimental study designs, qualitative studies and meta-analysis; and sources of bias.

CH&E 6042 Detrmnts Of Hlth - Humans

CREDIT HOURS: 3

This course will focus on health from a population and societal perspective, with an emphasis on the determinants and distribution of health in human populations. Students will be introduced to basic demographic tools and concepts useful for morbidity decline and change, the medicalization of health, and the changing institutional structure of healthcare delivery. Separate treatment will be given to determinants and consequences of health in the two settings. Population-based approaches to health policy will be explored.

PREREQUISITE: CH&E 5000.03

CH&E 6046 Introduction to Global Health

CREDIT HOURS: 1.5

This course introduces and examines major health & health-related challenges of developing, resource-constrained and emerging nations, and how individual countries and global health partners are finding solutions to address these challenges. Students will study and analyze a variety of health priorities among different populations, cultural settings and health systems in relation to global health goals and partnerships.

CH&E 6049 Systematic Review and Meta-analysis in Health Care

CREDIT HOURS: 3

CH&E 6052 Epidemiology/Infectious Diseas

CREDIT HOURS: 3

Interrelated topics, crucial to understanding infectious diseases epidemiology and how epidemiology can inform our understanding of infectious diseases and its management at the individual level will be covered. These include basic microbiology, the chain of infection, disease pathogenesis, spectrum of illness associated with infectious agents, diagnostic tools, patterns of infection and disease in populations, outbreak recognition and management, infection prevention and control. The course will explore such current issues as emergence of new infections, bioterrorism, and healthcare associated infections.

PREREQUISITE: CH&E 5010.03, CH&E 5019.03

CH&E 6053 Introduction to Epidemiology of Infectious Diseases

CREDIT HOURS: 1.5

FORMAT: Lecture| Seminar| Discussion

PREREQUISITE: CH&E 5000, CH&E 5010

CH&E 6054 Secondary Data Analysis

CREDIT HOURS: 3

This course focuses on the use of secondary data sources that are available to public health researchers in Canada. Data sources covered include Statistics Canada surveys, administrative health data, perinatal databases, and cancer registries. Data analyses will emphasize the practical application of statistical and epidemiological concepts to each data source.

PREREQUISITE: CH&E 5010.03, CH&E 5019.03

CH&E 6060 Directed Readings/Studies I

CREDIT HOURS: 3

CH&E 6062 Directed Readings/Studies II

CREDIT HOURS: 3

CH&E 6072 Population Health Determinants

CREDIT HOURS: 1.5

The class will focus on health from a population and societal perspective, with an emphasis on the determinants and distribution of health in human populations. Students will be introduced to tools and concepts useful for studying the health of populations, including the determinants of mortality/morbidity, decline and change, the medicalization of health, and the role of social and environmental factors in shaping health and health care. Focus will be given to highlighting differences in the distribution, determinants, and consequences of health in Canada and internationally. Population-based approaches to health policy will be explored.

PREREQUISITE: CH&E 5000.03

CH&E 6074 Introduction to Methods in Clinical Trials

CREDIT HOURS: 1.5

Introduces clinical trial design, covers various topics in the design and conduct of clinical trials. Topics include the definition and history of clinical trials; trial designs, including phase I-IV, crossover, factorial, and large, simple designs; internal and external validity; controals, randomization and adaptive randomization; ethical issues; and use of data from randomized trails.

PREREQUISITE: CH&E 5019.03, CH&E 5010.03

CH&E 6450 Economics of Health Policy

CREDIT HOURS: 3
This course focuses on health policy themes as they relate to the current situation in the Canadian health policy arena. Themes include population health determinants, health system types, physician remuneration methods, healthcare delivery models, health production, demand for healthcare, and health system efficiency. The course is conducted in seminar style format.
NOTES: Students from outside of the MPA Program must seek permission from the course instructor.
COURSE FREQUENCY: Yearly
FORMAT: Lecture| Seminar
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: PUAD 6450.03

CH&E 8020X/Y Epidemiology and Applied Health Research

CREDIT HOURS: 6
This two-term compulsory course for the first year PhD students in the PhD Program in Epidemiology and Applied Health Research integrates three domains of epidemiologic and applied health research disciplines (epidemiology & biostatistics; patient & population health; and health services & outcomes) using a module-based, team teaching method. The course emphasizes multi- and interdisciplinary integration of knowledge, skills, and attitudes integral to all these three domains. This course offers frameworks through which students develop critical thinking in the broad epidemiologic and applied health field. The course employs seminar formats and encourages self-directed learning
FORMAT: Seminar

CH&E 9000 Master's Thesis

CREDIT HOURS: 0

Computational Biology and Bioinformatics

Location:
Building/Room: Goldberg Computer Science Building
Street Address 1: 6050 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2740
Fax: (902) 494-1517
Website: www.bioinformatics.dal.ca
Email Address: cbbi@dal.ca

Staff

Graduate Coordinator

Beiko, R., Computer Science

Faculty

Archibald, J. M., Biochemistry and Molecular Biology
Beiko, R., Computer Science
Bielawski, J. P., Biology, Mathematics and Statistics
Blouin, C., Computer Science, Biochemistry and Molecular Biology
Gu, H., Mathematics and Statistics
Herbinger, C. M., Biology, Mathematics and Statistics
Roger, A. J., Biochemistry and Molecular Biology
Susko, E., Mathematics and Statistics

Adjunct (FGS)

Field, C., Emeritus, Mathematics and Statistics

Master of Science (MSc)

The program is an interdisciplinary master's degree with an emphasis on thesis work which focuses on tackling problems in biology, molecular biology and health-related fields through significant research contributions in mathematics, statistics and computer science.

This program is set within the framework of current interdisciplinary research conducted within Dalhousie. Students in this program will join a community of researchers in the fields of computational biology and bioinformatics. Resources from the Faculty of Computer Science, Medicine and Science are coordinated to offer a flexible program, with a limited course load and an emphasis on research activities. Students from a broad selection of backgrounds are invited to consider the program. Each candidate is supervised within the research group of their supervisor from the beginning of their tenure.

The program is available on a full-time basis. The only pre-specified course requirement is the program seminar series; however, a selection of specialized courses is usually required by the Admission committee. The specifics of course selection are made on an individual basis in coordination with the candidate, the supervisor(s), and the admission committee.

An admissible research topic must include relevant work on a current biological problem through innovative methodology in Mathematics, Statistics or Computer Science.

Application and Admission

Candidates for admission to the masters of computational biology and bioinformatics should hold an honours degree, or equivalent, from a university of recognized standing in any relevant discipline. Relevant disciplines are typically: Biology, Biochemistry and Molecular Biology, Computer Science, Mathematics, Physics and Statistics. Students from any background will be considered on an individual basis. All candidates must meet the requirements of the Faculty of Graduate Studies.

Prior to applying, a candidate must find a suitable supervisor or co-supervisors. A statement of research interests must be submitted with the application forms that can be obtained from the Registrar's office. The statement may be prepared in conjunction with the supervisor(s) and should include a general statement of the biological areas of interest, possible computational methodologies relevant to the problem, and a statement on the candidate's background. This document is used to evaluate whether suitable academic activities will allow the candidate to meet the program requirements.

All material should be submitted by the strict deadline of April 1st for overseas applicants and June 1st for North-American applicants.

Candidates from outside Canada whose native language is not English must demonstrate their capacity to pursue a master's program in English. Results of a TOEFL or other Standard English competency test should be submitted at the time of application. The minimum TOEFL score required is 580 (computerized TOEFL score required is 237).

Program Requirements

Candidates for the Master's degree in Computational Biology and Bioinformatics are expected to complete four 0.5 credit courses and two credited seminar courses. The course selection must be made to further the candidate's existing strengths, and to provide the necessary background to successfully meet the thesis requirements.

The thesis must be reviewed by the supervisor(s) and up to two readers to meet the breadth requirement. These requirement states that:

1. at least one of the readers evaluate the biological aspect of the research project and hails from a biological background (including, but not limited to, Biology and Biochemistry);
2. at least one of the readers evaluate the contribution of the thesis in either Mathematics, Statistics or Computer Science.

The candidate also must demonstrate a general grasp of current bioinformatics issues and methodologies.

Administration

The Executive committee is comprised of at least one representative from the following academic units:

1. Biochemistry and Molecular Biology
2. Biology and Marine Biology
3. Computer Science
4. Mathematics and Statistics

The Executive committee also acts as Admission committee while administrative support will be provided by the Faculty of Computer Science. All communication with the program should be done directly to the Graduate Coordinator.

Courses Offered

The course selection will be determined on an individual basis. Any acceptable graduate courses can be selected, as explained in section B. The following courses are specific to the program and are designed to bring students from different backgrounds to a common level. Contact the Graduate Coordinator for further details.

Computer Science

CSCI 6801.03: Computational Biology and Bioinformatics
CSCI 6802.03: Algorithms in Bioinformatics

Biochemistry and Molecular Biology

BIOC 5010.03: Bioinformatics

Mathematics and Statistics

STAT 5620.03: Statistical Issues in Molecular Evolution

Computer Science

Location:
Building/Room: Goldberg Computer Science Building
Street Address 1: 6050 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2093
Fax: (902) 492-1517
Website: www.cs.dal.ca
Email Address: grad@cs.dal.ca

Introduction

The Faculty of Computer Science offers both masters and doctoral degree programs. The masters program is available either with a traditional research-oriented thesis option, or with a project option and more courses designed for students interested in an advanced professional degree. Research in the Faculty has an interdisciplinary approach and addresses a number of areas. Please see the Faculty website for information on these research areas. There are approximately 30 full-time professors in the Faculty, and approximately 200 students registered in the masters and doctoral programs.

The Faculty of Computer Science has a permanent home in the award winning Goldberg Computer Science Building completed in the autumn of 1999, and the top floor of the Mona Campbell Building. Graduate computing facilities include networks of Unix workstations, Windows PCs, and Macintosh computers, as well as large scale servers and massive data storage facilities. The faculty also has access to high performance computing facilities. The Faculty's Network Performance Lab is equipped with network testing software, routers, and switches for developing secure virtual private networks. The Computer Graphics and Visualization Lab houses graphics workstations as well as specialized equipment, such as a laser scanner and eye tracking hardware. The Electronic Commerce Lab utilizes award winning e-business software to research new concepts in online commerce and web services. The faculty's research in semantic web based approaches to clinical decision support systems is at the cutting edge of both health informatics and semantic web research. The Faculty of Computer Science building houses a fast, secure, fully switched network, in addition to being fully wireless. Gigabit ethernet serves as the backbone of the network with a connection to CA*net3, the world's first national optical R&D network.

The Institute for Big Data Analytics is housed in the Faculty of Computer Science, where it serves as a centre of excellence both nationally and internationally in the field of Big Data Analytics. Directed by Dr. Stan Matwin CRC, the Institute coordinates and participates in a wide range of research projects involving students, faculty and industrial and governmental partners as well as presenting a program of guest seminars and training courses. From fall 2014 onwards the Institute is offering a limited number of MSc and PhD scholarships funded by the NSERC CREATE initiative. Further details can be found on the Institute's website www.bigdata.cs.dal.ca.

NOTE: Completion of any or all software engineering courses offered by the Faculty of Computer Science does not qualify persons to hold the designation “Professional Engineer” as defined by various Provincial Acts governing the Engineering Profession.

The most up-to-date information on our graduate programs, admission requirements, academic regulations, graduate courses and research activities is available on the following website: http://www.cs.dal.ca (programs, graduate).

Staff

Dean

Rau-Chaplin, A., BcS (York), McS, PhD (Carleton), High Performance Computing, Parallel Algorithms, Data Mining & Warehousing, and Risk Analytics

Associate Dean

Milios, E., Dipl Eng (NTUA), SM, EE, PhD (MIT), Networked Information Spaces, Machine Learning, Text Mining, Visual Text Analytics

Faculty Administrator

Publicover, A., BSc, BA (Dalhousie)
Telephone: (902) 494-1199

Graduate Administrator

Teferra, M.
Telephone (902) 494-6438, Email: menen@cs.dal.ca

Professor Emeritus

Slonim, J., BSc (UBC), MSc (Western), PhD (Kansas), Electronic Commerce, Software Engineering Databases, Distributed Databases, Software Testing, Transaction Management, Software Architecture

Professors

Abidi, S., BEng (NED, Eng and Tech), MSc (Miami), PhD (Surrey), Knowledge management, Artificial Intelligence, Medical Informatics, Knowledge discovery and data mining, Neural Networks, Enterprise Information Systems
Arnold, D., Diploma (Dortmund), MSc (Simon Fraser), PhD (Dortmund), Evolutionary computation, optimization, image processing
Bodorik, P., BSc (Calgary), MEng, PhD (Carleton), Databases and Distributed Databases, Architectural Support for Operating Systems
Brooks, S., BSc (Brock), MSc (UBC), PhD (Cambridge), Computer graphics, Non-photorealistic rendering, Image editing and 3D geospatial information systems
Cox, P. T., BSc, MSc (Auckland), PhD (Waterloo), Visual programming and Design Languages; Computational Logic; Logic and Functional Programming
Farrag, A., MSc (SFU), PhD (Alta), Fault-tolerance, Distributed Computing, Concurrency, Databases
Gao, Q., MASc, PhD (Waterloo), Machine intelligence, computer vision, image processing, data mining, data warehousing
Heywood, M., BEng (Plymouth), PhD (Essex), Genetic programming; Classification; Reinforcement Learning, Evolutionary gaming
Keselj, V., BSc (Belgrade), MSc, PhD (Waterloo), Natural language processing, Text mining, Information Retrieval, Multiagent
Systems, Algorithmic number theory
Matwin, S., MSc, PhD (Warsaw), DSc (Pol Acad of Sci), Machine learning, data mining, text mining
Sampalli, S., BEng (Bangalore), PhD (Indian Institute of Science), Network Security, High-Performance routing and switching, Hybrid (wireless and optical) networks design, Active Networks, Secure Grid Computing
Shepherd, M. A., MSc, PhD (Western), Hypertext, Information Retrieval, Web Information Systems, Electronic News, Information Filtering, Health Informatics
Trappenberg, T., MSc, PhD (RWTH Aachen), Computational Neuroscience, Machine Learning, Hierarchical Temporal Memory; Reinforcement Learning; Self-organizing Maps; Dynamic Neural Field Theory; Classification and Modeling, Learning and memory
Watters, C. R., BSc, MSc, MLS (Western), PhD (TUNS), Provost and VP Academic, Information Retrieval, Web Information Systems, Virtual Documents, Hypertext
Zeh, N., MCS (Dipl-Inf) (Friedrich-Schiller-Universitaet Jena), PhD (Carleton), Algorithms and data structures, I/O-efficient and cache-oblivious algorithms, parallel algorithms, graph algorithms, computational geometry
Zincir-Heywood, A. N., BSc, MSc, PhD (Ege Univ), Network Security, Network management and Network information retrieval

Associate Professors

Beiko, R. G., BSc (Dalhousie), PhD (Ottawa), Computational biology, Graph algorithms, Machine learning, Evolutionary algorithms, high-performance computing
Blouin, C., BSc (Laval), PhD (Dalhousie), Protein evolution and biophysics, algorithms, phylogenetics, high-performance computing, statistical mechanics, molecular modeling
Blustein, J., BSc, MSc, PhD (Western), Hypertext and digital libraries, human-computer interaction
McAllister, M., BMath (Waterloo), MS, PhD (UBC), Distributed systems, networks, privacy and security, computational geometry

Assistant Professors

Hawkey, K., BCSc BCS, PhD (Dalhousie), Human computer interaction, usable privacy and security, and interactive visualization
He, M., BEng (Nanjing P&T), MMath, PhD (Waterloo), Algorithms and data structures, computational geometry
Reilly, D., BA (Wilford Laurier), BA Hons (McGill), BEd (Queen's), PhD (Dalhousie), Ubiquitous computing, collaborative technology, information visualization

Adjunct (FGS)

Abusharekh, A., BSc (Al-Azhar), MSc, PhD (George Mason), Computer networks and network traffic analysis, attributed and concurrent programming, Service-Oriented computing, discrete event simulation, Big Data analytics
Bardouille, T., BSc (Queen's), MSc (Dalhousie), PhD (Toronto), Data Analysis
Bradbury, I., BSc, MSc, BEd (Memorial), PhD (Dalhousie)
Fernandes, S., BEng, MSc (UFPB), PhD (UFPE)
Gentleman, W. M., BSc (Hons) (McGill), MA, PhD (Princeton), Software Engineering, Computer Architecture, Real-time Systems, Numerical analysis, Signal processing
Islam, A., BSc (Khulna), MSc, PhD (Ottawa), Natural Language Processing, Data Analytics, Text Analytics
Jutla, D., PhD (TUNS), Saint Mary's University, E-commerce, business models in e-commerce, transactional middleware for e-commerce, customer care in e-commerce, transaction support, hardware caches, operating system support for databases

Kayacik, H., BSc (Ege), MSc, PhD (Dalhousie)
Lapalme, G., BSc, MSc, PhD (Montreal)
Lucic, V., Dipl. Ing. E. Eng. (Univ Nis), MASc, PhD (Waterloo), stochastic analysis and optimal control, application of statistical and econometric methods in financial prediction
Marchand, Y., MSc (Paris), PhD (Compiegne)
McIntyre, A., BSc (Mt. A), PhD (Dalhousie)
Meredith, T., BTech (Ryerson), MMath, PhD (Waterloo), intersection of technology, psychology, and sex/gender studies
Oore, S., BSc (Dalhousie), MSc, PhD (Toronto)
Parvar, H., BSc (IUST), MSc, PhD (Islamic Azad), data/information fusion, situation awareness, Intelligent System Architecture, data mining, Distributed Robotics, Wireless Sensor Networks (WSN), Multi-Agent Systems (MAS), Cognitive Science, Human-Computer Interaction (HCI), network security and computer networks
Scrimger, J. N., BSc (UBC), MSc, PhD (Western), Image Processing and Graphics, Data Visualization, Animation
Silver, D., BSc (Acadia), CIM (St. Mary's), MSc, PhD (Western), Machine learning, data mining, user modeling and intelligent agents
Slonim, J., BSc (UBC), MSc (Western), PhD (Kansas), Electronic Commerce, Software Engineering Databases, Distributed Databases, Software Testing, Translation Management, Software Architecture
Sokolova, M., Dipl (Moscow State), MSc, PhD (Ottawa)
Soto, A., Dipl.Eng. (UNS, Argentina), PhD (UNS, Argentina). Machine learning, Data Analytics, Text Mining, Visual Analytics, Cheminformatics, Statistical Modeling
Vaughan, P., HBA, MA (Guelph), MD (McMaster), MPH (John Hopkins), Health Data-Mining, Health Informatics
Wang, H., BSc (UNB), MSc, PhD (Toronto)
Wilson, G., BA, MCS, PhD (Dalhousie)
Wolkowicz, J., MSc (Warsaw), PhD (Dalhousie)
Ye, Q., BEngr, MEngr (HIT), PhD (Alberta), Communication Networks, Network Reliability and Security, Protocol Modeling and Evaluation, Network Protocols

Cross Appointments

Abidi, S., MBBS (Karachi), MSc (Sains Malaysia), PhD (Dalhousie), Health Knowledge Management, Critical Decision Support, Health Knowledge Modeling and Computerization, Patient-Centered Care, Comorbid Care Planning, Knowledge Translation, Health Information Systems, Evaluation of Health Information Systems
Janssen, J., MSc (Eindhoven), PhD (Lehigh), Analysis and modelling of self-organizing networks, combinatorial optimization
Klein, R., BA (SUNY), MA, PhD (Oregon), Human perception, attention, cognition and performance; Cognitive neuroscience; Applied cognitive psychology. Visual attention and its disorders; Ready and dyslexia; Eye witness testimony, human factors, performance rhythms, counterfeit detection, problem gambling
Lehmann, C., Dipl, MD, PhD, (Humboldt), Microcirculation
MacDougall, P., BSc, PhD (Calgary), PhD (McMaster), management of chronic pain, relationship of surgery and anesthesia to chronic pain
Selinger, P., PhD (Univ Pennsylvania), Mathematics and Statistics. Semantics of programming languages; Quantum computing
Smit, M., BSc, McS, (Hons) (Dalhousie), PhD (Alberta), cloud computing, tool support for research dissemination, discovery in research communities, management of cloud-scale data, enabling open information
Taylor, B., MD, FRCP (Saskatchewan), MHI (Dalhousie)
Wach, G., BA (Hons) (UWO), MSc (South Carolina), PhD (Oxford), Earth Sciences

Senior Instructors

Brodsky, A., BMath (Waterloo), MSc, PhD (UBC)
Kalyaniwalla, N., BSc (Bombay), MS, PhD (Rensselaer Polytechnic Institute)

Graduate Degree Programs

Please consult the Faculty of Computer Science website at www.cs.dal.ca/ for information concerning updates to the regulations.

Master of Computer Science (MCSc)

Admission Requirements

To be admitted to the Master Computer Science (MCSc) program all students must have completed a four-year undergraduate program in Computer Science with high standing. Their Computer Science background must be at least equivalent to that covered by the core courses in the Dalhousie Bachelor of Computer Science program. Students who do not meet these requirements may be admitted with a requirement to complete specific undergraduate courses in addition to their graduate program requirements to make up for deficiencies in their background.

English Language Proficiency Requirement

Information pertaining to the English language proficiency requirement is given in the Faculty of Graduate Studies Regulations. Both TOEFL and IELTS results are accepted as proof of English language proficiency. For admission into graduate programs in Computer Science a score of at least 580 on the written TOEFL test, a 92 on the internet-based test, or at least 7.0 on the IELTS test is required.

Information and Application Forms

For further information please visit www.dal.ca/faculty/computerscience/programs/graduate/master-of-computer-science.html or contact the Chair of the Computer Science Graduate Committee at (902) 494-6438. Applications are to be submitted electronically. Please follow the application instructions at www.dal.ca/faculty/computerscience/programs/graduate/advising_resources/graduate-admission-procedure.html.

Academic Regulations

Program Requirements

The requirements for a MCSc degree consist of not less than 12 credit hours and a thesis selected upon the advice of the thesis supervisor. The thesis is equivalent to 18 credit hours.

The thesis shall be written under the guidance of a thesis supervisor, and must be satisfactory to an examining committee established by the Faculty. The candidate must present an oral thesis defence.

Registration Requirement and Duration of Studies

A student is required to register each academic term to maintain eligibility to continue in the program. Students who enter the program meeting normal admission requirements may be able to complete the requirements in 16 months. For information on maximum time limits for completion of program requirements, leaves of absence, and extensions, see the Faculty of Graduate Studies Regulations in this calendar.

Master of Applied Computer Science (MACSc)

Admission Requirements

To be admitted to the Master of Applied Computer Science (MACSc) program, all students must have completed one of the following:

1. A four-year undergraduate program in Computer Science with high standing. Their Computer Science background must be at least equivalent to that covered by the core courses in the Dalhousie Bachelor of Computer Science program. Students who do not meet these requirements may be admitted with a requirement to complete specific undergraduate courses in addition to their graduate program requirements to make up for deficiencies in their background.
2. An undergraduate program in a discipline other than Computer Science with high standing. In this case, the student will be required to complete one year of Computer Science core undergraduate courses in addition to their graduate program requirements.

English Language Proficiency Requirement

Information pertaining to the English language proficiency requirement is given in the Faculty of Graduate Studies Regulations. Both TOEFL and IELTS results are accepted as proof of English language proficiency. For admission into graduate programs in Computer Science, a score of at least 580 on the written TOEFL test, at least 92 on the internet-based TOEFL test or at least 7.0 on the IELTS test is required.

Information and Application Forms

For further information, please visit http://www.dal.ca/faculty/computerscience/programs/graduate/advising_resources/graduate-admission-procedure.html

Academic Regulations

Program Requirements

The MACSc program is currently undergoing revision to offer the best possible training to prepare our graduates for a successful career in the IT industry. Options will include an entrepreneurship stream, an internship stream, and a project stream. For details on these options, please visit http://www.dal.ca/faculty/computerscience/programs/graduate/master-of-applied-computer-science.html

Registration Requirement and Duration of Studies

A student is required to register each academic term to maintain eligibility to continue in the program. Student who enter the program meeting normal admission requirements may be able to complete the program requirements in 16 months. For information on maximum time limits for completion of program requirements, leaves of absence, and extensions, see the Faculty of Graduate Studies Regulations in this calendar.

Transfer to Master of Computer Science Program

Students in the MACSc program who show excellent performance in courses and promise for research have the option to apply for transfer into the MCSc program.

Master of Electronic Commerce (MEC)

The Faculty of Computer Science in partnership with the Faculties of Management and Law offer the degree of Master of Electronic Commerce.

Electronic Commerce is a discipline whose underpinnings lie equally in technology, business, and social and economic policy. Distinct from any of the disciplines that comprise it, this multi-disciplinary two-year program consists of core courses, stream courses, an industrial internship, and a project. Students study core topics in each of the three areas and concentrate in depth in one of them by choosing one of three streams of study: Technology, Business and Policy.

The program may also offer the student an opportunity for study abroad at other member universities of an international consortium mandated and endorsed by the G7 to develop a Global Master of Electronic Commerce. The core of this program is intended to be common throughout the consortium with institutions offering courses outside the core, according to their individual strengths. Dalhousie University is the only Canadian participant in this international consortium.

For a complete description of this program please see the Electronic Commerce entry in this calendar. Please also visit the program's website at www.ecomm.dal.ca for information concerning updates to the program's regulations and course offerings. Email queries to can be addressed to mec@cs.dal.ca.

Master of Health Informatics (MHI)

The Faculty of Computer Science, in partnership with the Faculty of Medicine, offers the degree of Master of Health Informatics.

Health Informatics studies the use of computing and information technology in health research, education, patient care, policy setting and health administration. This interdisciplinary program draws on resources across the University, including faculty and courses from the Faculties of Computer Science, Medicine, Management, and Health Professions.

For a complete description of this program, please see the Health Informatics entry in this calendar. Please also visit the program website at www.healthinformatics.dal.ca/ for more information.

Email queries can be addressed to hinf@cs.dal.ca.

Master of Science (MSc) in Computational Biology and Bioinformatics

The program is an interdisciplinary master's degree with an emphasis on thesis work which focuses on tackling problems in biology, molecular biology and health-science related fields through significant research contributions in mathematics, statistics and computer science. This program is set within the framework of current interdisciplinary research conducted within Dalhousie. Students in this program will join a community of researchers in the fields of computational biology and bioinformatics.

Resources from the faculties of Computer Science, Medicine and Science are coordinated to offer a flexible program, with a limited course load and an emphasis on research activities. Students from a broad selection of backgrounds are invited to consider the program. Each candidate is supervised within the research group of their supervisor from the beginning of their tenure.

Doctor of Philosophy (PhD)

Admission Requirements

To be admitted, students must have completed a research (thesis) Master's degree program in Computer Science, or equivalent and must meet the admission requirements of the Faculty of Graduate Studies. In exceptional circumstances, a student may be admitted into the MCSc (Thesis) program with the possibility of transferring to the doctoral program within the first 15 months (subject to approval of the Graduate committee and the Faculty of Graduate Studies). Students with an honours Bachelor's degree and strong promise in research may be admitted into the post-Bachelor PhD program.

English Language Proficiency Requirement

Information pertaining to the English language proficiency requirement is given in the Faculty of Graduate Studies Regulations. For admission into graduate programs in the Faculty of Computer Science those students who must supply a TOEFL, must obtain a score of at least 580 on the written TOEFL examination, 92 on the internet-based test, or 237 on the computer-based exam.

Information and Application Forms

For further information visit www.cs.dal.ca/ or contact the Chair of the Computer Science Graduate Committee at (902) 494-6438. Application forms may be obtained from:

Registrar's Office
Dalhousie University
PO Box 15000
Halifax, NS B3H 4R2 Canada

or on the web at www.dal.ca/apps

To hold your seat in the program for which you were admitted, we require a non-refundable $250 deposit (to be paid to Student Accounts) a full 30 days in advance of the starting date for the term of admittance. The $250 deposit will be applied towards your tuition.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

All graduate students are required to attend and participate in regular Faculty seminars. Thesis students (MCS and PhD) must register in CSCI 6999 and attend a minimum number of seminars, as a requirement for graduation.

Graduate students can take any graduate course by permission of the instructor and the Graduate Committee.

Course Descriptions

CSCI 5100 Written and Oral Communication Skills

CREDIT HOURS: 3
In this course, we will focus on learning to communicate effectively and efficiently in a variety of different written and oral contexts. Emphasis will be on learning proper document structure, reducing/removing noise (anything that distracts from the message), and creating the appropriate document or presentation in a variety of situations. The course offers credit towards the MACS program.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

CSCI 5408 Data Management, Warehousing, and Analytics

CREDIT HOURS: 3
In this course, we will focus on three pillars for managingand analyzing data in distributed and cloud environments: Management of data in distributed systems, Data Warehousing, and Data Analytics.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

CSCI 5708 Mobile Computing

CREDIT HOURS: 3
This course covers the principles of mobile computing and the concepts and techniques underlying the design and development of mobile computing applications. Mobile computing is discussed from technological, application, and user perspectives. Topics include mobile and wireless communication technologies, development environments, applications design for resource limited and failure-prone environments, user interface issues in the mobile computing setting, and the future of mobile computing.

PREREQUISITE: Students are expected to have Computer Organization and Computer Networks at the undergraduate computer science level.

CSCI 6055 Research Methods and Statistics

CREDIT HOURS: 3
Students will gain an understanding empirical science principles as they relate to computer science research. Each student will determine the research methods most appropriate for their research area and will design a research study. the course covers both quantitative and qualitative research issues and provides a practical introduction to statistics.
FORMAT: Lecture| Lab| Tutorial

CSCI 6057 Advanced Data Structures

CREDIT HOURS: 3
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 advancements on data structures. This includes data structures that improve search efficiency under various machine models, text indexing structures, and data structures for large data.
FORMAT: Lecture
PREREQUISITE: CSCI 3110.03 or equivalent

CSCI 6101 Advanced Topics in Analysis of Algorithms

CREDIT HOURS: 3
This research oriented course covers advanced material in the design and analysis of algorithms. It combines mathematically rigorous coverage of traditional topics with recent research results. Problems are taken from a wide range of areas including combinatorics, numerical computation, graph algorithms, string matching, approximation algorithms, computational geometry, NP-completeness.
PREREQUISITE: CSCI 3110.03 or equivalent
EXCLUSIONS: COMP 5130.03

CSCI 6102 Computational Geometry

CREDIT HOURS: 3
This course presents fundamental algorithms and data structures for solving geometric problems. Basic algorithm types include divide-and-conquer, sweep, incremental construction, and randomized construction. Typical topics include geometric representations, triangulations, convex hulls, Voronoi diagrams, Delaunay triangulations, point location structures, and line arrangements.
PREREQUISITE: CSCI 3110.03

CSCI 6103 Network Reliability

CREDIT HOURS: 3
Networks are useful models for the transmission of essential data, and it is often crucial that the network be resilient to the loss of some lines. We investigate here the reliability of such networks, including both directed and undirected models, assuming that the lines fail independently with a given probability.
PREREQUISITE: CSCI 3110, CSCI 4115, MATH 2060

CSCI 6302 Computer Software: Development and Design

CREDIT HOURS: 3
This course will concentrate on the design phase of the software lifecycle, in particular for large scale software development. Topics will include software process models, computer aided software engineering (CASE) tools and how to evaluate a design. It will also include the supporting technologies of configuration management, version control and change management. Testing will also be discussed.
PREREQUISITE: CSCI 3130.03 or equivalent

CSCI 6304 Visual Programming

CREDIT HOURS: 3
This course deals with topics relating to the use of visuality in programming. This will include topics such as visual programming languages, program visualization and data visualization, as well as discussion of graphical programming aids, including graphical tools for defining user interfaces.

CSCI 6307 Usable Privacy and Security

CREDIT HOURS: 3
Human factors play an important role in the effectiveness of security and privacy solutions. This course introduces students to several 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.

CSCI 6405 Data Mining and Data Warehousing

CREDIT HOURS: 3
This course gives a basic exposition of the goals and methods of data mining and data warehouses, including concepts, principles, architectures, algorithms, implementations, and applications. The main topics include an overview of databases, data warehouses and data mining technology, data warehousing and on line analytical process (OLAP), concept mining, association mining, classification and predication, and clustering. Software tools for data mining and data warehousing and their design will also be introduced.

CSCI 6406 Visualization

CREDIT HOURS: 3
This course focuses on graphical techniques for data visualization that assist in the extraction of meaning from datasets. This involves the design and development of efficient tools for the exploration of large and often complex information domains. 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.

CSCI 6407 Management of Data in Distributed Systems

CREDIT HOURS: 3
The course introduces the issues and problems arising in Managing Data in Distributed Environments of various types and methods and solutions that have been

investigated or used to address those issues. The course overviews the theory and concepts and also discusses management of data is specific distributed environments such as Grid and Cloud.
FORMAT: Lecture
PREREQUISITE: Undergraduate course on Database Management Systems (e.g., CSCI 2141)

CSCI 6505 Machine Learning

CREDIT HOURS: 3
Machine Learning is the area of Artificial Intelligence concerned with the problem of building computer programs that automatically improve with experience. The intent of this course is to present a broad introduction to the principles and paradigms underlying machine learning, including discussions of each of the major approaches currently being investigated. Main topics covered in the course include a review of information theory, unsupervised learning or clustering (the K-means family, co-clustering, mixture models and the EM algorithm), supervised learning or classification (support vector machines, decision trees, rule learning, Bayesian learners, maximum entropy, ensemble methods), feature selection and feature transformations. The focus of applications that will be discussed will be text classification and clustering.
PREREQUISITE: CSCI 3150.03 or 4150.03 (Artificial Intelligence) or permission of the instructor.

CSCI 6506 Genetic Algorithms and Programming

CREDIT HOURS: 3
The concept of stochastic search algorithms is introduced by way of answers to the generic machine learning requirements: representation, goal state, and credit assignment. Schema theory is introduced as an underlying model for evolutionary problem solving. The significance of assuming different representations is investigated through various case studies. Different forms of 'goal state' are investigated, including multi-objective models and co-evolution are investigated in some detail and demonstrated to provide the basis for problem decomposition, game behavior design and computational efficiency.

CSCI 6508 Fundamentals of Computational Neuroscience

CREDIT HOURS: 3
This course introduces the principles of information processing in the brain, including the functionality of single neurons, networks of neurons, and large-scale neural architectures for specific cognitive functions. Specific topics include information theory, memory, object recognition, adaptive systems, vision, motor control, and an introduction to MATLAB.
PREREQUISITE: Permission of the instructor

CSCI 6509 Advanced Topics in Natural Language Processing

CREDIT HOURS: 3
Natural Language Processing (NLP) is an area of Artificial Intelligence concerned with the problem of automatically analyzing and generating a natural language, such as English, French, or other, in written or spoken form. It is a relatively old area of computer science, but it is still a very active research area. This course introduces fundamental concepts and principals used in NLP with emphasis on statistical approaches to NLP and unification-based grammars. In the application part of the course, we discuss the problems of question answering, machine translation, text classification, information extraction, grammar induction, and dictionary generation and other.

CSCI 6511 Autonomous Robotics.

CREDIT HOURS: 3

FORMAT: Lecture| Lab

CSCI 6515 Machine learning for Big Data

CREDIT HOURS: 3
In this course, we will focus on Big Data and the Pillars of that emerging discipline: machine learnig/data mining, elements of high-performance computing, and data visualization. Significant part of the course will be devoted to selected, efficient methods for building models from large datasets data using machine learning techniques.
PREREQUISITE: CSCI 2141.03, MATH 2030.03, STAT 2060.03, CSCI 3110.03 or permission of the instructor.

CSCI 6606 Human Factors in On-Line Information Systems

CREDIT HOURS: 3
Introduction to issues related to behavioural/human aspects of computing as applied to hypertext and other on-line information tools.

CSCI 6608 Advanced Computer Animation

CREDIT HOURS: 3
The course introduces students to fundamental and advanced techniques and algorithms in Computer Animation. Topics include interpolation based and kinematic techniques, physically based modelling, motion capture, and character animation.
PREREQUISITE: Undergraduate course in Computer Graphics or Animation, or instructor's consent.

CSCI 6609 Ubiquitous Computing

CREDIT HOURS: 3
Ubiquitous Computing moves computing off the desktop and into the fabric of our everyday lives. This course explores both systems and human-centric advances in Ubiquitous computing, including sensing, middleware, locative applications, smart environments, ambient displays, and tangible interactions. Students will design and implement a Ubiquitous Computing application prototype.
FORMAT: Lecture

CSCI 6610 Human Computer Interaction

CREDIT HOURS: 3
Human-Computer interaction (HCI) deals with facilitating human-computer communication. Students will learn the foundations of HCI, including the process for user-centered development, the models that inform HCI design, the social issues influencing HCI design and use, and the evaluation of interfaces and systems with users.
FORMAT: Lecture| Lab
PREREQUISITE: CSCI 3160 or equivalent

CSCI 6702 Parallel Computing

CREDIT HOURS: 3

This course explores various aspects of parallel computing including parallel architectures, systems, programming languages and implementation issues. It focuses on solving real problems on existing parallel machines. Students will participate in an implementation of a significant parallel computing project.

CSCI 6704 Advanced Topics in Networks

CREDIT HOURS: 3

The primary focus of this course is to provide a comprehensive coverage of emerging and emergent network technologies that lay the foundation for the design of next generation high-performance global internetworks. Topics covered include advanced TCP/IP design, ATM protocols, Gigabit Ethernets, IPv6 networks and protocols, Secure Networks and VPNs, Wireless Networks, Optical Networks, and Internetwork Architecture Case Studies.

PREREQUISITE: CSCI 4171.03 or equivalent

EXCLUSIONS: COMP 5550.03

CSCI 6706 Network Design and Management

CREDIT HOURS: 3

The distributed enterprise information system consisting of workstations, servers, bridges, routers, hubs, Internet and interactive Web technology is critical to corporate productivity. This course explores how Information Technology (IT) can be used to manage an enterprise. It further examines how managers can strategically use IT to capture and deliver knowledge more efficiently and to create a competitive advantage.

PREREQUISITE: CSCI 4171.03

CSCI 6708 Advanced Topics in Network Security

CREDIT HOURS: 3

This course will provide a comprehensive coverage of 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 wireless network security, mobile device security, security and privacy issues in mobile cloud computing, the establishment of an organization-wide security plan and bio-metric identification systems.

FORMAT: Lecture

PREREQUISITE: Undergraduate course in network

ASSESSMENT METHOD: Assignments, Research Project, Case Study, Mid-term Test, Final Test

CSCI 6801 Computational Biology and Bioinformatics

CREDIT HOURS: 3

This course is an introduction to current problems and techniques in computational biology and bioinformatics. The emphasis is put in the following themes: sequence analysis, phylogentics inference and structural biology. No biological background is assumed although the course covers many relevant biological concepts.`

RESTRICTIONS: Graduate student in Computer Science or Instructor's approval.

CSCI 6802 Algorithms in Bioinformatics

CREDIT HOURS: 3

The discipline of bioinformatics applies sophisticated computational and statistical techniques to problems in the biological domain. This course will focus on a few biosequence-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.

CSCI 6901 Directed Studies

CREDIT HOURS: 3

This course offers the student the opportunity to undertake further study into a specific topic of interest that is not covered in the regular course offerings. The student will be supervised by a faculty member competent in the area of interest. Regular meetings between the student and supervising faculty will be held. A substantial project and report are required.

PREREQUISITE: Permission of the Graduate Committee

CSCI 6902 Doctoral Directed Studies

CREDIT HOURS: 3

This course offers the doctoral student the opportunity to undertakefurther study into a specific topic of interest that is not covered in the regular course offerings. The student will be supervised by a faculty member competent in the area of interest. Regular meetings between the student and supervising faculty will be held. A substantial project and report are required.

PREREQUISITE: Permission of the Graduate Committee

CSCI 6903 Special Graduate Topics in Computer Science

CREDIT HOURS: 3

This graduate course examines topics determined by the interests of the students and the instructor.

NOTE: Course Details listed here also apply to CSCI 6904/CSCI 6905/CSCI 6906/CSCI 6907/CSCI 6908.

CSCI 6904 Special Graduate Topics in Computer Science

CREDIT HOURS: 3

See CSCI 6903.

CSCI 6905 Special Graduate Topics in Computer Science

CREDIT HOURS: 3

See CSCI 6903.

CSCI 6906 Special Graduate Topics in Computer Science

CREDIT HOURS: 3

See CSCI 6903.

CSCI 6907 Special Graduate Topics in Computer Science
CREDIT HOURS: 3
See CSCI 6903.

CSCI 6908 Special Graduate Topics in Computer Science
CREDIT HOURS: 3

CSCI 6999 Research Seminar in Computer Science
CREDIT HOURS: 0
A research seminar course, to introduce Computer Science graduate students to thesis-based programs to contemporary research topics and projects, through regular attendance of the Faculty of Computer Science Research Seminar Series. Speakers include both Dalhousie Computer Science researchers and visiting speakers from other institutions.
PREREQUISITE: Admission to a thesis-based graduate program in the faculty of Computer Science.

CSCI 7001X/Y Research Project in Computer Science
CREDIT HOURS: 6
The course provides the students in the Master of Applied Computer Science program with an opportunity to conduct a research project under the supervision of a faculty member. Regular meetings between the student and the supervising faculty will be held. A project report and open presentation are required.
NOTES: 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.

CSCI 7900X/Y Directed Doctoral Research Project
CREDIT HOURS: 6
This course provides doctoral students with an opportunity to conduct a research project under the supervision of a faculty member leading to the research aptitude examination. Regular meetings between the student and the supervising faculty will be held. A project report and oral defense to a committee are required.
NOTES: 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.

CSCI 9000 Master's Thesis
CREDIT HOURS: 0

CSCI 9530 Doctoral Thesis
CREDIT HOURS: 0

Earth Sciences

Location:
Building/Room: Life Sciences Centre
Street Address 1: 1459 Oxford Street
Street Address 2: Room 3006
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2358
Fax: (902) 494-6889
Website: dal.ca/earthsciences
Email Address: earth.sciences@dal.ca

Introduction

Students with degrees in any of the sciences or mathematics who wish to study some aspect of the Earth are welcome. Graduate work leading to the degrees of MSc and PhD is possible in a number of different fields. These include for example: marine geology and geophysics, Appalachian geology, isotope geology, economic geology, petrology, geochemistry and mineralogy, geophysics, sedimentology, micropaleontology and coastal sedimentation, structural geology, metamorphism, and tectonics.

Interdisciplinary studies are encouraged, and there is active cooperation among the science departments (including Oceanography) at Dalhousie University. Students are urged to take full advantage of the opportunities this affords. Research, on scientific problems of mutual interest to Dalhousie and government laboratories such as the Nova Scotia Department of Natural Resources, and the GSC Atlantic at the Bedford Institute of Oceanography, is often done. Members of these laboratories frequently serve on supervisory committees.

The complex of departments and laboratories in Halifax and Dartmouth concerned with various aspects of the Earth make graduate study in Earth Sciences very attractive.

Staff

Chair of Department

Brenan, J. M., BSc (McGill), PhD (Rensselaer)

Graduate Co-ordinator

Gosse, J. C.

Graduate Secretary

Keeping, N.

Professors Emeriti

Cooke, H. B. S., MSc, DSc (Witwatersrand)
Gibling, M. R., BA (Oxon), PhD (Ottawa)
Milligan, G. C., MSc (Dalhousie), PhD (Harvard)
Reynolds, P. H., BSc (Toronto), PhD (UBC)
Scott, D. B., BSc (Wash), MSc (Wash State), PhD (Dalhousie)
Zentilli, M., BSc (Chile), PGD (Queen's), PGeo

Professors

Brenan, J. M., BSc (McGill), PhD (Rensselaer)
Grujic, D., BSc (Belgrade), PhD (ETH Zurich). Tectonics, metamorphism, magmatism, thermochronology, analogue modelling, geodynamics, convergent margins, Himalayas

Jamieson, R. A., BSc (Dalhousie), PhD (Memorial). Metamorphic geology and tectonics: P-T-t paths with Appalachian and Grenville applications; metamorphism, structure, geochemistry of gneiss associations, Grenville Province
Nedimovic, M., BSc (Belgrade), MSc, PhD (Toronto). Seismic reflection; seismic imaging of the ocean crust off Eastern Canada
Wach, G. D., BA (UWO), MSc (South Carolina), PhD (Oxon). Petroleum geology, sequence stratigraphy, seismic well log, basin analysis, sedimentology, depositional environments

Associate Professors

Coutand, I., BSc, PhD (Univ of Rennes, France). Structural geology, low-temperature thermochronology, mountain range development, interactions. Tectonics, climate-erosion, Himalaya, Andes
Culshaw, N. G., BA (Keele), PhD (Ottawa). Structural geology and tectonics: Grenville Province; Meguma terrane, Nova Scotia
Fedortchouk, Y., MSc (Moscow State Univ), PhD (Victoria). Petrology and geochemistry of igneous rock
Gosse, J. C., BSc (Memorial), PhD (Lehigh Univ). Cosmic nuclide dating, surficial processes, landscape evolution, Quaternary paleoclimatology, glacial geology, tectonic geomorphology
Sterling, S., PhD (Duke). Hydrological systems, biogeochemistry

Assistant Professor

Plug, L. J., BA (McGill), PhD (Alaska-Fairbanks). Surface processes, pattern formation, nonlinear dynamics, climate change

Adjunct (FGS)

Anderson, A., BSc (Univ of Windsor), MSc (Manitoba), PhD (Queen's), St. Francis Xavier University
Barr, S., BSc (UNB), PhD (UBC), Acadia University
Brown, D., BSc (Dalhousie) Canada-NS Offshore Petroleum Board (CNSOPB)
Calder, J.
Campbell, C.
Claire, T.
Clarke, B., BSc, MSc (Toronto), PhD (Edinburgh)
Deptuck, M., BSc (St. Mary's), PhD (Dalhousie), CNSOPB
Dostal, J., BSc (Charles), PhD (McMaster), Saint Mary's University
Dyke, A.
Fedak, T. J., BA (NSCAD), PhD (Dalhousie)
Fensome, R., BSc, MSc (Saskatchewan), PhD (Nottingham) GSC Atlantic
Forbes, D.
Froese, D. G., BSc (Univ Lethbridge), MSc, PhD (Univ of Calgary)
Gerbi, C., AB (Amherst College), MS (UC Davis), PhD (Univ of Maine)
Gibson, D.
Godin, L.
Hanley, J., BASc, MSc, PhD (Toronto), Saint Mary's University
Jansa, L., BSc, MSc (Masaryk State Univ, Czechoslovakia), PhD (Charles), GSC Atlantic, retired
Keen, C.
Kellman, L., BA (McMaster), MSc (McGill), PhD (Univ du Quebec à Montreal), St. Francis Xavier University
Kettanah, Y., BSc (Baghdad Univ), PhD (Southampton Univ, UK)
Kosters, E., BSc (Groningen), MSc (Univ of Amsterdam), PhD (Louisiana State Univ)
Lakeman, T.
Louden, K. E., BA (Oberlin), MEd (Temple), PhD (MIT)
Marsh, J.
Melchin, M., MSc (Waterloo), PhD (Western), St. Francis Xavier University
Mosher, D., BSc (Acadia), MSc (Memorial), PhD (Dalhousie), GSC Atlantic
Mudie, P. J., BSc (Cape Town), BSc (Leicester), PhD (Dalhousie)
Mukhopadhyay, P., BSc, MSc, PhD (Jadavpur Univ), Global Geoenergy Research Limited
Murphy, J. B., BSc (Dublin), MSc (Acadia), PhD (McGill), St. Francis Xavier University
Parsons, M., BSc (Dalhousie), PhD (Stanford), GSC Atlantic
Pe-Piper, G., BSc (Athens), PhD (Cantab), Saint Mary's University
Piper, D. J. W., BA (Hons) (St. Catharine's Col, Cantab), MA (Cantab), PhD (Darwin Col, Cantab), GSC Atlantic
Richards, F. W.
Risk, D., BSc, (Toronto), MSc (St. FX), PhD (Dalhousie), St. Francis Xavier University
Salisbury, M. H., BSc (MIT), MSc, PhD (Wash), GSC Atlantic Emeritus Scientist
Shaw, C. S. J., BSc Honours (Univ of London), MSc, PhD (UWO)
Shimeld, J., BApplied Sci (Waterloo), MSc (Dalhousie), GSC Atlantic
Simpson, D. W.
Swinden, S., BSc (Dalhousie), MSc, PhD (Memorial), NS Department of Natural Resources, retired
Tibert, N., BSc, MSc (Dalhousie), PhD (Massachusetts, Amherst), University of Mary Washington
Vincent, H.
Waldron, J., BA (Cambridge), PhD (Edinburgh), University of Alberta

Warren, C., BA (Oxford), MSc (Univ College London), DPhil (Oxford)
Webster, T., BSc (UNB), MSc (Acadia), PhD (Dalhousie), COGS, Lawrencetown, NS
Whipp, D. M., BSc, PhD (Univ of Michigan)
Wild, P., BASc (UBC), PhD (UVic), PEng
Zentilli, M., BSc (Univ of Chile), PhD (Queen's)

Senior Instructor

Ryan, A. M., BSc (Univ College Dublin), MSc, BEd (Acadia), MEd (MSVU), PhD (Dalhousie)

Instructors

Cox, R., BSc Hons, MSc (Glasgow Univ), PhD (Memorial)
Young, M.

Admission Requirements

Candidates must satisfy general requirements for admission to the Faculty of Graduate Studies. Candidates seeking financial support should ensure that their applications are complete by January 31.

Master of Science (MSc) Degree Program

The minimum time for completion of the MSc degree is 12 months of full-time study (see Faculty of Graduate Studies regulations, Section 2.3.1). Experience has shown that most students take at least 24 months to complete their work. Financial support is available for no more than 24 months.

Part-time study is also possible. Conditions for admission to this program are the same as those for full-time students. Financial support is not normally available for part-time study.

Research leading to the preparation and oral defence of a thesis is required.

The equivalent of five graduate courses is required, of which the thesis normally counts as three.

Graduate students are expected to attend the Earth Sciences seminars. ERTH 6300.03: Research Design and Scientific Presentation and ERTH 6350.03: Research Topics in Earth Sciences are compulsory.

A grade of A or better is required in these two courses to transfer to PhD.

Doctor of Philosophy (PhD) Degree Program

The minimum time required to complete this program is two years from an MSc; normally three years are required (see Section 2.3.2, in the Faculty of Graduate Studies regulations).

The preliminary examination (see Faculty of Graduate Studies regulations) is an integral part of the compulsory courses, ERTH 6300.03: Research Design and Scientific Presentation and ERTH 6350.03: Research Topics in Earth Sciences. A grade of B+ or better is required in these two courses.

Attendance at the Earth Sciences seminars is expected.

Research leading to the preparation and oral defence of a thesis is required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Required Graduate Courses

ERTH 6300.03: Research Design and Scientific Presentation
ERTH 6350.03: Research Topics in Earth Sciences
ERTH 9000.00: MSc Thesis
ERTH 9530.00: PhD Thesis

Other Graduate Courses

The following courses are designed specifically for graduate students. They are offered when required, and their content is designed to suit the interests of individual students.

ERTH 6100.03: Seminar in Sedimentology and Stratigraphy
ERTH 6110.03: Research Topics in Micropaleontology
ERTH 6120.03/ERTH 6220.03: Seminar in Mineralogy, Petrology and Geochemistry
ERTH 6250.03: Directed Studies
ERTH 6400.03: Geochronology and Thermochronology
ERTH 6500.03: Graduate Seminar in Tectonics

Cross-Listed Graduate/Undergraduate Courses

The following courses are designed primarily for undergraduates in their final year; they may be taken by graduate students for general interest, because the material is needed to help in their research, or because the student's background may be inadequate. PLEASE NOTE: Not all courses are offered every year; please consult the current timetable.

ERTH 5131.03: Advanced Petroleum Geoscience
ERTH 5141.03: Applied Geology, Mineralogy and Geochemistry
ERTH 5151.03: Mineral Deposits
ERTH 5157.03: Petroleum Geoscience Field Methods
ERTH 5270.03: Applied Geophysics
ERTH 5280.03: Marine Geophysics
ERTH 5350.03: Tectonics
ERTH 5380.03: Advanced Geochemistry
ERTH 5400.03: Advanced Metamorphic Petrology
ERTH 5410.03: Environmental Geoscience
ERTH 5450.03: Introduction to Landscape Simulation
ERTH 5470.03: Introduction to Seismic Imaging
ERTH 5480.03: Advanced Seismic Imaging
ERTH 5502.03: Micropaleontology and Global Change
ERTH 5520.03: GIS Applications to Environmental and Geological Sciences
ERTH 5530.03: Environmental Remote Sensing
ERTH 5600.03: Exploring Geographic Information Systems

Course Descriptions

ERTH 5010 Advanced Topics in Petrology and Geochemistry

CREDIT HOURS: 3
This course advances students' knowledge of modern aspects of petrology, volcanology, and geochemistry, chosen to reflect instructor and students interests. The focus is on learning thermodynamic and computational methods as well as advanced petrographic work and field mapping for interpretation of igneous and metamorphic rocks.
PREREQUISITE: Igneous Petrology, Metamorphic Petrology, Geochemistry
CROSS-LISTING: ERTH 4010

ERTH 5131 Advanced Petroleum Geoscience

CREDIT HOURS: 3
This is a specialised, advanced course in petroleum geoscience applications and interpretation for basin/prospect evaluation. The course is designed to provide advanced competency in the latest techniques of geoscience interpretation including 2D and 3D seismic reflection seismology, well log analysis and core description
FORMAT: Lecture
PREREQUISITE: ERTH 4153 or permission of instructor
CROSS-LISTING: ERTH 4131.03

ERTH 5141 Applied Geology, Mineralogy and Geochemistry

CREDIT HOURS: 3
This course is an introduction to various concepts and techniques used by geoscientists in the search for and evaluation of mineral concentrations, in mining and metallurgy, as well as in environmental aspects of these activities. The successive stages of a mineral exploration project are analyzed, from reconnaissance through exploration geochemistry, claim staking, drilling, mining, estimation of reserves, grades and tonnage, economic aspects, to mine site rehabilitation. Fundamentals of applied ore microscopy will be introduced, with emphasis on metallurgy, and acid rock drainage (ARD) prevention. The syllabus will vary somewhat from year to year to reflect the interests and backgrounds of the students, and the availability of visiting lecturers. The labs will consist of hands-on exercises, visits to analytical labs, problem solving, report writing, and seminar presentations by the students.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3
PREREQUISITE: ERTH 2001.03, ERTH 2002.03, ERTH 2110,03

ERTH 5151 Mineral Deposits

CREDIT HOURS: 3
This course is an introduction to the geology of metallic ore deposits (e.g. gold, copper) and some industrial mineral concentrations (.e.g. diamonds, barite), and the genetic hypotheses used in their exploration. Emphasis is given to the chemical, mineralogical, physical, structural, tectonic, igneous, sedimentary and metamorphic processes that lead to economic concentrations of minerals and their subsequent modification or destruction. The course integrates many Earth Science disciplines, and requires extensive reading from the scientific literature, writing, and oral presentations.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3

ERTH 5157 Petroleum Geoscience Field Methods

CREDIT HOURS: 3
This course will emphasize Petroleum Systems. Exposed oil reservoirs, pitch lakes, oil seeps, mud volcanoes, analogous outcrop exposures and access to subsurface data sets from producing onshore and offshore field makes Trinidad an extraordinary area for use as a natural laboratory. The region provides an excellent overview of extensional and compressional tectonics and their effect on petroleum system development. Students will produce and present a geologic report and a safety report, as well as a final report and presentation. This is in addition to the assignments and labs in the field that are submitted for assessment.
PREREQUISITE: Completion of undergraduate degree in earth sciences or equivalent
CROSS-LISTING: ERTH 4157.03

ERTH 5270 Applied Geophysics

CREDIT HOURS: 3
The application of geophysical methods to petroleum and mineral exploration as introduced in 2050.03 is here treated at a more advanced level with an emphasis on seismic techniques. Assignments involve the student in interpretation of industry geophysical data and modelling on workstations.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

ERTH 5280 Marine Geophysics

CREDIT HOURS: 3
The application of the various geophysical techniques to the study of the sea floor and the principal results obtained are examined. The processes involved in the creation, evolution and destruction of ocean basins and the implications of the experimental observations are also considered.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3

ERTH 5350 Tectonics

CREDIT HOURS: 3
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. The focus of the course is on tectonic processes and the ways in which these processes create and modify the Earth's crust. We will 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 orogenic belts will be discussed, including both modern and ancient examples in Canada and other parts of the world.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

ERTH 5380 Advanced Geochemistry

CREDIT HOURS: 3
A basic understanding of Geochemistry is essential to a professional geoscientist who must deal with earth materials, igneous, metamorphic, and hydrothermal processes that take place under the surface of the earth and other planetary bodies, and on the minerals, rocks, fluids, and mineral deposits resulting from these processes. Equally important is a familiarity with the geochemistry of weathering, acid rock drainage (ARD) and the cycles of environmentally significant elements in ground and surface waters. This course begins with an overview of atoms, ions, and isotopes, and the principles that govern their distribution on the Earth and other planets. This will be followed by a discussion of high- and low-temperature aqueous geochemistry, and the applications of chemistry to igneous and metamorphic systems. A section on mineral deposits will examine the formation of hydrothermal ore deposits, and geochemical exploration methods. The latter half of the term will concentrate on low-temperature geochemistry, with an emphasis on processes that control the release, mobility, and fate of contaminants in the environment. Computer models and case studies will be used to illustrate the importance of geochemical data for solving real-world environmental problems. Students will also be introduced to

a number of closely-related disciplines including surface science, geomicrobiology, and medical geology.
FORMAT: Lecture| Seminar
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: ERTH 4380.03

ERTH 5400 Advanced Metamorphic Petrology

CREDIT HOURS: 3
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 metamorphism and deformation, and on the constraints provided by microstructural and metamorphic data on tectonic processes in general. Examples of topics that might be covered include: porphyroblast-matrix relationships in metamorphic rocks; quantitative P-T methods in metamorphism; geochronology of metamorphic rocks; construction and interpretation of metamorphic P-T-t paths; intracrystalline deformation, recrystallisation, and deformation mechanisms in some common rockforming minerals; origin and interpretation of lattice-preferred orientation; natural microgauges. The course is offered as numbers warrant (4 students minimum). It is suitable for students who are doing honours or graduate work in the general areas of metamorphic and/or structural geology and/or tectonics.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: ERTH 3020.03, ERTH 3140.03 or equivalent, or permission of instructor
CROSS-LISTING: ERTH 4400.03

ERTH 5410 Environmental Geoscience

CREDIT HOURS: 3
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, radioactivity, and the urban environment.
PREREQUISITE: Completion of undergraduate degree in earth sciences or equivalent
CROSS-LISTING: ERTH 4410.03

ERTH 5450 Introduction to Landscape Simulation

CREDIT HOURS: 3
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 very useful but not essential.
FORMAT: Lecture| Seminar
PREREQUISITE: ERTH 3440.03 PHYC 1280.03/1290.03 or PHYC 1300X/Y.06, MATH 1000.03 and MATH 1010.03
CROSS-LISTING: ERTH 4450.03, GEOG 4450.03

ERTH 5470 Introduction to Seismic Imaging

CREDIT HOURS: 3
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 muti-channel seismic dataset. Concepts covered include: source and receiver geometry, digital filtering, deconvolution, velocity analysis, stacking, and migration.
FORMAT: Lecture| Lab
PREREQUISITE: Consent of instructor
CROSS-LISTING: ERTH 4470.03, OCEA 4470.03, OCEA 5470.03, PHYC 4470.03, PHYC 5470.03

ERTH 5480 Advanced Seismic Imaging

CREDIT HOURS: 3
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.
NOTES: This course is not offered every year. Please consult department in the spring for further information.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3
PREREQUISITE: ERTH 4470.03 or consent of instructor
CROSS-LISTING: ERTH 4480.03, OCEA 4480.03, PHYC 4480.03, PHYC 5480.03

ERTH 5502 Micropaleontology and Global Change

CREDIT HOURS: 3
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.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3

ERTH 5520 GIS Applications to Environmental and Geological Sciences

CREDIT HOURS: 3
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.
FORMAT: Lecture| Lab

LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3
PREREQUISITE: ERTH 3500.03 or SCIE 3600X/Y.06, STAT 1060.03, or permission of Instructor
CROSS-LISTING: ERTH 4520.03, GEOG 4520.03

ERTH 5530 Environmental Remote Sensing

CREDIT HOURS: 3
This course introduces remote-sensing techniques that provide environmental and geoscience information. The potential and limitations of remotely sensed data are stressed. Lectures discuss the fundamentals with an emphasis on multi-spectral satellite systems. Laboratory exercises include digital image enhancement and thematic information extraction on optical, radar, and hyperspectral data. Remote-sensing information and GIS techniques are integrated throughout the course.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3
PREREQUISITE: ERTH 3500.03 OR ERTH 5600.03 OR SCIE 3600.03
CROSS-LISTING: ERTH 4530.03

ERTH 5600 Exploring Geographic Information Systems

CREDIT HOURS: 3
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. Students are expected to complete and present a GIS project related to their field of research. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of application areas..
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 3
LAB HOURS PER WEEK: 3
CROSS-LISTING: ERTH 3500.03, GEOG 3500.03
EXCLUSIONS: Credit will only be given for one of the ERTH 3500.03, ERTH 5600.03, GEOG 3500.03 OR SCIE 3600.03

ERTH 6100X/Y Seminar in Sedimentology and Stratigraphy

CREDIT HOURS: 3

ERTH 6110X/Y Research Topics in Micropaleontology

CREDIT HOURS: 3

ERTH 6120 Seminar in Mineralogy, Petrology and Geochemistry

CREDIT HOURS: 3

NOTE: Course Details listed here also apply to ERTH 6220

ERTH 6250X/Y Directed Studies

CREDIT HOURS: 3

ERTH 6300X/Y Research Design and Scientific Presentation

CREDIT HOURS: 3
ERTH 6300.03: Research Design and Scientific Presentation.This is a required course (full-year, half-credit) for all new graduate students (MSc and PhD) in the Department of Earth Sciences. It is intended to introduce students to the essential features of good research design, and to give them extensive practice in presenting their research to their peers. Topics covered include the scientific method, critical reading, analysis of error and uncertainty, effective technical writing, effective scientific presentations (oral and written), effective research proposal design, and ethical issues in research. Other topics may be covered depending on students' interests and/or current issues in the field. A series of written and oral assignments takes students through the process of designing, writing, and presenting a short (10-page) formal research proposal, generally (but not necessarily) closely related to the thesis topic, which is then presented and defended before the entire department. Extensive feedback is given on both written and oral work throughout the year; all oral presentations and one written assignment involve an element of peer review.
COREQUISITE: Students should also be enrolled in ERTH 6350 (Graduate Module class) although in unusual situations the classes may be taken in consecutive years.
PREREQUISITE: Students must be registered in a graduate programme (MSc or PhD) in Earth Sciences, which normally requires a B.Sc. (Honours) in Earth Science or its equivalent; other students may be admitted with the permission of the instructors.

ERTH 6350X/Y Research Topics in Earth Sciences

CREDIT HOURS: 3
This course consists of modules that present topics of interest to students coming into the graduate program from a variety of backgrounds. The Geology of Nova Scotia Module is given each year and consists of lectures given by invited speakers and illustrative field excursions. The content of the other modules may change from year to year. Past and potential future topics include: Uranium Series Disequilibria, Mars Surface Processes, Radiometric Dating, Origin of Orogens, Basics of Basins, P-T-t Data From Orogenic Belts, Heat Flow, Granites - Physical and Chemical Processes, Mantle Petrology - Peridotites, Eclogites etc., Abnormal Fluid Pressures in Geology, Environmental Monitoring in Coastal Areas, Quaternary Geology of Nova Scotia, Chemical Weathering, Tectonic Geomorphology, Applications of Cosmogenic Isotopes.Consult website at http://www.dal.ca/faculty/science/earth-sciences.html for a list of modules offered in current sessions.
COREQUISITE: Students should also be enrolled in ERTH 6300 (Research Design and Scientific Presentation) although in unusual situations the classes may be taken in consecutive years.
PREREQUISITE: Students must be registered in a graduate programme (M.Sc. or Ph.D.) in Earth Sciences, which normally requires a B.Sc. (Honours) in Earth Science

or its equivalent; other students may be admitted with the permission of the instructors.

ERTH 6400X/Y Geochronology and Thermochronology

CREDIT HOURS: 3
Researchers across the whole spectrum of earth science use chronometers, which provide information about the rates of geological processes in areas as diverse as the deep crust and modern surface environments. Experience will be attained on a wide range of chronometers including U-Th-Pb, Ar-Ar, Apatite Fission Track, and (U-Th)/He thermochronology, cosmogenic and nuclide exposure dating, luminescence dating, and radiocarbon dating. The structure and content of the course will vary with instructor and student interests, but will feature lectures, seminars, workshops, laboratory work, and computation.
FORMAT: Lecture| Lab| Seminar
PREREQUISITE: Students must be registered in a graduate program (MSc or PhD) in Earth Sciences, which normally requires a BSc (Honours) in Earth Sciences or its equivalent. Other participants may be admitted with permission of the instructors.

ERTH 6500 Graduate Seminar in Tectonics

CREDIT HOURS: 3

ERTH 6701 Earth Sciences Graduate Internship

CREDIT HOURS: 3
The Earth Sciences Graduate Internship consists of a 12- 16 week placement with a company or organization involved in Earth Sciences. It is the responsibility of the student to secure a placement, and approval of the placement by the student's supervisor and the graduate coordinator is required. The internship offers graduate students the opportunity to expand upon classroom learning by gaining practical industry experience. At the end of the internship, a report and presentation must be completed in order to gain course credit.
PREREQUISITE: Permission of Supervisor and Graduate Coordinator

ERTH 6702 Earth Sciences Graduate Internship

CREDIT HOURS: 3
The Earth Sciences Graduate Internship consists of a 12- 16 week placement with a company or organization involved in Earth Sciences. It is the responsibility of the student to secure a placement, and approval of the placement by the student's supervisor and the graduate coordinator is required. The internship offers graduate students the opportunity to expand upon classroom learning by gaining practical industry experience. At the end of the internship, a report and presentation must be completed in order to gain course credit.
PREREQUISITE: Permission of Supervisor and Graduate Coordinator

ERTH 8891 Co-op Work-Term I

CREDIT HOURS: 0

ERTH 8892 Co-op Work-Term II

CREDIT HOURS: 0

ERTH 8893 Co-op Work-Term III

CREDIT HOURS: 0

ERTH 8894 Co-op Work-Term IV (optional)

CREDIT HOURS: 0

ERTH 9000 MSc Thesis

CREDIT HOURS: 0
Students in the MSc Program must be registered in this course in fall, winter and summer term.

ERTH 9530 PhD Thesis

CREDIT HOURS: 0
Students in the PhD Program must be registered in this course in every fall, winter and summer term.

Economics

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Staff

Chairperson of Department

Xu, K.

Faculty Advisor

Burton, P., Graduate Coordinator, (902) 494-2026

Professor Emeritus

Sinclair, A. M., BA (Dalhousie), MA, BPhil (Oxon), PhD (Harvard)

Professors

Burton, P., BSc (Saskatchewan), MA, PhD (UBC)
Clark, S., BA (Guelph), MSc (Saskatchewan), PhD (North Carolina), Faculty of Agriculture (Truro Campus)
Dasgupta, S., BA (Calcutta), MA (Delhi), PhD (Rochester)
Iscan, T. B., BA (METU), MA, PhD (Cornell)
Lesser, B., BComm (Hons) (Dalhousie), MA, PhD (Cornell)
Osberg, L., BA (Hons) (Queen's), MPhil, PhD (Yale), McCulloch Professor of Economics
Phipps, S., BA (Hon) (Victoria), MA, PhD (UBC), Maxwell Professor of Economics
Xu, K., MBA, PhD (Concordia)
Zhao, Y., BSc (Anhui, China), MSc (Western Kentucky), PhD (UBC), cross-appointment

Associate Professors

Akbulut-Yuksel, M., BSc (METU), PhD (Houston)
Cyrus, T., BA (UCLA), PhD (Berkeley)
Giusto, A., Laurea in Economics (Bologna), PhD (Oregon)
Kotlyarova, Y., Dip. Software Eng (Lviv Poly. Inst.), MSc (Univ of Illinois-Urbana), PhD (McGill)
Rosenblum, D., BA (Williams), MA, MPhil, PhD (Yale)
Ward, C., BA (Hons) (Saskatchewan), MA (Queen's), PhD (Toronto)
Warman, C., BA, MA, PhD (Carleton)
Yiridoe, E. K., BSc (Univ Science and Tech Ghana), MSc, PhD (Guelph), Faculty of Agriculture (Truro Campus) cross listed
Yuksel, M., PhD (Houston)

Assistant Professors

Okoye, C., BA (Hons), PhD (UWO)
Tumennasan, N., BA (Nat Univ of Mongolia), MA (Colorado-Denver), AM, PhD (Brown)

Zhou, W., BE, MA (Tokyo Institute of Technology), PhD (UBC)

Adjunct (FGS)

Amirkhalkhali, S., BA Hons (Shiraz), MA, PhD (Dalhousie), Saint Mary's University
Cross, M. L., AA (Dawson College), BA (Hons) (Montana), MA (SFU), PhD (Texas A&M)
de Lamirande, P., BA, MA (Laval), PhD (Montreal)
Dufour, M., BA (Laval), MA (UBC), PhD Candidate (Massachusetts), Dalhousie
Huber, P. B., BA, MA, PhD (Yale), Dalhousie (retired)
MacDonald, M., BA (Dalhousie), PhD (Boston College), Saint Mary's University
Marfels, C., Diplom-Volkswirt, Dr Rer Pol (Berlin), Dalhousie (retired)
McAllister, R. I., MA (Oxon), MA (Cantab), Dalhousie (retired)
Rankaduwa, W., BA, MSc (Sri Lanka), MA, PhD (Dalhousie), UPEI

Senior Instructor

Boulatoff, C., PhD (Utah State)

Instructor

Forsdyke, R., BSc (H) Biochemistry, BEd, MA (Queen's), PhD (Simon Fraser)
Kivinen, S., BA (Hons) (Lakehead), MA (Simon Fraser), PhD (Queen's)

Master of Arts (MA)

Admission Requirements

Candidates must at a minimum satisfy the general requirements for admission as spelled out in the Faculty of Graduate Studies Regulations. Entrance to a one-year MA Program requires an Honours BA or BSc in Economics (or equivalent) with an average of at least B+ (upper second-class) at Dalhousie standards in Economics and related fields. Normally this means completion of at least 48 credit hours in Economics beyond the introductory level including courses in Microeconomic and Macroeconomic Theory beyond the intermediate level, Statistics, Econometrics and courses in applied areas of economics. Mathematics courses which are equivalent to Dalhousie MATH 1000.03: Differential and Integral Calculus I, MATH 1010.03: Differential and Integral Calculus II and MATH 2030.03: Matrix Theory and Linear Algebra I are also required.

Applicants must satisfy the English Language proficiency requirements of Dalhousie. For more information, see "English Language Proficiency" under "Admissions Requirements" for the Faculty of Graduate Studies.

Areas of specialization for the MA are open, subject to the fields of economics represented in the graduate course offerings in any given year and/or the ability of students to arrange a research supervisor.

Approval by the department and the Faculty of Graduate Studies is required for the program of each student.

Completion of MA Program

Students must successfully complete the required and optional courses of their program. Normally a course of study includes:

- Math Workshop (early in September)
- ECON 5200.03: Research Seminar
- ECON 5500.03: Macroeconomic Theory
- ECON 5509.03: Microeconomic Theory
- ECON 5575.03/ECON 5576.03: Econometrics I/Econometrics II
- nine credit hours graduate electives in applied fields of economics
- a research essay

Students may build the essay on a course term paper but must demonstrate substantial differences and improvements over the original paper. Essays will be evaluated by the Faculty readers drawn from the department.

Normally the math workshop, ECON 5200: Research Seminar for Masters' Students, ECON 5500: Macroeconomic Theory, ECON 5509: Microeconomic Theory and ECON 5575: Econometrics I are taken in the fall term, ECON 5576: Econometrics II and the electives are taken in the winter term, and the thesis or essay is written in the summer. Economics field courses normally require research papers.

Thesis Option

Students who excel in the first term and demonstrate superior writing and research ability may, with the permission of the graduate coordinator and a supervisory committee, choose to write a thesis rather than the essay. Normally, a committee is chosen by the end of the first semester and, in this case, the student would be required to take two half-credit applied field classes rather than three. Students who choose the thesis option are expected to undertake research of innovative, original and publishable quality.

Master of Development Economics (MDE)

The Department of Economics hosts this innovative program of graduate studies in social and economic development. The program is primarily designed for students and young professionals pursuing, or intending to embark on, careers in government, educational and professional institutions, private corporations or non-governmental organizations.

Admission Requirements

All candidates for admission must satisfy the general requirements for admission to the Faculty of Graduate Studies. The Department will only consider applications from candidates possessing an undergraduate degree with an academic average of at least B+ (upper second-class) at Dalhousie standards. Applicants may possess a BA, BSc or BComm degree, but all candidates must have at least 12 credit hours in Economics beyond the introductory level, including intermediate economic theory, plus a basic course in statistics and university level mathematics. The normal duration of the program is two years. Applicants with an honours degree in economics, or equivalent, can be considered for admission to a one year program.

Applicants must satisfy the English Language Proficiency requirements of Dalhousie. For more information, see “English Language Proficiency” under “Admissions Requirements” for the Faculty of Graduate Studies.

Departmental approval is required for the program of each student.

MDE Program Requirements

The normal duration of the program is two years for candidates without an honours degree in economics (or equivalent). Students in the two year program normally must successfully complete the following course of study:

Year I

- Incoming students are encouraged to attend the Math workshop (early in September)
- ECON 3338.03: Econometrics I
- ECON 3339.03: Econometrics II
- ECON 5000.03: MDE Microeconomic Theory
- ECON 5001.03: MDE Macroeconomic Theory
- Non-economics electives

Year II

- ECON 5200.03: Research Seminar (if thesis option)
- ECON 5253.03: Development Economics I
- ECON 5254.03: Development Economics II
- ECON 5525.03: Research Methods
- Economics field courses and non-economics electives

Students in the two year program must have 12 credit hours of graduate electives of which at least six credit hours are in economics fields and the remainder (with the approval of the graduate coordinator) may be in related disciplines (e.g. environmental studies, political science, public administration, sociology and social anthropology, law, health studies, business administration). Economics field courses normally require research papers.

The normal duration of the program is one year for candidates with an honours degree in economics (or equivalent). Students in the one year program normally must successfully complete the following course of study:

Year I

- Incoming students are encouraged to attend the Math workshop (early in September)
- ECON 5000.03: MDE Microeconomic Theory
- ECON 5001.03: MDE Macroeconomic Theory
- ECON 5200.03: Research Seminar (if thesis option)
- ECON 5253.03: Development Economics I
- ECON 5254.03: Development Economics II
- ECON 5525.03: Research Methods
- six credit hours of which at least three must be in economics

Students in the one year program must have six credit hours of graduate electives of which at least three in an economics field and the remainder (with the approval of the graduate coordinator) may be in related disciplines (e.g. environmental studies, political science, public administration, sociology and social anthropology, law, health studies, business administration). Economics field courses normally require research papers.

Thesis Option

Students who excel in the first half of their program and demonstrate superior writing and research ability may, with the permission of the graduate coordinator and a supervisory committee, choose to write a thesis rather than one elective. For the two-year MDE, the committee is normally chosen by the end of the third semester while, for the one-year MDE, the committee is normally chosen by the end of the first semester. The student is required to take one fewer half-credit elective but at least one remaining elective must be in an applied field of economics. Students who choose the thesis option are expected to undertake research of innovative, original and publishable quality.

Doctor of Philosophy (PhD)

Admission Requirements

Entrance to the PhD program normally requires completion of course requirements for an MA in Economics with an average of at least A- at Dalhousie standards. Students normally prepare for their PhD Comprehensive Exams in two years.

Applicants must satisfy the English Language proficiency requirements of Dalhousie. For more information, see “English Language Proficiency” under “Admissions Requirements” for the Faculty of Graduate Studies.

PhD Program Requirements

The PhD program is designed to provide students with a strong foundation in economic theory and quantitative methods and intensive work in applied fields of economics. A course of study recommended for the three-year PhD program would include:

Year 1

- ECON 5500.03: Macroeconomic Theory
- ECON 5509.03: Microeconomic Theory
- ECON 5575.03: Econometrics I/ECON 5576.03: Econometrics II
- six credit hours in economics

Year 2

- ECON 6600.03: Advanced Macroeconomic Theory
- ECON 6609.03: Advanced Microeconomic Theory
- ECON 6534.03: Advanced Econometrics
- Up to six additional credit hours in economics
- ECON 6683.03: Special Topics in Advanced Economics

Year 3

- Thesis work

Students can request from the graduate coordinator a waiver for a course. A waiver shall only be granted if the student can demonstrate that the courses taken elsewhere were at an appropriate level. Approval by the department and the Faculty of Graduate Studies is required for the program of each student.

At the completion of their course work, candidates for the PhD program will be examined in:

- Macroeconomic and microeconomic theory (at the level of Dalhousie Economics courses ECON 5500, ECON 5509, ECON 6600 and ECON 6609)
- One field of specialization

Fields of specialization for the PhD are open, subject to the following requirements:

- Applicants to the PhD must clearly indicate on their application the primary field in which they wish to specialize.
- A faculty member in the Department must agree to be the research supervisor for the student before the student is accepted to the program.
- Changes to the student's intended field of specialization after starting the program will also be subject to the agreement of a faculty member in the Department to supervise the student's research in the proposed area of specialization.

Completion of PhD Program

Comprehensive examinations consisting of written papers in micro and macro economic theory and one field will be written within a designated one-month period following the completion of all PhD course requirements.

Students are required to present a thesis proposal at a departmental workshop no later than six months after completion of the comprehensives. One year after completion of the comprehensive exams, and on an annual basis, students are required to present their research results at a department workshop.

Finally, a suitable thesis must be submitted and defended.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ECON 5000 MDE Microeconomic Theory

CREDIT HOURS: 3
This course provides an intensive overview of microeconomic analysis as background for the analysis of economic and regional development. The Course reviews the core components of microeconomic models (constrained optimization, comparative statics, general equilibrium, and welfare analysis). The course explores the theory of market failures and the consequences when markets are not perfect, particularly looking at risk, uncertainty and strategic interaction between actors (game theory). The course will apply microeconomic theory to development problems, using selected readings to highlight theory and applications. ECON 5000 and 5509 normally cannot both be offered for credit.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

ECON 5001 MDE Macroeconomic Theory

CREDIT HOURS: 3
The purpose of this course is to discuss a range of macroeconomic theories as a way to understand contemporary issues in international economics. The course provides a formal exposition of theoretical models in open economy macroeconomics. The topics covered include intertemporal consumption-saving decisions, economic growth, fiscal and monetary policies, and exchange rate models. Building on these theories, we will compare the growth performances of Asia, Africa, and Latin America, discuss foreign debt and banking crises, and examine the causes and consequences of currency crises. ECON 5001 and 5500 normally cannot both be offered for credit.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

ECON 5010 Advanced Topics in Petrology and Geochemistry

CREDIT HOURS: 3
This course advances students' knowledge of modern aspects of petrology, volcanology and geochemistry, chosen to reflect instructor and students interests. The focus is on learning thermodynamic and computational methods as well as advanced petrographic work and field mapping interpretation of igneous and metamorphic rocks.
FORMAT: Lecture

ECON 5200X/Y Research Seminar for Masters' Students

CREDIT HOURS: 3
This course is required for MA and MDE students. The course is intended to advance the work of students on either their thesis or their extended essay (if enrolled in the non-thesis option of their program) and consolidate students' understanding of the research methodology of economics.
NOTES: 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

ECON 5231 Health Economics

CREDIT HOURS: 3
This course introduces students to the role of economics in health, health care, and health policy. The course provides a survey of major topics in health economics and is designed to introduce you to the issues, theory and practice of health economics. Topics includes the economic determinants of health, the role of moral hazard and adverse selection on the market for health insurance, the role of the government in health care, and health care reform. The course is structured in two parts. The format for the first part of the course is lecture based with a more theoretical focus. The second part of the course is designed as a research seminar with a focus on leading research in the field of health economics.
FORMAT: Lecture

ECON 5252 From Disaster Relief to Development

CREDIT HOURS: 3
This course introduces students to the growing literature built around comparative experiences of disaster prevention, mitigation, relief and sustainable development. Analytical frameworks for better understanding the reasons behind a cross-section of complex disasters are explored. Ways to improve development planning at both project and broader policy levels are examined. Main themes include food and clean water, (security, distribution, drought reduction); refugees, asylum seekers and settlements for sustainable development; early warning systems for hurricanes, volcanoes and famines - their integration into national development planning; emergency programming in the context of military, political and economic instability; issues of humanitarian law and peacekeeping. Case studies are routinely tested in cooperation with UN and EMO Departments, the International Red Cross, and the Pearson Peacekeeping Training Centre, as a part of the course's applied orientation. Internship experiences and follow-up research projects are facilitated as an extension of this course.
FORMAT: Seminar

ECON 5253 Development Economics I

CREDIT HOURS: 3
Economics 5253 is one of the core courses of the Master of Development Economics (MDE) degree. It provides an introduction to key conceptual and measurement issues in development and gives an overview of some selected macroeconomic issues, in particular the macroecomic policy environment for development. The focus of this course is on "macro" topics and hence it complements Economics 5254, which deals with "micro" topics. The course will be taught using a combination of lectures and small-group work.
FORMAT: Lecture| Seminar

ECON 5254 Development Economics II

CREDIT HOURS: 3
This course is one of the core courses of the Master of Development Economics (MDE) degree. It focuses on the theory and evidence of economic development, and from these draws out implications for policy and practice. Econ 5254 complements Econ 5253 with an examination of microeconomics issues including, the role of institutions, household behaviour and gender, the functioning of markets, health, education, evaluation, and the use of common property resources and policies for sustainable development. The course will be taught using a combination of lectures and small-group work.
FORMAT: Lecture| Seminar
PREREQUISITE: ECON 3338.03 or ECON 5575.03 or permission of the instructor

ECON 5330 International Trade

CREDIT HOURS: 3
This course examines the theory and empirics of international trade. It covers the standard trade theory of Ricardo, Heckscher, and Ohlin, as well as the more recent theory of scale economies, and discusses empirical testing of these theories. The course goes on to investigate the welfare effects of trade policies in industrial and developing countries and the institutions that have developed to regulate those policies. Finally, the course considers the relationship between trade and growth.
FORMAT: Lecture

ECON 5333 Theories of Economic Development

CREDIT HOURS: 3
This course focuses on the application of economic theory to issues in economic development at the micro and macro level. After reviewing concepts of development, topics to be covered will include: intrahousehold allocation; the functioning of labour and credit markets (with applications to child labour and microcredit); use of common property resources; growth and distribution; development and globalization.
FORMAT: Lecture

ECON 5500 Macroeconomic Theory

CREDIT HOURS: 3
This course is an introduction to the contemporary issues in dynamic macroeconomics. The course will survey some of the classical and recent topics excluding monetary issues which are addressed in ECON 5502.03. The topics covered include intertemporal consumption and saving decisions under uncertainty, capital asset pricing models, the theory of investment under uncertainty, Solow growth model, endogenous economic growth, alternative explanations of business cycles, and financial market imperfections. ECON 5001 and 5500 normally cannot both be offered for credit.
FORMAT: Seminar

ECON 5502 Monetary Theory: Microeconomic Aspects

CREDIT HOURS: 3

This course focuses on the financial behaviour of four agents: (a) the central bank, i.e. The Bank of Canada, (b) commercial banks, (c) nonbank financial intermediaries, (d) the household and firm. Four important issues will be discussed: (1) the kinds of financial assets created in a modern economy; (2) the way in which money and credit are supplied in the modern economy, particularly the operations of the central bank and of financial intermediaries which enable these institutions to expand or contract the quantity of money and credit; (3) the behaviour of the economic agents who demand and supply financial assets; and (4) the framework in which monetary policy can be analyzed.

PREREQUISITE: (ECON 5001.03 or ECON 5500.03) and (ECON 3338.03 or ECON 5575.03)

ECON 5509 Microeconomic Theory

CREDIT HOURS: 3

This course in microeconomic theory is required in the MA program. Subjects covered include: 1) theory of the firm (technology, cost, profit, maximization, introduction to linear programming, duality, supply); 2) theory of the consumer (utility, expected utility, revealed preferences, demand, integrability); 3) general equilibrium (existence, uniqueness, stability) and welfare economics (classical theorems); 4) theory of the market (pure monopoly, oligopoly, monopolistic competition, game theory). ECON 5000 and 5509 normally cannot both be offered for credit.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

ECON 5516 Resource Economics

CREDIT HOURS: 3

This course is designed as an introduction to the theory and application of resource economics. Topics include: 1) interpersonal and intertemporal decision-making criteria; 2) the basic theory of nonrenewable resource exploitation (including Hotelling's theory of the mine); 3) a basic forestry model (i.e., the Faustmann model) including extensions which allow for benefits that arise from standing forests; and 4) the Gordon-Schaefer model of the fishery and optimal dynamic harvesting. Empirical applications of these models (from the current economic literature) will also be presented.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: ECON 5000 or ECON 5509 or ECON 6609

ECON 5517 Environmental Economics

CREDIT HOURS: 3

This course is designed as an introduction to the theory and application of environmental economics. It includes the theoretical analysis of 1) interpersonal and intertemporal decision-making criteria; 2) public goods and externalities (such as pollution) and the advantages/disadvantages of regulatory mechanisms; 3) valuation of environmental benefits or damages (e.g., compensating and equivalent variations); 4) preference revelation (e.g., surveys, hedonic pricing, and travel-cost methods); and 5) anthropocentric valuation of the environment (e.g., existence value, access value, option value and quasi-option value) and the possibility of nonanthropocentric decision making. Empirical analyses will be discussed where the above approaches have been implemented.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: ECON 5000.03 or ECON 5509.03 or ECON 6609.03

ECON 5520 Economic Applications of Game Theory

CREDIT HOURS: 3

Game theory and information theory are now used in most aspects of economic analysis and a proper understanding of these approaches has become a necessary condition for accessing much of the current literature. The course includes the study of Static and dynamic games of complete information, Static and dynamic games of incomplete information, moral hazard, adverse selection and mechanism design.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: ECON 5000.03 or ECON 5509.03 or ECON 6609.03

ECON 5522 Labour Economics I

CREDIT HOURS: 3

This course provides an survey of modern Labour Economics, focusing on labour supply, human capital theory, structural change in labour markets, trends in poverty and earnings inequality and the policy responses of the 'Welfare State'. Discussion is based on recent journal articles. Students are graded on the basis of essays and a final exam.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: ECON 3338.03 or ECON 5575.03

ECON 5524 Social Policy: Economic Issues and Perspectives

CREDIT HOURS: 3

This course provides an overview of social policy analysis in economics and an in-depth examination of selected topics, for example, income security policy, poverty alleviation and income redistribution, health policy and health determinants. The focus is on Canadian policy in comparative perspectives.

FORMAT: Lecture

ECON 5525 Research Methods: A Graduate Course in Applied Econometrics

CREDIT HOURS: 3

The course focuses primarily on panel and cross-sectional data methods with a strong emphasis on a hands-on approach to learning statistics and programming techniques using Stata. Some topics to be covered include multinomial models, nonparametric techniques, quantile regressions, IV, fixed effect, random effects, selection bias and hazard models.

FORMAT: Lecture| Lab

PREREQUISITE: ECON 3339.03 or ECON 5575.03

ECON 5575 Econometrics I

CREDIT HOURS: 3

This course is designed to introduce the student to the practical problems encountered in estimating econometric models. Violations of the assumptions of the classical linear model are frequently found in economic data. Procedures for estimation and forecasting under these conditions (heteroscedasticity, autocorrelation, multicollinearity) are discussed. An important aim of this course is to give the student a working knowledge of estimation techniques commonly used by economists.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

ECON 5576 Econometrics II

CREDIT HOURS: 3
This course builds on the material learned in ECON 5575.03. Its primary objective is to extend the student's capabilities to conduct quantitative research in Economics, and to examine critically the results of such work. The topics include instrumental variables, maximum likelihood estimation, time series models, panel data, and nonparametric methods.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: ECON 5575.03

ECON 5800 Financial Economics

CREDIT HOURS: 3
This course is designed to meet the need of those students who would like to pursue research in financial economics at the graduate level. In this course, we review critically the classical literature in financial literature with a focus on investors' behaviours, the Kelley criterion, portfolio theory, asset pricing models, bond analysis, options, market microstructure, and regime switching models. During the course, each student is expected to select an area of research, review the relevant literature, and write an essay in financial economics.
PREREQUISITE: ECON 5500.03 and ECON 5509.03 and ECON 5575.03

ECON 6534 Advanced Econometrics

CREDIT HOURS: 3
This is an econometrics course for PhD students. It reviews introductory mathematical statistics including parameter estimation (ML, GMM), hypothesis testing, and asymptotic theory. The parametric and nonparametric models including linear, nonlinear, limited dependent variable, and simultaneous equation models are explored in the context of cross-sectional and time series data.
FORMAT: Lecture
PREREQUISITE: Either good standing in the PhD Program and ECON 5575 and ECON 5576, or permission of the instructor

ECON 6600 Advanced Macroeconomic Theory

CREDIT HOURS: 3
The purpose of this course is to understand the structure of the major theoretical frameworks in contemporary macroeconomics. The course addresses issues that mainly relate to the real side of the macroeconomy. Major emphasis is placed on neoclassical and endogenous economic growth, and incomplete markets and heterogeneity.
FORMAT: Seminar
PREREQUISITE: Either good standing in the PhD Program and ECON 5500, or permission of the instructor

ECON 6609 Advanced Microeconomic Theory

CREDIT HOURS: 3
This course in microeconomic theory is required in the general PhD program. Its list of subjects includes: 1) General Equilibrium (existence, determinateness, stability) and Welfare Economics (classical theorems); 2) special topics in General Equilibrium Theory (intertemporal economies, equilibrium over time, uncertainty, temporary equilibrium, theory of the core and other solution concepts); 3) special topics in Welfare Economics (public goods, externalities, consumer surplus, fair allocations); 4) economics of information (signals and prices, moral hazard, equilibrium configurations).
FORMAT: Seminar
PREREQUISITE: ECON 5509.03 or permission of the instructor

ECON 6683 Special Topics in Advanced Economics

CREDIT HOURS: 3
This course serves as a vehicle for PhD students in their final year of coursework to work at the frontier of their major field of specialization. Content will vary by student and by field of specialization. Course supervision and instruction may be shared by up to 3 members of the Department.
FORMAT: Seminar
PREREQUISITE: A first level graduate course in the chosen field

ECON 9000 MA Thesis

CREDIT HOURS: 0

ECON 9001 Graduate Essay in Economics

CREDIT HOURS: 0
Students who pursue the "course plus essay" option for the MA or MDE program must register in this course, and complete a research paper (essay) of between 7,500 and 12,500 words. This essay may build on a term paper originally written in one of the graduate field courses in economics taken by the student but, in this case, must demonstrate substantial differences and improvements over the original paper.

ECON 9520 Comprehensive Doctoral Examina

CREDIT HOURS: 0

ECON 9530 PhD Thesis

CREDIT HOURS: 0
Speci Topic courses, not separately listed, will be arranged to provide for advanced work in the areas of specialization chosen by PhD students. MA students with the appropriate backgrounds will also be admissible to such courses. Courses other than those listed may also be offered and certain of the courses listed are not necessarily

offered on an annual basis.

Electrical and Computer Engineering

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Introduction

Of all the various disciplines, perhaps no other branch of engineering can claim to have such an impact on modern society as Electrical and Computer Engineering. The ease, speed and precision by which electrical energy and electrical signals can be transmitted, transformed and controlled has enhanced the quality of people's life. Over the short span of only a few decades, Electrical and Computer Engineering has grown from a study of abstract phenomena to a multi-branch discipline with significant applications in the areas of power systems, communication systems, control systems, computers and electronics. 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. See the Engineering section for details of Masters and Doctoral programs.

Please send Graduate Application Documents to:

Heather Hillyard
Graduate Admissions and Recruitment Coordinator
Faculty of Engineering
5248 Morris Street
PO Box 15000
Halifax, NS B3H 4R2 Canada

Staff

Department Head

Chen, Z., BEng (Fuzhou), MSc (Southeast), PhD (Ottawa), PEng, FIEEE, FCAE. Electromagnetic modelling and simulation, RF/microwave electronics, antennas, wireless communications and technology

Professor Emeritus

Marble, A. E., BEng, MASc, PhD (TUNS), PEng

Professors

Cada, M., Dipl. Ing., MSc, PhD (Prague), PEng. Photonics, optical switching, quantum well devices, nonlinear photonics, multilayer and periodic structures, optical computing, optical image processing, photonic crystals, nanotechnology, optical plasmons
El-Hawary, M. E., BEng (Alexandria), PhD (Alta), PEng, FIEEE, FCAE, FEIC. Power systems, environmental and underwater signal applications. Modelling and optimization of dynamic systems, environmental impacts and underwater activities. System and computer applications in power system planning and operations, renewable energy systems
El-Masry, E. I., BEng, MSc (Alexandria), PhD (Man), PEng. Low-voltage and low-power analog and mixed-signal integrated circuits (IC's) for audio frequency, IF and RF applications
Gu, J., BSc (USTC China), MSc (SJTU, Shanghai), PhD (Alberta), PEng. Graduate Coordinator. Robotics, biomedical engineering, control systems, intelligent systems
Hughes, F. L., BSc (Carleton), MSc, PhD (Newcastle upon Tyne). Energy security, climate change, renewable energy
Ilow, J., BEng (Wroclaw, Poland), MASc, PhD (Toronto), PEng. Statistical communication theory and wireless networks
Leon, L. J., BSc, MSc, PhD (Dalhousie), PEng; Dean, Faculty of Engineering. Computational Electromagnetics, parallel and distributed computing, biomedical engineering, cardiac electrophysiology.
Schlegel, C., BEng (Switzerland), MSEE, PhD (Notre Dame, US), FIEEE, NSERC Chair. Communications and information theory and systems, digital signal transmission and modulation, error control coding techniques, wireless networking, cellular telephony, acoustic communications, implementation of communications systems, low-power VLSI and FPGA prototyping.

Associate Professors

Adamson, R., PhD (Toronto)
El-Sankary, K., BEng (Lu, Lebanon), MSc (Univ of Quebec), PhD (Univ of Montreal), PEng. Undergraduate Advisor and Senior Year Project Coordinator. Integrated analog and mixed-signal circuits and systems in CMOS technologies for telecommunication and biomedical application
Little, T. A., BScEng (UNB), MEng (Memorial), PhD (UNB), PEng. Alternate energy generation, electric machines, energy storage systems
Ma, Y., BSc, MEng (Southeast), MSC, PhD (Alberta), PEng. Micro-Electro-Mechanical Systems (MEMS), CMOS/BiCMOS integrated MEMS and Optical MEMS
Ponomarenko, S., Dipl., Phyc (Novosibirsk), PhD (Univ of Rochester). Research interests: Nonlinear photonics. Photonic devices. Optical solitons and similaritons. Free-space and fibre optical communications Ultrashort optical pulses. Self-induced transparency in resonant atomic and nano-particle systems. Optical and microwave field propagation in metamaterials and photonic crystals

Assistant Professors

Bousquet, J. F., BEng (Ecole Polytechnique), MSc, PhD (Calgary), PEng. Digital and analog communications, CMOS analog and mixed-signal
Gonzalez-Cueto, J., BEng, MScE (LasVillas Cuba), PhD (UNB). Co-op Advisor. Design and implementation of signal processing techniques and application to biological signals
Trukhachev, D., BSc (Saint Petersburg), PhD (LUND). Telecommunications, networks, information therory and bioinformatics

Adjunct (FGS)

Hines, P., BSc (Dalhousie), PhD (Univ of Bath)
Jin, P., BSc (Jilin China), MSc, PhD (HIT China)
Linney, N., BSc (Mt. A), Beng, MASc (TUNS), PhD (Dalhousie)
McIntyre, M., BEng (NSTC), MASc, PhD (Waterloo)
Merabet, A., MASc (Nantes, France), PhD (Quebec)
Nie, H., MEng (Tsinghua), PhD (UBC), PEng
Stout-Grandy, S., BEng (TUNS), MASc, PhD (Carleton)
Yu, Y., BEng (Beijing), MSc, PhD (Swansea, UK)

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

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Course Descriptions

ECED 5210 Biomedical Instrumentation, Data Acquisition and Analysis

CREDIT HOURS: 3
This hands-on course is an introduction to computer-based acquisition and analysis of physiological signals as relevant to Biomedical Engineering. In an integrated series of lectures and laboratory projects, students will use A/D, D/A, and serial techniques to acquire real and simulated data from a variety of sensors (e.g. electrocardiograms, muscle activity, pressure, temperature and sound). Issues such as sampling, aliasing, filtration, convolution and image analysis will be examined. This course provides a step-by-step introduction to programming with Labview (National Instruments) and Python.
FORMAT: Lecture| Lab
CROSS-LISTING: BMNG 5210.03

ECED 5260 Diagnostic Imaging and Radiation Biology

CREDIT HOURS: 3
This course will discuss the basic principles behind modern medical imaging modalities including the mathematical foundations of image process and image reconstruction from projections. the specific imaging modalities that the course covers are X-ray, CT, PET, MRI, and Ultrasound imaging. Fundamentals of ionizing radiation along with the interaction of radiation with tissue is also described. Students will all be required to perform one Magnetic resonance Imaging lab/report using a bench-top Earth field MRI system.
FORMAT: Lecture| Lab
CROSS-LISTING: BMNG 5260.03

ECED 6070 Modern Integrated Filters

CREDIT HOURS: 3

This course deals with the design and implementation of modern analog integrated filters. It covers the following topics: fundamentals of continuous-time and sampled-data active filters, behavioural modeling and design of operational and transconductance (Gm) amplifiers, advanced design techniques for switched-capacitor filters (including multiple-loop feedback structures), current-mode filters (switched-current filters and log-domain filters).

ECED 6130 Advanced Topics in Power Systems

CREDIT HOURS: 3

Basic concepts. Review of optimization techniques. Linear and non-linear programming. Pontryagin's maximum principle. Fletcher-Powell method, etc. Systems security monitoring. State estimation. Optimal power flow. Real and reactive power optimization. On-line optimization. Load dispatching. Generator scheduling, maintenance scheduling in hydro, thermal and hydrothermal systems. Some case studies.

ECED 6150 Power System Operation and Control

CREDIT HOURS: 3

Power system load forecasting, contingency evaluation, static state estimation, security assessment, automatic generation control, optimal operation of power systems.

ECED 6190 Energy Systems Analysis

CREDIT HOURS: 3

This course applies systems analysis techniques to assess the major global issues and their relationships with energy, the resources and technologies available to meet future energy needs, potential sustainable energy futures, and the transformative changes needed to achieve these futures.

FORMAT: Seminar

PREREQUISITE: Permission of the instructor

ECED 6221 Analog MOS Design

CREDIT HOURS: 3

The objective of this course it to provide the basic design concepts and tradeoffs involved in MOS analog integrated circuit design. Design issues associated with MOS devices will be explored while emphasizing quantitative measures of performance and circuit limitations. Topics will be selected from the following: modeling of MOS transistor, operational amplifier, comparator designs, bandgap, Sample and hold, and A/D and D/A converters.

PREREQUISITE: IC Design or by permission of instructor.

ECED 6240 Complementary Metal-Odide-Semiconductor (CMOS) MicroElectroMechanical Systems (MEMS)

CREDIT HOURS: 3

This course is intended for graduate students in the field of microelectronics and MEMS. In CMOS-MEMS, the combination of the globally established, standard CMOS technology with the commercially promising MEMS and its advantages over a hybrid solution are introduced. Other topics include the fabrication technology, design techniques, material and device characterization and CMOS based MEMS applications.

PREREQUISITE: IC design or approval of instructor

ECED 6260 Computer Vision

CREDIT HOURS: 3

The course will discuss early vision processing including image formation, early processing, edge detection, range determination, determination of surface orientation, optical flow, resolution pyramids for grey-level segmentation, and context dependent edge detection. Scene segmentation, edgel aggregation, the Hough transform, edge following, contour following, region growing and split-and-merge algorithms will be discussed. Motion determination will be covered, including optical flow, motion-based surface orientation and motion-based edge detection, and motion-based segmentation.

ECED 6265 Advanced Computer Vision and Image Processing

CREDIT HOURS: 3

The course will cover modern techniques in computer vision and image processing, including but not limited to statistical pattern recognition, determination of pose from multiple views, velocity-based scene segmentation, determination of depth from monocular views and both space- and time-diversity stereo, uni-modal and multi-modal image registration, feature detection using feature-space clustering, and segmentation and recognition by invariants. Students will be required to prepare papers for presentation in a weekly seminar. This course will meet once weekly for 3 hours. Enrollment is restricted to 7 students.

ECED 6324 RF/Microwave System Design for Telecommunications

CREDIT HOURS: 3

The course provides essential design techniques for radio/microwave links in telecommunication systems. Major topics include: review of general radio propagation in free space, over obstacles and in the Earth's atmosphere; the design principles of broadband radio/microwave communication links; design and sizing of satellite earth stations; development of hardware configurations for line-of-sight radio links.

PREREQUISITE: Permission of the instructor.

ECED 6330 Computational Electromagnetics

CREDIT HOURS: 3

This course introduces the theory and applications of numerical techniques employed to solve various electromagnetic structure problems in both time and frequency-domains. Major topics include: review of electromagnetic theory, variational approach, finite-difference time-domain (FDTD) method, transmission line matrix (TLM) method, finite element method (FEM), method of moment (MoM), method of line (MoL) and boundary element method (BEM). Projects include applications of different computational techniques to solve electromagnetic problems.

ECED 6360 Fiber and Integrated Optics

CREDIT HOURS: 3

This course introduces the principles and devices of photonics. Major topics include: optical waveguides and fibers, light sources, modulation and detection techniques, optical wavelength functionalities, fiber-optic communications, integrated optics and sensors, various applications.

ECED 6400 Fundamentals on Nonlinear Optics

CREDIT HOURS: 3

Introduction covering the following topics: nonlinear refractive index, nonlinear wave equations, some indifference frequency generation, second harmonic generation, optical solitons and their propagation in nonlinear fibres, resonant matter interaction, self-induced transparency, electromagnetically induced transparency, quantum theory of nonlinear optical susceptibility.
PREREQUISITE: ECED 3300 and ECED 4502 or equivalent; ENGM 2062 recommended; or instructor approval
CROSS-LISTING: PHYC 6401.03

ECED 6530 Random Processes

CREDIT HOURS: 3
Probability theory: mathematical model, conditional probabilities, random variables, pdf, transformation of random variables, conditional densities, statistical averages. Random processes concept; ensemble, stationarity, ergodicity, correlation and covariance, power spectral density, calculation and measurement of ACF, AVF and PSD, Gaussian random processes, noise. Transmission of random processes through linear systems: time-invariant systems, multiple terminals, Gaussian processes, non-stationary processes.

ECED 6550 Digital Signal Processing

CREDIT HOURS: 3
The course provides an introductory treatment of the theory and principles of digital signal processing, with suitable supporting work in linear system concepts and digital filter design. More specifically, the course deals with the following topics: General concepts of digital signal processing, continuous-time system analysis, Fourier analysis and sampled-data signals, discrete-time system analysis, realization and frequency response of, discrete-time systems, infinite impulse response digital filter design, discrete and fast Fourier transforms, and general properties of the discrete Fourier transform.

ECED 6560 Data Communications

CREDIT HOURS: 3
This course provides a structured introduction to data communications through an examination of existing and proposed data link and network layer protocols. Topics include a brief history of data communications, protocol design for reliable communications, addressing (unicast, multicast, broadcast, and anycast), routing algorithm design, Internet protocols, and IPv6.

ECED 6576 Software Defined Radio Design Using Very Large Scale Integration

CREDIT HOURS: 3
The objective of this course is to analyze and develop digital radio architectures to satisfy today's market demands. Modern communication architectures will be described for real-time implementation.
PREREQUISITE: Approval from the instructor

ECED 6585 Telecommunications Systems

CREDIT HOURS: 3
This course provides an overview of the current telecommunication systems and their future evolution. Topics will include: the history of the telephone network, the current infrastructure, switching techniques, high speed transport systems Asynchronous Transfer Mode, satellite communications, high bandwidth access technologies, mobile cellular systems, personal communication systems.

ECED 6590 Mobile Communication Systems

CREDIT HOURS: 3
This course provides an overview of mobile communications systems. The course introduces channel characterization for propagation losses, fading, delay spread, and interference. Coding, modulation, and receiver design issues are examined. Cellular mobile system issues such as frequency planning channel access methods and handoff are discussed. Mobile communication system applications are reviewed.

ECED 6595 Coding Techniques for Digital Communications

CREDIT HOURS: 3
Source and channel coding techniques to improve the performance of digital communication systems are examined. The source coding methods to be studied include prediction, block coding, redundancy reduction, and synthesis/analysis coding. Emphasis is placed on channel coding techniques. Waveform coding and error control concepts are covered. Parity check codes, block codes, cyclic codes, convolutional coding and decoding algorithms, concatenated codes and interleaving are studied. Coded modulation techniques are discussed. Applications of coding techniques are presented.

ECED 6620 Optimal Control Systems

CREDIT HOURS: 3
This course introduces three facets of optimal control-dynamic programming, Pontryagin's Minimum Principal and numerical techniques for trajectory optimization. In all cases, the objective is to determine the optimal controller or algorithm with respect to a specified design index. Digital simulation techniques are widely utilized.

ECED 6630 Introduction to Estimation, Identification and Stochastic Control

CREDIT HOURS: 3
Stochastic processes, Gauss-Markov sequence model, Gauss-Markov process model, optimal estimation for discrete systems, optimal prediction for discrete linear systems, optimal filtering in the presence of time-correlated disturbances and measurement errors, problem formulation and equivalent discrete-time problem.

ECED 6640 Mobile Robotics

CREDIT HOURS: 3
This course is an in depth study of algorithms in mobile robotics. Topics include motion planning, localization, mapping, navigation and sensor fusion. Wheeled and legged mobile robots will be covered and kinematics' models are developed for many of the more common locomotive strategies.

ECED 6650 Advanced Topics on Optimization Methods in Engineering and Physics

CREDIT HOURS: 3
Nature and systems considered in engineering and physics have an abundance of examples where an optimum system status is sought. The course aims to provide the students with advanced theory of optimization and topics that arise in applications of the optimization techniques. The challenge of this course is to increase the utilization of the optimization methods by development and use of appropriate algorithms derived for specific problems in engineering and physics. They include those arising in VLSI design, computer engineering, chemical reactor control, in spin glasses as well as in networking, particularly in networks with frequently changing

topology. State-of-the-art of the advanced optimization techniques is presented. Geometric interpretations, time-space decompositions and large- and small-scale considerations are stressed wherever possible.
PREREQUISITE: Permission from instructor

ECED 6660 Fuzzy Systems
CREDIT HOURS: 3
Fuzzy sets and their membership functions, support and alpha level sets are introduced. Basic set-theoretical operations of intersection and union and the concept of compensation are discussed in the context of the algebraic operations including t-norms and s-norms. Fuzzy measures and the extension principle are discussed as the basis for operations on fuzzy numbers. Fuzzy relations, graphs, extrema, integration, and differention are treated. Decision theory, linear regression, linear programming applications are discussed.

ECED 6810 Neural Networks
CREDIT HOURS: 3
The course deals with preliminaries of artificial neural systems including fundamental concepts and models.Single layer perception classifiers and multi-layer feed forward networks, single-layer feedback networks, and associative memories are covered.

ECED 6900 Graduate Seminar
CREDIT HOURS: 0
Regular seminars as per the Faculty of Graduate Studies requirement and departmental regulations. See section 5.5 of the Graduate Studies handbook for the Faculty of Engineering as well as Departmental Regulations as provided by the department. Graded pass/fail.

ECED 6910 Directed Studies in Electrical and Computer Engineering
CREDIT HOURS: 3
This course is available to graduate students enrolled in a Master's Degree programme in Electrical and Computer Engineering, who wish to gain knowledge in a specific area for which no graduate-level courses are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the course.

ECED 7610 Semiconductor Integrated Optoelectronics
CREDIT HOURS: 3
In this course, physical fundamentals and principles of operation of semiconductor photonic devices and integrated structures are introduced. Structures for optical radiation generation and detection, nonlinear and bistable devices, etc., are studied. Integration of these components onto a common substrate for implementing optoelectronic functions such as modulation, switching, multiplexing, etc., is described. Applications in fast optical signal processing devices, high-performance optical communications systems, and optical computing are addressed.

ECED 7910 Directed Studies in Electrical and Computer Engineering II
CREDIT HOURS: 3
This course is available to graduate students enrolled in a PhD programme in Electrical and Computer Engineering who wish to gain knowledge in a specific area for which no graduate-level courses are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the course.

ECED 8500 MEng Project
CREDIT HOURS: 0
A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

ECED 8891 Co-op Work-Term I
CREDIT HOURS: 0

ECED 8892 Co-op Work-Term II
CREDIT HOURS: 0

ECED 8893 Co-op Work-Term III
CREDIT HOURS: 0

ECED 8894 Co-op Work-Term IV
CREDIT HOURS: 0

ECED 9000 Master’s Thesis
CREDIT HOURS: 0

ECED 9530 PhD Thesis
CREDIT HOURS: 0

Electronic Commerce

Location:
Building/Room: Goldberg Computer Science Building
Street Address 1: 6050 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2740
Fax: (902) 492-1517
Website: www.ecomm.dal.ca
Email Address: mec@cs.dal.ca

Introduction

The Faculty of Computer Science, in partnership with the Faculties of Management and Law, offers the degree of Master of Electronic Commerce.

Electronic Commerce is a discipline whose underpinnings lie equally in technology, business, and social and economic policy. Distinct from any of the disciplines that comprise it, this multi-disciplinary two-year program consists of core courses, elective courses, a research project, a research paper/thesis or a research thesis, and an industrial internship. Students study core topics in each of the three areas and can then concentrate on some topics by choosing electives from the Technology, Business, Law and Policy study areas. Visit the Electronic Commerce website at www.ecomm.dal.ca for a complete program description and for information concerning updates to the program's regulations and course offerings. Email queries can be addressed to mec@cs.dal.ca.

Graduate Admissions and Recruitment
6050 University Avenue, Room 106
PO Box 15000
Halifax, NS B3H 4R2 Canada

Staff

Program Director

Bodorik, P., BSc (Calgary), MEng, PhD (Carleton)

Program Administrator

Teferra, M., (902) 494-6438

Faculty

Bliemel, M., BSc (Queen's), MMS (Carleton), PhD (McMaster)
Bodorik, P., BSc (Calgary), MEng, PhD (Carleton)
Currie, R., BA (St. FX), MA (Carleton), LLB (Dalhousie), LLM (Edinburgh)
Deturbide, M., BSc (Dalhousie), BJ (King's), LLB, LLM (Dalhousie)
Gao, Q., MASc, PhD (Waterloo)
Keselj, V., BSc (Belgrade), MMath, PhD (Waterloo)
Leach, E., BComm (Dalhousie), MBA (Ivey), PhD (Nora Southeastern)
McAllister, M., BMath (Waterloo), MSc, PhD (UBC)
Milios, E. E., Dipl Eng (National Technical Univ), Sm & EE, PhD (MIT)
Rau-Chaplin, A., BA (York), MCS, PhD (Carleton)
Rosson, P. J., Dip. MS (Salford), MA (Lancaster), PhD (Bath)
Sampalli, S., BEng (Bangalore), PhD (Inst of Science, Bangalore)
Trappenberg, T., MSc, PhD (Aachen)
Watters, C. R., BSc, MSc, MLS (Western), PhD (TUNS)
Zincir-Heywood, N., BSc, MSc, PhD (Ege)

Adjunct Professors

Duffy, J., BS, MS, PhD (Iowa State)
Lucic, V., E.E. Dipl Eng (Nis), MEng, PhD (Waterloo)
Marchand, Y., MCS, D.E.A. (Caen), PhD (Campiègne)

Admission Requirements

Students entering this program will usually have completed a four-year bachelor's program or graduate degree in Computer Science, Computer Engineering, Industrial Engineering, Business, Social Science (e.g. Political Science or Economics), Law, or other related disciplines. All applications are individually evaluated and students from other disciplines may be admitted.

Students must meet normal admission standards for the Faculty of Graduate Studies (for more information visit www.dalgrad.cal.ca/admissions).

Program Outline

The program for full time students requires a minimum of two years to complete and consists of two terms of lectures and two terms of individually supervised research.

Term 1

The program starts regularly each fall, and we offer several specific introductory courses for electronic commerce each fall term. A full time student is expected to take four courses, including an eCommerce overview course (ECMM 6000: Overview of Electronic Commerce), usually two of three introductory courses to specific disciplines (ECMM 6010: Technology Issues for Electronic Commerce/ECMM 6020: Business Issues for Electronic Commerce/ECMM 6030: Issues in Law and Policy for Electronic Commerce) which are not in the specialty area of the students, and one elective from computer science, business, or law.

Term 2

The second term is dedicated to more specific studies leading to the specialization of each student. A full course load consists of four courses, the mandatory research methods course (ECMM 6040: Research Methods) and three electives. Elective courses are graduate courses from Business, Computer Science and Law which are relevant for electronic commerce and some special offerings for electronic commerce (ECMM 60XX). These are typically courses from the list of pre-approved elective courses (see below), but it is also possible to take other relevant courses with the permission of the executive committee.

Breadth requirement

It is necessary that the electives chosen by each student cover at least two of the three areas in the program. For example, a student who takes mainly business courses must take at least one elective from computer science or law.

Elective Courses

Candidates may study electives from graduate level courses in the Faculty of Computer Science, School of Business Administration, School of Public Administration, and the Schulich School of Law if appropriate for the program and prerequisites are met.

It is not guaranteed that all courses listed will be offered each academic year.

Approved stream courses include the following:

Technology Oriented Courses

- ECMM 6014.03: Databases, Data Warehouses and Data Mining for Electronic Commerce
- ECMM 6018.03: Enterprise Networking for Electronic Commerce
- CSCI 6xxx.03 Graduate computer science elective - prerequisite: Permission of instructor or program coordinator

Business Oriented Courses

- ECMM 6022.03: IT Project Management (recommended)
- ECMM 6024.03: New Venture Creation (prerequisites: permission of instructor)
- BUSI 6313.03: Organizational Change
- BUSI 6420.03: Marketing Informatics
- BUSI 6517.03: Managing the Information Resource (prerequisite: permission of instructor)
- BUSI 6522.03: Knowledge Discovery and Data Mining (prerequisite: permission of instructor)
- BUSI 6516.03: Database Management Systems (prerequisite: BUSI 5511.03: Management Information Systems or permission of instructor)
- BUSI 6409.03: Internet Marketing
- PUAD 6556.03: E-Government: International Experiences and Perspective or ECMM 6026.03: Management of Information (E-Government): International Experiences and Prospectives
- PUAD 6500.03: Business and Government
- INFO 6640.03: Electronic Access to Information
- INFO 6540.03: Database Management Systems
- INFO 6370.03: Records Management

Policy Oriented Courses

- LAWS 2019.03: Law and Technology (recommended)
- LAWS 2168.03 or ECMM 6068.03: Internet and Media Law (recommended)

Further studies in the law specialization may include:

- LAWS 2130.03: International Trade Transactions
- LAWS 2159.03: Advanced Health Law
- LAWS 2183.03: Privacy Law
- LAWS 2178.03: Intellectual Property

Industrial Internship

The internship is a placement within an organization related to electronic commerce, or electronic government. The employer agrees to ensure that the content of the placement is related to electronic commerce. Approval of the placement by the electronic commerce Executive Committee is required. It is ultimately up to the student to secure a placement, however, the Executive Committee makes every effort to have a pool of potential placements available for students. Students must have completed at least three core courses and three elective courses (or have received special permission from the electronic commerce Executive Committee) before starting their internship. The Internship is only required in the Research Paper and Research Project option.

Individually-supervised Research Component

An individually-supervised research component is carried out under the supervision of a specialist in an area in which the student wants to specialize. This further study can be related to the internship, but it is academic in nature (e.g. a business case, a survey, or a computer implementation). A written report is expected upon completion.

There are three program options for the research component of the program:

Research Paper + two Additional Electives

This program option offers the study of a specific topic beyond the typical coverage in a course and requires a written report that is evaluated by a reader from one of the three Faculties of Computer Science, Management, or Law. No public presentation is required, and it is not expected to generate new data or theories. This option must be augmented with two additional elective courses relevant to the area of specialization. This option also requires an Internship.

Research Project

This program option typically focuses on an implementation of specific solutions or a thorough analysis of a specific topic with a significant contribution, and requires a comprehensive report and a public presentation. Research projects will be conducted and evaluated under standard guidelines of the Faculty of Graduate Studies for masters' level projects, and requires a supervisor (from any institution) and a reader from one of the three Faculties at Dalhousie (Computer Science, Management, Law) who is a member of the Faculty of Graduate Studies. This option requires an Internship.

Thesis

Students interested in pursuing a research topic in E-Commerce in more depth may, with approval of the electronic commerce Executive Committee, elect to do a thesis instead of a research project. Such a thesis would be conducted and evaluated under standard Faculty of Graduate Studies thesis guidelines. A thesis must make an original research contribution (see Faculty of Graduate Studies thesis guidelines) of considerable scientific, legal, or management interest that would qualify for a publication in a major conference or professional journal. This option requires a public thesis defense. No Internship is required for this option.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ECMM 6000 Overview of Electronic Commerce

CREDIT HOURS: 3

Electronic commerce deals with the conduct of business using computer and communication technologies. It takes place in an environment shaped by government and business policies as well as social attitudes. The course examines issues in global electronic commerce and an understanding of the impact of the interaction and interdependencies of technology, business, and policy on electronic commerce.

ECMM 6010 Technology Issues for Electronic Commerce

CREDIT HOURS: 3

The goal of this course is to examine the technologies and infrastructure required to support electronic commerce. The course examines the major components of the infrastructure such as networks, databases and data warehousing, electronic payment, security, and human-computer interfaces.

ECMM 6014 Databases, Data Warehouses and Data Mining for Electronic Commerce

CREDIT HOURS: 3

Data warehousing and data mining are two emerging technologies which will have a profound effect on the role information plays in organizations. A data warehouse is a repository of data taken from multiple sources that supports querying and analysis tools. Data mining, the process of knowledge discovery from data in a data warehouse, is typically used for strategic planning and has great economic potential for organizations. This course covers key issues in data warehouse architecture, design of data warehouse schemas, design of metadata repositories, the creation, development and maintenance of warehouses, as well as tools and techniques for querying, analyzing and mining the warehouse data. Data mining techniques such as statistical and non-statistical supervised and unsupervised learning methods will be applied to problems drawn from the medical and business world.

ECMM 6018 Enterprise Networking for Electronic Commerce

CREDIT HOURS: 3

The objective of this course is to introduce practical issues for e-commerce applications through the combination of lectures, classroom demonstrations, self-learning, and project work. This course focuses on providing the tools and skills, and an understanding of the current practices and opportunities in electronic publishing, shopping, distribution, and collaboration through the use of client-side and server-side technologies, and network management. Problem areas in electronic commerce such as security (authentication and privacy) along with encryption will also be explored.

ECMM 6020 Business Issues for Electronic Commerce

CREDIT HOURS: 3

For years businesses have been using the computer and information technology to achieve internal efficiencies. With the convergence of Information Technology and telecommunications over the last decade, Electronic Commerce has emerged to redefine the way that these organizations do business with their suppliers, customers and support infrastructure such as distribution providers and financial institutions. In particular, the course will examine the recent and rapid growth of Electronic Commerce from four approaches: an introduction to Electronic Commerce; EDI and re-engineering; Electronic Commerce and the Internet; and organizational issues in implementing Electronic Commerce.

ECMM 6022 Project Management: A Managerial Approach

CREDIT HOURS: 3

The course will cover the principles of management for Information Technology Projects. The history of project management is rooted in Civil Engineering and manufacturing. Information technology projects have several notable differences. Students will learn those differences as well as generic principles of project management. Through case studies and field investigations of actual IT projects, students will gain a real-world understanding.

CROSS-LISTING: BUSI 6523.03; HINF 6300.03

ECMM 6024 New Venture Creation

CREDIT HOURS: 3

New Venture Creation is about entrepreneurship: the process of creating new businesses. It employs cases, experiential exercises, and a major project to expose students to the issues, problems, and challenges of creating viable new business. The project provides students with the opportunity, within the framework of a formal class, to explore and develop business ideas they have been considering or wish to investigate. The final output of the project is a feasibility study, business plan, and financing proposal for a new venture.
CROSS-LISTING: BUSI 6002.03

ECMM 6026 Management of Information (E-Government): International Experiences and Perspectives

CREDIT HOURS: 3
Public administration rhetoric often indicates that governments are re-inventing themselves by using information technology. What is happening around the world with E-government? Using Canada as reference, this course reviews the development of management of information as it affects performance management, democracy, the nation state, accountability, network growth, productivity and access. Each student will be required to analyze an international country, state or province and its progression to e-government and relate that progress to activities in governments around the world.
Some of the topics covered are:
Introduction to E-Government
Service to Citizens
Administration of E-Government
Social Exclusion in the Digital Age
Learning and Information Technology
Knowledge Networks Personal Information and Information Technology
Collaborative Networks
The Dark Side of IT
EVALUATION: Each student will be required to analyze a non-Canadian country, state or province and its progression to e-government and relate that progress to activities in governments around the world. Recommendations for improvement should also be made. Each student negotiates with the professor for an appropriate country. Two papers, class participation and a final presentation based on the two papers, will determine the student's grade.
CROSS-LISTING: PUAD 6556.03

ECMM 6030 Issues in Law and Policy for Electronic Commerce

CREDIT HOURS: 3
This course will provide students in the proposed Master of Electronic Commerce degree programme with an overview of law and policy issues in relation to electronic commerce. The course will introduce students to Canadian, U.S. and international policy making institutions and processes, and will illustrate these processes using examples from the emerging domestic and international law relating to electronic commerce. The course will be taught in a lecture format.

ECMM 6040 Research Methods

CREDIT HOURS: 3
A transition to research-based learning for e-commerce students. The course addresses the challenges of the research paper, project, or thesis. Through lectures, seminars, discussion, and presentations, students identify leading e-commerce research topics, evaluate literature critically and produce a research proposal-the foundation to the program's final phase.

ECMM 6068 Internet and Media Law

CREDIT HOURS: 3
This course deals with the law that governs the dissemination of information and the regulation of information providers. In this course, “media” is defined broadly to include the internet. Topics that will be addressed include: defamation; liability of service providers; privacy issues; publication bans; media regulation; copyright issues; conducting business via the internet ("e-commerce") and media ownership. The impact of the internet on the legal regulation relating to each of these topics will be explored throughout the course.

ECMM 6903 Special Graduate Topics in Electronic Commerce

CREDIT HOURS: 3

ECMM 7010X/Y Industrial Internship

CREDIT HOURS: 12

ECMM 7030X/Y Research Paper in Electronic Commerce

CREDIT HOURS: 6

ECMM 7051 Research Project in Electronic Commerce

CREDIT HOURS: 12

ECMM 9010 Graduate Thesis in Electronic Commerce I

CREDIT HOURS: 12

ECMM 9012 Graduate Thesis in Electronic Commerce II

CREDIT HOURS: 12

Engineering

Location:
Building/Room: Sexton Campus
Street Address 1: 5248 Morris Street
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3267 or (902) 494-1288
Fax: (902) 429-3011
Website: engineering.dal.ca/index.htm
Email Address: Dean.Engineering@Dal.ca or gsr@dal.ca

Introduction

Dalhousie University offers programs leading to Master's and Doctoral degrees in various branches of Engineering, Engineering Mathematics, Food Science and Technology. These graduate programs are offered through the Faculty of Engineering in accordance with the regulations of the Faculty of Graduate Studies and the Faculty of Engineering.

Staff

Dean

Leon, J., BSc, MSc, PhD (Dalhousie), PEng

Associate Dean

Cyrus, P., BSc (Eng) (UWI), MASc, PhD (TUNS), PEng, Undergraduate and Associated Universities

Assistant Dean

Bauer, R., BASc (Waterloo), PhD (Toronto)

Administrative Assistant

Wood, C., BEd (MSVU), BSc (Acadia)

Admissions and Recruitment Coordinator

Hillyard, H., BA (Dalhousie)

Areas of Study

Graduate programs are offered in Biological Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Engineering Mathematics, Environmental Engineering, Food Science, Industrial Engineering, Mechanical Engineering, Materials Engineering and Minerals Resource Engineering, Petroleum Engineering, and Internetworking.

Biological Engineering

Programs offered are MEng, MASc, and PhD: Specific areas of Biological Engineering in which the Department has concentrated include biological waste management (disposal and reuse), biorobotics, agricultural engineering (drainage, soil erosion, farm machinery), aquacultural engineering, food processing engineering, renewable energy (solar and biomass), energy conservation in greenhouses, and pollution control (non-point source, wetlands). Please refer to the departmental entry, for additional information.

Biomedical Engineering

The School of Biomedical Engineering is a partnership between the Faculties of Engineering, Medicine and Dentistry. The programs offered are the MASC and PhD. Research interests include: biomaterials, bioelectricity and biomagnetism, medical imaging, physiological modelling, and rehabilitation. Please refer to the departmental entry, for additional information.

Chemical Engineering

The graduate program focuses on chemical process principles applied to environmental and energy resources. Topics include environmental considerations of combustion technology, fuel preparation, control of explosion hazards, development of innovative process control algorithms and treatment of industrial waste. Fundamental studies are done in mass transfer and rheology, Membrane Separation, Flotation, Coagulation, Gas-liquid System, Emulsification. Programs offered are MEng, MASc, and PhD. Please refer to the departmental entry, for additional information.

Civil Engineering

Programs offered are MEng, MASc, and PhD: Geotechnical Foundation Engineering, Structural Plastics, Wind Power Engineering, Timber Structures, Wood Engineering, Concrete Research, Geometric Design of Highways, Traffic Systems, Steel Structures, Structural Analysis, Wastewater Treatment, Water Pollution Control, Highway Materials, Environmental Engineering Hydraulics, Water Resources Engineering. Please refer to the departmental entry, for additional information.

Electrical and Computer Engineering

Programs offered are MEng, MASc, and PhD: Control Systems, Robotics, Instrumentation; Electric Power Systems; Electrical Machines, High-Voltage Engineering, Photovoltaic Solar Power Systems, Active and Switched-Capacitor Networks; Digital Communication Systems; Cardiovascular Dynamics, Medical Instrumentation, Medical Applications of Computers, Bioelectromagnetics; Ultrasonic Telemetry, Design of Integrated Circuits, Microprocessor-Based Systems. Please refer to the departmental entry, for additional information.

Engineering Mathematics

This is an interdisciplinary program between Engineering and Applied Mathematics, enabling mathematics and physics majors to carry out theoretical and numerical analysis of applied problems and engineering students to prepare mathematical models of engineering problems. Programs offered are MSc and PhD. Please refer to the departmental entry, for additional information.

Environmental Engineering

Interdisciplinary graduate studies and research are offered on a wide range of topics in Environmental Engineering: energy and environment, engineered wetlands and bioremediation, indoor air quality, soil erosion, water quality, waste management and remediation, pollution control and environmental assessment. This is an interdisciplinary program of the Faculty of Engineering leading the MEng and MASc degrees in Environmental Engineering and the PhD degree in Engineering. Contact the Faculty of Graduate Studies Office for more information.

Food Science

Research studies are offered on a wide range of topics in food processing, food microbiology, food chemistry, food rheology, microstructure, food engineering and fats and oils. Special emphasis is placed on seafood preservation, storage and handling. Programs offered are MSc and PhD. Please refer to the departmental entry, for additional information.

Industrial Engineering

Key areas of research interest in the Department are operations research modelling, mathematical optimization, production planning and control, modelling of economic systems, queueing theory, vehicle and crew scheduling, industrial ergonomics and work place design. Applications are primarily selected in the resource base industries of forestry, fishing and mining as well as the smaller sized local business. Programs offered are MEng, MASc, and PhD. Please refer to the departmental entry, for additional information.

Internetworking

The full fee Internetworking program has been designed in consultation with industry leaders to ensure that the graduates will have the core knowledge base for a rewarding career in the internetworking industry. There are ten courses, one per month from September to June. Each course has a significant hands-on component in a modern internetworking laboratory.

The two week per course teaching format is intended to enable students from industry to participate, and to return to industry to apply their new knowledge. This is offered as a MEng program. Please refer to the departmental entry, for additional information.

Materials Engineering

Graduate studies at the Master's and PhD levels are offered; students should apply for these programs in the usual manner. Graduate studies at the Master's level are also offered as a co-operative, combined BEng. - MASc program which is described in detail in the Undergraduate section of this Calendar. Present areas of study are in the chemical, physical and mechanical processing of metals, ceramics and materials, corrosion in marine and high temperature environments, mineral beneficiation, high temperature electrochemical processing and growth of opto-electronic materials. Programs offered are MEng, MASc, and PhD. Please refer to the departmental entry, for additional information.

Mechanical Engineering

Fluid Power Systems, Energy Conversion Systems, Fluidized Bed Combustion, Computational Fluid Dynamics, Vibration, CAD/CAM, CAE, Biomedical Engineering, Finite-Element Techniques, Machine and Rotor Dynamics, Machine Design, Robotics, Solar Energy Systems, Ship and Marine Hydrodynamics, Composites, Energy Management, Turbulence Modeling, Two-Phase Flow. Programs offered are MEng, MASc, and PhD. Please refer to the departmental entry, for additional information.

Minerals Resource Engineering

Programs offered are MEng, MASc, and PhD with research opportunities in the areas of geostatics, mine mechanization, coal mine support, computer applications in mining, mine waste management, ocean mining, mineral beneficiation, solid/liquid separation, mineral economics, reservoir engineering, horizontal drilling, petroleum drilling fluids, and oil shale studies. Please refer to the departmental entry, for additional information.

Petroleum Engineering

The Faculty of Engineering’s Petroleum Engineering Program encompasses a broad range of education and research activities relating to the oil and gas industry. The program is supported by expertise, experience and resources drawn from all of the departments in the Faculty. Petroleum engineering is viewed as a discipline focusing on the specialized knowledge associated with the production, transport and processing of petroleum products. Degree programs available include: MEng in Petroleum Engineering (see the Petroleum Engineering entry), and research degrees (MASc and PhD) associated with various engineering disciplines.

See Process Engineering and Applied Science (PEAS) and Civil and Resource Engineering for additional information.

General Information

Fees

Information pertaining to fees and expenses is given in the Fees section.

Financial Assistance

Information pertaining to financial assistance and scholarships is given in the Awards section.

Health Insurance Requirement

Information pertaining to health insurance requirements is given in the Fees section.

Application Forms

Application forms may be obtained from the Registrar’s Office, Dalhousie University, PO Box 15000, Halifax, NS B3H 4R2, or through the university’s website.

Prospective students are encouraged to contact the Admissions and Recruitment Coordinator for program specific information.

English Language Proficiency Requirement

Information pertaining to the English language proficiency requirements is given in the Faculty of Graduate Studies Regulations section.

Master's Degrees

A student's program of study for the Master's degree may be either a research intensive program (MASc) or a coursework intensive program (MEng). A Master's degree taken according to either program represents an equivalent standard of academic achievement. Note that a research Master's degree is normally required to gain admission into the PhD program.

Course Requirement

At least three-quarters (75%) of the total course requirement must be taken at the University. The graduate student's program submitted by the appropriate department and must be approved by the Engineering Graduate Studies Coordinator. Course requirements are given under the program requirements of the specific degrees.

Thesis/Project Requirement

A master's candidate will be required to submit a thesis/project satisfactory to the Faculties of Graduate Studies and Engineering and to make an oral presentation of the work. Doctoral candidates must complete a thesis and oral defence in accordance with Faculty of Graduate Studies procedures, but are also required to meet Faculty of Engineering requirements.

Leave of Absence

Students may formally apply for a leave of absence in accordance with Faculty of Graduate Studies Regulations.

Admissions Criteria

All candidates must meet the admissions requirements of the Faculty of Graduate Studies, and any specific admissions requirements as listed under each program.

Procedures and Guidelines for Master's Theses and Projects

1. The Department is to ensure that supervisors are assigned to students as a prerequisite to admission. The Department must submit the name of the supervisor to the Engineering Graduate Studies Coordinator and the name will be officially recorded in the student's permanent file. If the supervisor is not a full-time member of the Department a co-supervisor will be appointed from the Department.

2. Granting of credits to a student's program of studies for courses taken prior to commencement of the program requires the recommendation of the Department and approval of the Faculty of Engineering normally in advance of registration. Note that some courses from local universities have been given "blanket" approval. Students should contact their departmental Graduate Coordinator for details.

3. The Department is to appoint a Supervisory Committee, within four months of the first registration, to be responsible for the Candidate's program and thesis/project preparation. The membership of the Supervisory Committee is to be conveyed to Engineering Graduate Studies Coordinator for approval and recorded in the student's permanent file. The Supervisory Committee will normally consist of the thesis/project supervisor, at least one other member of the department, and at least one other member from outside the department with special interests in the proposed area of study. The supervisor will be the chair of the Supervisory Committee.

4. The Supervisory Committee is required to submit a title for the student's thesis/project report, on the prescribed form, to Engineering Graduate Studies Coordinator at least four months prior to the formal submission of the thesis/project. On approval by the Engineering Graduate Studies Coordinator, the title will be recorded in the student's permanent file.

5. A clean copy of the thesis/project report accompanied by the form "Appointment in an Oral Examination" must be submitted to the departmental Office at least 12 working days prior to the date of the oral defence. The department will co-ordinate the scheduling of the presentation and examination. The oral presentation and examination will not be scheduled until the following requirements for the student's program of studies have been met:

- Course work completed;

- Seminar requirement and the graduate seminar completed:
- Supervisory committee approved;
- Thesis/project title approved; and
- Moderator appointed.

6. The thesis/project report is to be prepared to conform with the standards of the Faculty of Graduate Studies or on the Faculty's Website on the Internet.

7. The Department Head or his/her appointee (someone not involved as a member of the Supervisory Committee) shall be a moderator of the oral examination.

8. The student shall be advised by the Engineering Graduate Studies Coordinator of the approval of programs and the approval of thesis titles.

9. The student is required to deliver seminars according to the regulations of the Faculty of Engineering. The seminar requirement involves attending, and participating in, all Graduate Seminars held at the student's department/ program throughout the duration of the student's residency period, as well as making at least one seminar presentation. The department/program graduate coordinator is responsible from organizing the Graduate Seminars, and for deciding whether a student has met the requirement.

Master of Applied Science (MASc)

Admissions Requirements

A candidate to be considered to the Master of Applied Science research program must have obtained, with a high scholastic standing, an undergraduate degree in engineering or a degree in science with honours, or the equivalent, from a recognized university.

Candidates for the above degree may be required to take additional undergraduate subjects as a preparation for advanced courses or to give the candidate a suitable engineering background, but such subjects are seldom considered as part of the graduate program.

Academic Regulations

Program Requirements

A MASc graduate program consists of not less than 12 credit hours or the equivalent, the graduate seminar and thesis selected upon the advice of the thesis supervisor. Not more than one senior level undergraduate course may be taken as part of the 12 credit hour requirement.

Examination Requirement

All courses required to meet the degree requirements are considered essential courses and will be so designated by the Supervisory Committee. Essential courses can include any required undergraduate or prerequisite courses. Any courses taken in excess of the requirements are subject to approval by the supervisor. These courses will appear on the student's transcript as regular courses.

All Master's degree candidates must pass all graduate level courses with a grade of at least B-. Any approved undergraduate course taken by a Master's candidate must be passed with a grade of at least B-. Graduate students are allowed to repeat only one course during their program in the Faculty of Engineering. Graduate students are not eligible to write supplementary examinations. Transfer credits from other universities will be considered on a case by case basis.

As well, all Master's degree candidates must pass an oral examination of their thesis or project after it has been submitted in satisfactory form.

In addition to meeting the grade requirements, failure to maintain an acceptable academic standing will result in a student being asked to withdraw from the program. Failure to achieve the minimum mark as noted above shall be considered grounds for dismissal.

Time Requirement

A candidate for a Master's degree will be required to spend at least twelve months' full time work on course work and the thesis. All students are required to register each session to maintain eligibility to continue a program of studies. See Faculty of Graduate Studies Regulations for policies regarding the maximum length of time for degree completion and extensions.

Master of Engineering (MEng)
Admission Requirements

A candidate to be considered for the Master of Engineering course work program must have obtained an undergraduate degree in engineering or its equivalent with high scholastic standing from a recognized university.

Academic Requirements

Program Requirements

The requirements for the course work Master of Engineering degree is not less than 21 credit hours, the graduate seminar and the six credit hours project. For the program requirements for the Master of Engineering (Internetworking). Undergraduate courses, in the area of a student's interest, not taken by the student for previous credit, may be included in the program, subject to prior approval. Not more than 12 credit hours may be undergraduate credit hours.

A project is required as a part of the program (three or six credit hours out of the required 27 credit hours). Projects require the appointment of a supervisor and one supervisory committee member.

Individual departments will assess applicants and select students for the program in their respective departments. Students' programs will be determined by the department in which the student is registered. All programs must have the approval of the department.

Examination Requirement

All courses required to meet the degree requirements are considered essential courses. Essential courses can include any required undergraduate or prerequisite courses. Any courses taken in excess of the requirements are subject to approval by the supervisor. These courses will appear on the student's transcript as regular courses.

All Master's degree candidates must pass all graduate level courses with a grade of at least B-. Any approved undergraduate course taken by a Master's candidate must be passed with a grade of at least B-. Graduate students are allowed to repeat only one course during their program in the Faculty of Engineering. Graduate students are not eligible to write supplementary examinations. Transfer credits from other universities will be considered on a case by case basis.

As well, all MEng degree candidates must pass an oral examination of their project after it has been submitted in satisfactory form.

In addition to meeting the grade requirements, failure to maintain an acceptable academic standing will result in a student being asked to withdraw from the program. Failure to achieve the minimum mark as noted above shall be considered grounds for dismissal.

Time Requirement

The minimum time requirement for completing the program is twelve months. A student is required to register each session to maintain eligibility to continue his/her program of studies. See Faculty of Graduate Studies Regulations for policies regarding the maximum length of time for degree completion and extensions.

Master of Engineering (MEng) Internetworking
Admission Requirements

A candidate to be considered for the Master of Engineering in Internetworking program must have obtained an undergraduate degree in engineering or its equivalent with high scholastic standing. Applicants with industrial experience are encouraged to apply.

Academic Requirements

Program Requirements

The course requirement for the Master of Engineering in Internetworking is 30 credit hours. An applicant may upon acceptance, request a challenge examination in up to two courses. Contact Internetworking office for details.

The program director or designates will assess applicants and select students for the limited number of seats available in the program. The program of study of each

student will consist of the ten program courses in the approved sequence.

Examination Requirements

The ten program courses are considered required courses. All degree candidates must pass all courses with a grade of at least B-.

A project is optional. Students should seek advice from the Internetworking office.

Candidates will be required to pass an oral examination of their project after the report has been submitted in a satisfactory form.

Course Scheduling

The courses are scheduled one per month.

This delivery method has been chosen to accommodate the sequential nature of the program content.

Master of Science (MSc) Engineering Mathematics

Admission Requirements

For admission into the Master of Science program in Engineering Mathematics, a student must have completed with high standing, a Bachelor's degree in Engineering or an honours (i.e. four year with research project or dissertation) Bachelor's degree with at least two full year mathematics courses at the third year level, one of them in differential equations.

Applicants who do not meet the above requirements may be admitted to a Qualifying Program in which they would take additional courses which will raise their total preparation to the level of an honours degree. These additional courses and completion of the Qualifying Program will be considered a prerequisite to admission to the Master of Science program.

Academic Regulations

Program Requirements

The program will consist of at least 12 credit hours and a thesis selected upon the advice of the thesis supervisor. Not more than six credit hours shall be at the final year undergraduate level and may be chosen from the offerings of the other Departments of the Faculty of Engineering and the Faculty of Computer Science.

Examination Requirement

All courses required to meet the degree requirements are considered essential courses and will be so designated by the Supervisory Committee. Essential courses can include any required undergraduate or prerequisite courses. Any courses taken in excess of the requirements are subject to approval by the supervisor. These courses will appear on the student's transcript as regular courses.

All Master's degree candidates must pass all graduate level courses with a grade of at least B-. Any approved undergraduate course taken by a Master's candidate must be passed with a grade of at least B-. Graduate students are allowed to repeat only one course during their program at Dalhousie. Graduate students are not eligible to write supplementary examinations. Transfer credits from other universities will be considered on a case by case basis.

As well, all Master's degree candidates must pass an oral examination of their thesis or project after it has been submitted in satisfactory form.

In addition to meeting the grade requirements, failure to maintain an acceptable academic standing will result in a student being asked to withdraw from the program. Failure to achieve the minimum mark as noted above shall be considered grounds for dismissal.

Time Requirement

A candidate for the degree of Master of Science in Engineering Mathematics will require at least 12 months to complete the degree. A student is required to register each session to maintain eligibility to continue his/her program of studies. See Faculty of Graduate Studies Regulations for policies regarding the maximum length of

time for degree completion and extensions.

Master of Science (MSc) Food Science
Admission Requirements

For admission into the Master of Science Program in Food Science, students must have a BSc degree from any recognized university in any of the following disciplines:

- Food Science;
- Dairy Science;
- Chemistry/Biochemistry;
- Microbiology;
- Nutrition or Home Economics with suitable background;
- or a Bachelor of Engineering.

Students will be considered for the program on the basis of undergraduate academic standing and background. Candidates without Food Science training at the undergraduate level will likely be required to attend appropriate undergraduate courses offered in the program. All candidates must meet the minimum admission requirements for the Faculty of Graduate Studies.

Academic Regulations

Program Requirements

The graduate program consists of not less than 12 credit hours (or the equivalent) and the graduate seminar and a thesis is selected upon the advice of the thesis supervisor. The graduate student's program is submitted by the Food Science Program for review by Engineering Graduate Studies and Research Office.

Examination Requirement

All courses required to meet the degree requirements are considered essential courses and will be so designated by the Supervisory Committee. Essential courses can include any required undergraduate or prerequisite courses. Any courses taken in excess of the requirements are subject to approval by the supervisor. These courses will appear on the student's transcript as regular courses.

All Master's degree candidates must pass all graduate level courses with a grade of at least B-. Any approved undergraduate course taken by a Master's candidate must be passed with a grade of at least B-. Graduate students are allowed to repeat only one course during their program. Graduate students are not eligible to write supplementary examinations. Transfer credits from other universities will be considered on a case by case basis.

As well, all Master's degree candidates must pass an oral examination of their thesis or project after it has been submitted in satisfactory form.

In addition to meeting the grade requirements, failure to maintain an acceptable academic standing will result in a student being asked to withdraw from the program. Failure to achieve the minimum mark as noted above shall be considered grounds for dismissal.

Time Requirement

A candidate for a Master of Science in Food Science degree will be required to spend at least 12 months' full-time work on course work and the thesis. A student is required to register each session to maintain eligibility to continue his/her program of studies. See Faculty of Graduate Studies Regulations for policies regarding the maximum length of time for degree completion and extensions.

Dates:

Deadlines for applications for MEng:

September:
International Students: April 1st
Canadian Students: June 30th

January:

International Students: August 31st
Canadian Students: October 31st

Co-op Master's Degrees

The Faculty of Engineering offers MASc (Co-op), MSc (Co-op) and MEng (Co-op) degrees. Participation in the co-op program requires a co-op research project suitable for a master's thesis (for co-op MASc and MSc degrees) or a master's project (for co-op MEng degree), and the student's acceptance by a faculty member in the Faculty of Engineering as well as a suitable sponsoring organization. The faculty member who will supervise the graduate student will determine the suitability of a project for master's level research.

The academic requirements for co-op master's degrees in Engineering are identical to those for regular (e.g. non-co-op) degrees with the addition of a minimum of eight months, or up to 12 months, of co-op work term(s). During the work terms, the graduate student will work on a research project that will form the basis of his/her master's thesis/project. The graduate student will conduct all or part of the research work as part of his/her co-op work at the employer's site. Also, all co-op graduate students should complete the “Co-op Workshop” offered by the Technical Co-operative Education Office before going on a work term.

Academic/Work term schedules shall be designed by the Supervising Committee of the graduate student taking into consideration the requirements of the research project as well as the needs of the student and the employer. In developing the schedules, the Supervising Committees shall adhere to the following guidelines:

1. The last term before completion of the degree requirements shall be an academic term.
2. The first co-op work term in the MASc and MSc programs will normally be taken after completing at least nine credit hours.
3. The first co-op work term in the MEng program will normally be taken after completing at least 12 credit hours.
4. Provided that conditions 1-3 above are satisfied, co-op work terms may be:

- Alternate semesters
- Summers only
- One, two or three consecutive semesters
- Parallel (part-time) with study
- Other combinations

The normal upper time limits for the completion of co-op master's degrees will be the same as those for non-co-op degrees, e.g. four years for full-time and five years for part-time studies. The Supervisory Committee of co-op master's students will normally include the student's industrial supervisor as a member, or if appropriate (based on Faculty of Graduate Studies and Faculty of Engineering regulations), as a thesis/project co-supervisor. This arrangement will be agreed upon by the academic supervisor and the company before the student begins the program.

Doctor of Philosophy (PhD)

Admission Requirements and Procedures

A candidate to be considered for entrance into the PhD program must meet the admission requirements of the Faculty of Graduate Studies and must have:

- A research Master’s Degree in engineering from Dalhousie University or any other recognized university, or a Master of Science Degree or its equivalent from a recognized university, acceptable to the Faculty of Engineering (in which case, a candidate may be required to take extra subjects to provide a suitable engineering background); or,
- Acceptance for registration as a candidate for a research Master’s degree at this University.

A candidate registered for a Master’s Degree may be transferred to a Doctoral Degree on the recommendation of his/her department, according to the Regulations of the Faculty of Engineering. The recommendation will be reviewed by the Faculty of Engineering Departmental Graduate Coordinator.

An application for admission to the graduate program leading to the degree of Doctor of Philosophy should have a superior academic record and previous training or experience which indicates that the candidate should be able to do independent research.

Doctoral candidates are not admitted without appropriate funding to support the student and the program of research.

Health Insurance Requirement

Information pertaining to health insurance requirements is given in the Fees section.

Academic Regulations

All doctoral programs are developed under the regulations and procedures of the Faculty of Graduate Studies (see Faculty of Graduate Studies Regulations) and each

program must be approved by the Faculty of Engineering and the Faculty of Graduate Studies.

Course Requirements

Doctoral programs in Engineering normally require a minimum of 12 credit hours, the graduate seminar, plus a thesis. No undergraduate courses are allowed for credit in a Doctoral Degree program.

Thesis Subject Matter and Supervision

The thesis shall consist of an original investigation or design carried out under the immediate supervision of a member of the Faculty of Engineering who is also a member of the Faculty of Graduate Studies.

Admission from Master's Degree

Based on starting from a Master of Applied Science Degree, a candidate must complete not less than 12 credit hours and the graduate seminar. These courses will normally be selected in consultation with the research supervisor and supervisory committee, and must be approved by the Faculty of Engineering and the Faculty of Graduate Studies.

Thesis Requirement

A candidate will be required, as a major part of the program, to submit a satisfactory thesis embodying the results of original scholarship and independent research. See Faculty of Graduate Studies Regulations for information pertaining to doctoral theses.

Examination Requirements

All courses required to meet the degree requirements are considered essential courses and will be so designated by the Supervisory Committee. Essential courses can include any required undergraduate or prerequisite courses. Any courses taken in excess of the requirements are subject to approval by the supervisor. These courses will appear on the student's transcript as regular courses.

A PhD degree candidate must pass all graduate level courses with a grade of at least B. Graduate students are allowed to repeat only one course during their program. Graduate students are not eligible to write supplementary examinations. Transfer credits from other universities will be considered on a case by case basis.

PhD candidates are also required to pass comprehensive examinations which normally take place within the fourth study term. Students who receive a "fail" on the comprehensive examination will be asked to withdraw. Students who receive a marginal fail may be permitted to rewrite once. See Procedures and Guidelines, Section 5, below.

As well, all PhD degree candidates must pass an oral examination of his/her thesis project after it has been submitted in satisfactory form, and in accordance with the Faculty of Graduate Studies Regulations.

In addition to meeting the grade requirements, failure to maintain an acceptable academic standing will result in a student being asked to withdraw from the program. Failure to achieve the minimum mark as noted above shall be considered grounds for dismissal.

Time and Residence Requirements

A candidate for the PhD degree must spend the equivalent of three calendar years of full time work on lectures and the thesis. However, credit for one calendar year may be granted for a Master's degree or its equivalent. A student is required to register each session to maintain eligibility to continue his/her program of studies. A PhD candidate shall spend at least two years in full time attendance of his/her research work at the University. See Faculty of Graduate Studies Regulations for policies regarding the maximum length of time for degree completion and extensions.

Procedures and Guidelines

1. The Department must ensure that supervisors are normally assigned to students prior to their registration. If the supervisor is not a full time member of the Department, a co-supervisor will be appointed from the Department. The Department is to submit the name of the supervisor to the Faculty of Graduate Studies and the name will be officially recorded in the student's file.
2. Granting of credits to a student's program of studies for courses taken prior to commencement of the program requires the recommendation of the

Department and approval of the Faculty of Engineering Graduate Studies Committee. A request for this transfer of credits must be made to the Department before the student's first registration or in the first term.

3. The supervisor is to appoint a Supervisory committee, within four months of the first registration, to be responsible for the Candidate's program and thesis preparation. The membership of the Supervisory Committee is to be conveyed for approval to the Engineering Graduate Studies Coordinator and recorded in the student's file. The Supervisory Committee will normally consist of the thesis supervisor, at least one other member from the department and at least one other member from outside the department with special interests in the proposed area of study. The supervisor will be the chair of the Supervisory Committee. The Supervisory Committee is encouraged to submit progress reports once every six months to the Department's Graduate Co-ordinator.
4. The Supervisory Committee is required to submit a title for the student's thesis report, on the prescribed form, to the Engineering Graduate Studies Coordinator at least seven months prior to the formal submission of the thesis. On approval by Graduate Studies, the title will be recorded in the student's file and forwarded to the Faculty of Graduate Studies.
5. The Supervisory Committee shall be responsible for conducting the comprehensive examinations. The purpose of these examinations are to ensure that the student has a thorough understanding of the fundamentals in the student's area of study and that the student has attained knowledge to an adequate level in the discipline. The comprehensive examination consists of at least two written examination papers and an oral examination conducted to meet the above objective. The written papers are to be set and assessed by examiners recommended by the Supervisory committee. The comprehensive examination shall normally be completed within the fourth session of study from first registration. A student shall be given at least three months notice of the examination. The topics and results of the examination will be conveyed to the Engineering Graduate Studies Coordinator on the prescribed form and will indicate "pass", "fail", or "re-examination". Recommendation of the examining committee to re-examine shall only be permitted if the failure was marginal. Students receiving a recommendation of "fail" shall be required to withdraw from the program by the Registrar's office. Re-examination of marginal students must be carried out within six months of the initial examination. Students requiring re-examination shall not necessarily be required to rewrite both written examinations. Students given the opportunity to rewrite shall only be permitted to rewrite once.
6. An Examining Committee is appointed in accordance with Faculty of Graduate Studies procedures prior to the formal submission of the thesis report. The Examining Committee normally consists of the Supervisory Committee and an external examiner. At least two members of the Examining Committee must be from the candidate's Department. The composition of the committee is to be recorded in the student's file. The names of three external examiners will be recommended to the Faculty of Graduate Studies. The External Examiner will be approached and appointed by the Faculty of Graduate Studies according to Faculty procedures.
7. A copy of the thesis must be submitted to the Faculty of Graduate Studies at least five weeks prior to the date of the oral defence. The copy will be sent to the External Examiner. The copy must be accompanied by the appropriate form. The oral presentation and examination will not be scheduled until the following requirements for the student's program of studies have been met:

i) Course work completed;
ii) Thesis title approved;
iii) The graduate seminar requirement completed;
iv) Examining Committee established;
v) Comprehensive examination passed;
vi) A written report has been received by the Faculty of Graduate Studies from the external examiner.

8. The student shall be advised by the departmental office of the approval of programs, the results of comprehensive examinations, and the approvals of the thesis title and committees.
9. The thesis is to be prepared to conform with the standards of the manual for the Preparation of Graduate Theses, available online at the Faculty of Graduate Studies.
10. The Associate Dean of Graduate Studies shall be the Chair of the Examination or shall appoint someone from the Faculty's Panel of PhD Chairs. The oral defence and examination shall be carried out according to Faculty of Graduate Studies procedures.

Award of Degree

A candidate will not be awarded the PhD degree unless they have satisfied all the foregoing requirements.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

IDIS 6003 Materials Science

CREDIT HOURS: 3

Advanced topics on the physical and thermal properties of representative materials (metals, ceramics, composites and plastics) are discussed in relation to thermodynamics and kinetics of phase transformations. The electrical properties of metals, semiconductors and insulators are reviewed in terms of the modification of these properties by chemical substitution. The relation of mechanical properties of the materials to the proper selection process for materials for a specific application is discussed. Case studies are used to illustrate integration of the above topics.

IDIS 6004 Solid State Engineering

CREDIT HOURS: 3

An interdisciplinary course covering: selected topics in crystallography, including space groups and space lattices, bonding forces and the mechanism of crystal growth; imperfections in solids-vacancies, interstitial, dislocations and the properties of defects; the preparation of materials-metals, semiconductors, ceramics, ferrites, polymers, vapour deposition technique, growth of single crystals from solution, metal and vapour, the mechanical, electrical and magnetic properties of materials; the design of electronic devices, e.g., microwave devices such as ferrite isolators and parametric amplifiers and semiconductor devices, which utilize the special properties of materials prepared by the student. The experimental work will involve the synthesis of ferrites, semiconductors, etc., their examination by X-ray powder photographs and measurements of their properties such as Hall effect, etc.

IDIS 6006 Optimization in Engineering

CREDIT HOURS: 3

Nature and systems considered in engineering and physics have an abundance of examples where an optimum system status is sought. The course aims to provide the students with advanced theory of optimization and topics that arise in applications of the optimization techniques. The challenge of this course is to increase the utilization of the optimization methods by development and use of appropriate algorithms derived for specific problems in engineering and physics. They include those arising in VLSI design, computer engineering, chemical reactor control, in spin glasses as well as in networking, particularly in networks with frequently changing topology. State-of-the-art of the advanced optimization techniques is presented. Geometric interpretations, time-space decompositions and large- and small-scale considerations are stressed wherever possible.

FORMAT: Lecture

LECTURE HOURS PER WEEK: 3

PREREQUISITE: Permission from instructor

CROSS-LISTING: ECED 6650.03

IDIS 6010 Industrial Waste Management

CREDIT HOURS: 3

Industrial processes that generate solid, liquid and gaseous wastes will be reviewed and methods of control will be discussed. Waste management systems that include recycling, recovery and reuse will be considered. Examples will be drawn from Nova Scotia industry and students will be required to undertake case studies of selected industries.

IDIS 6011 Water Resources Management and Planning

CREDIT HOURS: 3

This course will cover planning and management considerations that are important in water-related engineering decisions. Topics to be considered are: constitutional and legal frameworks for water management in Canada and Nova Scotia; conceptional approaches to water management; water use and management issues; nature and purpose of water management; water management frameworks and functions; and institutional arrangements for water management.

IDIS 6013 Environmental Health Engineering

CREDIT HOURS: 3

Radiological health, air pollution control, solid waste treatment, vector control, milk and food sanitation, industrial hygiene.

IDIS 6030 Energy Resources and Utilization

CREDIT HOURS: 3

This course surveys world energy resources and examines the technical feasibility for utilization. The course will attempt to evaluate elements for the Canadian energy policy.

IDIS 6031 Energy and the Environment

CREDIT HOURS: 3

This course examines the physical nature of energy resources and the impact of their development on environmental quality. Technological options to alleviate impact will be examined.

IDIS 6032 Limnology

CREDIT HOURS: 3

A review of the basic principles of the chemical, physical and biological nature of surface waters will be followed by an examination of advanced topics related to water management.

IDIS 6110 Open Channel Hydraulics

CREDIT HOURS: 3

This advanced course will begin with a review of basic concepts of fluid flow. The course will deal with the energy principle and the momentum principle in respect to open channel flow; flow resistance in uniform and nonuniform flow computations; channel controls; channel transitions; and sediment transport.

Engineering Mathematics

Location:
Building/Room:
Street Address 1: 5269 Morris Street
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6085
Fax: (902) 423-1801
Website: www.dal.ca/faculty/engineering/math-internetworking.html
Email Address: engmath@dal.ca

Introduction

The Department of Engineering Mathematics offers programs leading to MSc and PhD degrees in Engineering Mathematics.

The program gives a specialization in Applied Mathematics together with the engineering background required for work with engineers and scientists on problems that require a combination of engineering insight and rigorous mathematical analysis. It also prepares the student for work on engineering problems in research centres and industry. The program is designed for students who have already completed an undergraduate program in Mathematics, Physics, Computer Science, or Engineering. See section on Engineering for general program regulations.

Staff

Department Head

Phillips, W. J., BSc (Eng), MSc (Qu), PhD (UBC). Algorithms and implementation for communication networks

Professors

Fenton, G. A., BEng, MEng (Carleton), MA, PhD (Princeton), PEng. Random field theory with applications to engineering problems
Iakovlev, S. V., MSc, PhD (St. Petersburg), PEng. Fluid-structure interaction
Kember, G., BSc, MSc, PhD (UWO). Dynamical systems and the analysis of geophysical and medical time series data
Robertson, W., BSc (Eng Hons), MSc (Eng) (Aberdeen), PhD (TUNS), PEng. DSP architecture and algorithms and internetworking applications

Associate Professors

Gentleman, W., BEng (Hons) (McGill), PhD (Dartmouth College). Modelling of marine ecosystem dynamics related to fisheries and climate change

Adjunct (FGS)

Aslam, N., BSc, Mech (Univ of Engineering and Technology, Lahore), MEng, PhD (Dalhousie)
Auricchio, F., BEng (Napoli), MS, PhD (Univ of California)
Comeau, F., BEng, MASc (TUNS), PhD (Dalhousie), PEng
Fgee, E., PhD (Dalhousie)
Hannah, C. G., BASc, PhD (UBC), PEng
Khan, Z., BSc (Univ of Peshawar), MSc (Quaid-I-Azam Univ), MSc (Univ of Engia Tech, Tevila), MCSc, PhD (Dalhousie)
Perrie, W., BSc (Toronto), PhD (MIT)
Sivakumar, S. C., BEng (Bangalore), MASc, PhD (TUNS), PEng

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ENGM 6000 Directed Studies in Applied Mathematics

CREDIT HOURS: 3

This course is offered to graduate students enrolled in Applied Mathematics who wish to gain knowledge in a specific area for which no appropriate graduate level courses are offered. Each student taking this course will be assigned a suitable course advisor familiar with the specific area of interest. The student will be required to present the work of one term (not less than 90 hours in the form of directed research, and individual study) in an organized publication format.

ENGM 6610 Wavelets and Filter Banks

CREDIT HOURS: 3

This course explains wavelets and filter banks using both the language of filters and the language of linear algebra. The course concentrates on the underpinnings of this relatively young (1980's) subject which has now stabilized. Applications to the areas of image and video compression, speech, audio and ECG compression and denoising are presented.

ENGM 6611 Functions of Complex Variables

CREDIT HOURS: 3

This course is concerned with the theory of functions of complex variables and its applications in various branches of science and engineering. Topics included are: analytic functions, Cauchy-Riemann conditions, elementary functions, simple mappings, complex integrations, Taylor's and Laurent's expansions; the calculus of residues and its applications in computing integrals; the use of Bromwich contour and Nyquist stability criterion; the application of conformal mappings i.e. Schwartz-Christoffel transformation to the solution of fluid-flow, heat transfer and electrical potential problems; and the integral form of Poisson's equation.

ENGM 6612 Methods of Applied Mathematics I

CREDIT HOURS: 3

Laplace transformations and initial value problems, two point boundary value problems, Green's functions, eigenvalues and eigenfunctions, eigenfunction transforms. General integral transforms, finite Fourier transforms. Hankel transforms, Bessel's functions.

PREREQUISITE: ENGM 3311.03, ENGM 3322.03

ENGM 6613 Methods of Applied Mathematics II

CREDIT HOURS: 3

Linear partial differential equations. Derivation of classical equations, classification and boundary condition, separation of variable technique, integral transform method of solving partial differential equations.

PREREQUISITE: ENGM 6612

ENGM 6621 Vibrations and Waves

CREDIT HOURS: 3

Vibrations and transient response of linear lumped-parameter physical systems. Analogies between electric circuits, mechanical systems and acoustics. Systems with one degree of freedom. Systems with non-linear and variable spring characteristics. Method of successive approximations and Ritz method of non-linear vibrations. Vibratory systems with several degrees of freedom. Approximate methods of calculating frequencies of natural vibrations. Solution of eigenvalue problems by matrix iteration. Vibration of elastic bodies. Wave equation. Applications of rods, plates and shells. Plane waves and spherical waves in unbounded homogeneous elastic media. Elements of harmonic wave phenomenon; reflection, resonance, relaxation and reverberation. Wave propagation through fluid and solid layers.

ENGM 6657 Numerical Linear Algebra

CREDIT HOURS: 3

The topics covered in this course include: matrix and vector norms, condition number, singular value decomposition, LU decomposition, QR decomposition, Cholesky decomposition, error analysis and complexity of matrix algorithms, Toeplitz matrix algorithms, orthogonalization and least squares methods, the symmetric and unsymmertric eigenvalue problems, and iterative methods. The student is expected to code most of the algorithms on the computer.

PREREQUISITE: Ability to programme in C or Fortran.

ENGM 6658 Numerical Solution of Differential Equations

CREDIT HOURS: 3

This course begin with a study of solution techniques or ordinary differential equations. Then a review of the basic partial differential equations of engineering mathematics is undertaken. The finite difference method is used to discretize these equations and concepts of stability, consistency, and convergence in the solutions are introduced. The student is expected to write several computer programs.

PREREQUISITE: Ability to programme in C or Fortran.

ENGM 6659 Finite Element Solution of Linear Partial Differential Equations

CREDIT HOURS: 3

This course covers aspects of the solution of linear static and dynamic partial differential equations through the use of finite element models derived from the Galerkin approximation. Emphasis is placed on the derivation of the approximate matrix equations from the strong form of the boundary value problem and on issues concerning the accuracy of the solution, on integration techniques, completeness, and element tests. Students are expected to code and validate an element appropriate to their specific research interests.

PREREQUISITE: Familiarity with partial differential equations and numerical linear algebra.

ENGM 6660 Finite Element Solution of Non-Linear Partial Differential Equations

CREDIT HOURS: 3

This course covers aspects of the solution of non-linear partial differential equations through the use of finite element models. Emphasis is placed on the modeling of engineering materials. The course addresses such topics as common plasticity relationships, numerical implementation of various yield models, finite deformations, consistent linearization schemes, and theorems dealing with existence, uniqueness and stability. Students are expected to implement a non-linear finite element algorithm on the computer.

PREREQUISITE: ENGM 6659.03 is recommended

ENGM 6671 Applied Regression Analysis

CREDIT HOURS: 3

This course will emphasize practical rather than theoretical considerations and will make extensive use of computer packages. The topics to be covered include: simple linear regression, analysis of residuals and remedial measures, transformation of data, multiple, polynomial and weighted regression, model selection techniques, joint confidence regions, use of indicator variables, analysis of covariance and an introduction to non-linear regression.

ENGM 6675 Risk Assessment and Management

CREDIT HOURS: 3

This course introduces risk assessment and system reliability methodologies, from classical event trees to simulation. Examples of risk-based decision making analyses will be covered, ranging from oil exploration to environmental site remediation. The student will carry out a risk assessment involving design decisions on a project of their own choosing.

ENGM 6680 Ecosystems Modeling of Marine and Freshwater Environments

CREDIT HOURS: 3

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 critique literature and conduct an independent research project.

FORMAT: Lecture| Discussion

CROSS-LISTING: OCEA 5680.03, ENGM 4680.03

ENGM 9000 Master's Thesis

CREDIT HOURS: 0

ENGM 9530 PhD Thesis

CREDIT HOURS: 0

English

Location:
Building/Room: Marion McCain Arts and Social Sciences
Street Address 1: 6135 University Avenue
Street Address 2: Room 1186
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6924
Fax: (902) 494-2176
Website: english.dal.ca
Email Address: gradengl@dal.ca

Applicants should designate the proposed thesis area at the time of application for admission. The Department will entertain research proposals at the MA level in most areas of British, Canadian, or American literature, and at the PhD level in many of these areas. Nonetheless, applicants for the PhD should take care to consult the Graduate Coordinator of the department concerning its strength, in both resources and faculty, in the field of study in which they propose to specialize.

Staff

Chairperson of Department

McNeil, D.

Professors Emeriti

Fraser, J., MA (Oxon), PhD (Minn), FRSC
Gray, J., MA (Aberd), MA (Oxon), PhD (Mont), FRSA, FRSC. McCulloch Professor in English
Wainwright, J. A., BA (Toronto), MA, PhD (Dalhousie). McCulloch Professor in English

Professors

Baxter, J. R., BA, BEd, MA, PhD (Alta). Renaissance literature
Diepeveen, L., BA (Calvin), MA, PhD (Ill). Modern American and British literature
Furrow, M. M., BA (Dalhousie), MA, MPhil, PhD (Yale). Medieval literature
Huebert, R. M., BA (Saskatchewan), MA, PhD (Pitt). Renaissance literature
Luckyj, C., BA, MA, PhD (Toronto). Renaissance literature
Stone, M., BA (Guelph), MA, MPhil (Waterloo), PhD (Toronto). Feminism and Victorian literature. McCulloch Professor in English
Tetreault, R. R., BA (UBC), MA, PhD (Cornell). Romantic literature
Thompson, J., BA (Western), MA, PhD (Toronto). Romantic literature
Wright, J., BA, MA, PhD (Western). Nineteenth-Century Literature

Associate Professors

Bennett, L., BA, MA, PhD (Dalhousie), MA (Carleton). Renaissance literature, Rhetoric and Composition
Cawsey, K., BA (WLU), MPhil (Oxford), PhD (Toronto). Medieval literature
Dawson, C., BA (UBC), MA (Sussex), PhD (Queensland). Canadian and post-colonial literatures
Enns, A., BA (North Carolina), MA, PhD (Iowa), MA (Hollins). Cultural studies
Evans, D., BA (Toronto), MA, PhD (Rutgers). Nineteenth and twentieth-century American literature
Greenfield, B. R., BA (York), MA (McGill), MPhil, PhD (Columbia). Colonial and nineteenth-century American literature
Haslam, J., BA, MA (McGill), PhD (Waterloo). Nineteenth and twentieth-century literature
Irvine, D., BA (UVic), MA (Calgary), PhD (McGill). Canadian literature
Maitzen, R., BA (UBC), MA, PhD (Cornell). Nineteenth-century literature
McNeil, D., BA (Concordia), MA (UNB), PhD (McMaster). Restoration and eighteenth-century literature
Ross, T., BA, MA (Carleton), PhD (Toronto). Eighteenth-century literature and history of criticism
Stiles, D., AB (Marshall), MA, PhD (Maine). Faculty of Agriculture
White, J., BA (Oregon), MA, PhD (Alberta). Irish literature and film studies

Assistant Professors

Brittan, A., BA, MA (Toronto), PhD (Pennsylvania). World literature
Vautour, B., BA (Guelph), MA (Toronto), PhD (Dalhousie). Canadian literature

Cross-listed Faculty

Barker, R., BA (King's), MA (Dalhousie), PhD (Birmingham), major appointment in Theatre
Barker, W., AB (Dartmouth College), MA, BEd, PhD (Toronto). Renaissance literature
Edwards, E., BA, MA (Dalhousie), PhD (Cambridge). University of King's College. Middle ages, contemporary studies
Gantar, J., BA, MA (Ljubljana), PhD (Toronto), major appointment in Theatre
Glowacka, D., MA (Wroclaw), PhD (SUNY). University of King's College. Contemporary studies
Luo, S., BA (Jilin Univ), MA (Lamar Univ), PhD (UNB). Contemporary literature

Adjunct (FGS)

Davies, R., PhD (Wales). Acadia University; Eighteenth Century
Green, R., BA (MSVU), MA, PhD (Dalhousie). Mount Saint Vincent University; Early modern literature
Heffernan, T., BA, MA (Ottawa), PhD (Toronto). Saint Mary's University; Twentieth century literature
Hulan, R., BA (Acadia), MA (Guelph), PhD (McGill). Saint Mary's University; Canadian literature and studies
Macfarlane, K., BA, MS (Queen's), PhD (McGill). Mount Saint Vincent University; Nineteenth century literature
Malton, S., BA (UVic), MA (Ottawa), PhD (Toronto). Saint Mary's University; Nineteenth century literature
Mount, D., BES, MA (York), PhD (McMaster). Cape Breton University
Ó Siadhail, P., BA Hons, PhD (Dublin). Saint Mary's University; Irish literature
Perkin, J. R., BA (Oxford), PhD (Toronto). Saint Mary's University; Nineteenth century literature
Smol, A., BA (Concordia), MA, PhD (Queen's). Mount Saint Vincent University; Old english literature
Stanivukovic, G., BA (Yugoslavia), MA, PhD (Belgrade). Saint Mary's University; Renaissance literature

Admission Requirements

Candidates must at a minimum satisfy the general requirements for admission to the Faculty of Graduate Studies as spelled out in Section II in the Faculty of Graduate Studies Regulations. Since this department accepts full-time graduate students only if it can fund them, standards are very high, currently an A- (3.70) or better average in the last two years. Both MA and PhD programs presuppose an acquaintance with English literature of different periods and nationalities. Applicants with other strengths but with limited historical coverage might still be accepted, but might be required to remedy deficiencies with one or even two of their graduate courses.

Only in exceptional circumstances will persons holding a BA and an MA from Dalhousie be allowed to proceed to a PhD program without study at another institution. If you have a Dalhousie BA and MA and wish to apply to the PhD, please consult the Graduate Coordinator first.

Students are reminded that the pragmatic, departmental deadline for applications is much earlier than the official Faculty of Graduate Studies one of June 30. Students who wish their applications **to be competitive** should **submit them by January 15.** Those who wish to be considered as **candidates for Killam awards must submit complete applications by January 15**. Please consult the departmental website for full, updated information, including deadline dates and details.

Master of Arts (MA)

For minimum time required to complete this program, see Section 1.3.1, in the Faculty of Graduate Studies regulations.

Course work must include a graduate seminar (half or full-year) in the thesis area; at least one graduate seminar in a field unrelated to the thesis; and additional seminars in English to make up the equivalent of three full-year seminars (six .03 graduate seminars). Masters students must also complete ENGL 8500: Professional Development, a full-year non-credit Professional Development seminar, and ENGL 8000: English MA Thesis Prospectus, usually in the winter semester. With the approval of the Graduate Committee, a graduate course in another department relevant to the candidate's thesis may take the place of one of the additional seminars, and under certain conditions a reading course may take the place of the seminar in the thesis area.

Before graduation, all students are required to demonstrate some proficiency in at least one language other than English that is relevant to their studies.

A thesis of 10,000 to 12,000 words, equivalent to two (.03) courses, is required.

Doctor of Philosophy (PhD)

For the minimum time required to complete this program, see Section 2.3.2, in the Faculty of Graduate Studies regulations.

In the first year, doctoral candidates must take the equivalent of three full-year graduate seminars and the full-year non-credit seminar ENGL 8500: Professional Development.

Candidates must take a qualifying examination, with written and oral portions, in the field (period and national literature) most germane to their intended thesis. The examination is to be taken no later than May of the second year in the program.

All graduate students in the Department are required to demonstrate some proficiency in at least one language other than English that is relevant to their studies.

Preparation and defence of a thesis are required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Graduate Seminars

Approximately 10 half-year seminars or the equivalent are offered each year. Students should consult the departmental Website about which seminars will be offered.

Course Descriptions

ENGL 5000X/Y Directed Readings I

CREDIT HOURS: 3

RESTRICTIONS: Students may only register for this class with the written permission of a Faculty member and the Graduate Coordinator.

ENGL 5001 Directed Readings II

CREDIT HOURS: 3

RESTRICTIONS: Students may only register for this class with the written permission of a Faculty member and the Graduate Coordinator.

ENGL 5002X/Y Selected Readings in English

CREDIT HOURS: 6

NOTES: 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.
RESTRICTIONS: Students may only register for this class with the written permission of a Faculty member and the Graduate Coordinator.

ENGL 5110X/Y Middle English Literature

CREDIT HOURS: 6
A study of major and minor works in Middle English, including poetry by Chaucer, Langland, and the Pearl-Poet. We will pay particular attention to language, manuscript transmission and cultural context.
NOTES: 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

ENGL 5118 Reading the Canterbury Tales (All of Them)

CREDIT HOURS: 3
This course will provide an opportunity to read Chaucer's *Canterbury Tales* closely in its entirety, with a view to establishing over-arching connections, themes and concerns.
FORMAT: Seminar

ENGL 5119 Chaucer - Dream Visions and Tales other than Canterbury

CREDIT HOURS: 3

This course will cover Chaucer's non- *Canterbury Tales* writings, including *Troilus and Criseyde, The House of Fame, The Parliament of Fowls, The Legend of Good Women,* and *The Book of the Duchess*. We will consider Chaucer's sources and predecessors as well as imitations and expansions such as Henryson's *Testament of Cresseid*.

FORMAT: Seminar

ENGL 5135 England's Late-Medieval Alliterative Poetry

CREDIT HOURS: 3

This seminar will survey such masterworks of the late-medieval period as *Pearl, Sir Gawain* and *Piers Plowman*, as well as diverse lyrics and short poems, major romance-narratives and cycle-plays. Analysis of the poems' verbal resources, stylistic techniques and topical preoccupations will be conjoined to some questions of codicology and pertinent history. The course will build upon a basic undergraduate acquaintance with the Middle English language and canon, and will offer an introduction to manuscript studies.

FORMAT: Seminar

ENGL 5227 Re-Imagining the Plot in Selected Shakespearean Tragedies

CREDIT HOURS: 3

Starting with Ben Jonson's Aristotelian account of plot -- "it behoves the action in a tragedy to be let grow, till the necessity ask a conclusion" -- this course explores the ways in which some of Shakespeare's tragedies adhere to or depart from the principles of Aristotle's *Poetics*.

FORMAT: Seminar

ENGL 5231 Spenser, Shakespeare, Donne: Eros and Chastity

CREDIT HOURS: 3

How do Renaissance poets organize erotic experience? What forms (genres, styles, methods) do their orderings take, and what are their motives (personal, cultural, religious)? We will explore these and related questions by concentrating on selected works by Donne, Shakespeare, and Spenser.

ENGL 5235 Milton's Paradise Lost

CREDIT HOURS: 3

This seminar is intended both for students who are familiar with the poem and for those who will be coming to it for the first time. We will read the poem closely, book by book, and examine the poem in its historical, intellectual, and literary contexts. At the same time, we will consider some exemplars of the major twentieth-century critical approaches to the poem.

FORMAT: Seminar

ENGL 5236 Poetry and Rhetoric in Early Modern Culture

CREDIT HOURS: 3

The central aim of this course will be to evaluate the achievement of English poetry during the sixteenth and early seventeenth centuries. We will question primarily through a study of short poems, their relation to the influential rhetorical works, and their relation to each other.

FORMAT: Seminar

ENGL 5237X/Y Gender in English Renaissance Drama

CREDIT HOURS: 6

This course will examine plays by Shakespeare and his contemporary dramatists in relation to the shifting and multiple discourses about gender in the sixteenth and early seventeenth centuries. As well as reading dramatic works by Shakespeare, Elizabeth Cary, Thomas Middleton, and John Webster, we will attend to cultural and theatrical sources, and current critical approaches.

FORMAT: Seminar

ENGL 5238 *Othello* and Its Afterlife

CREDIT HOURS: 3

This course focuses on a single play by Shakespeare as a key site where early modern notions of race, gender and class converge. It begins by interrogating the apparent stability of Shakespeare's text, which exists in alternative authoritative versions (Quarto and Folio) and is always mediated by the conditions of a playhouse in which white males play both women and blacks. We'll aim to unpack the complex, cultural constructions of gender and race with which this play is so deeply concerned by studying a range of contemporary discourses (primary source material on microfilm) as well as Shakespeare's own *Titus Andronicus*, which anticipates some of *Othello's* preoccupations.

FORMAT: Seminar

ENGL 5246 The Drama from Marlowe to Ford

CREDIT HOURS: 3

An exploration of the diversity of textual and theatrical practice within the canon (and at the margins) of Renaissance drama. Critical strategies will be pluralistic: both detailed analysis of particular scenes and wide-ranging discussion of cultural issues are encouraged. Playwrights to be studied include Marlowe, Heywood, Beaumont, Jonson, Webster, Middleton, and Ford.

FORMAT: Seminar

ENGL 5250X/Y Renaissance Dissident Writers

CREDIT HOURS: 6

A study of writers who don't share one or more of the normative Renaissance positions, or who have strong reasons for believing that the established order is set up in such a way as to exclude them. Some authors (Southwell, Winstanley, Eliza, Osborne) will be obscure; others (Marlowe, Donne) canonical.

NOTES: 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

ENGL 5258 Early Modern Privacy

CREDIT HOURS: 3

An exploration of the development of privacy in early modern culture with reference to texts ranging from canonical poetry (by Donne and Marvell) to discursive life-

writing (by Montaigne and Browne) to personal letters and diaries (by Dorothy Osborne and Anne Clifford). Is privacy necessarily the preserve of the privileged? Did puritanism promote or inhibit the development of privacy? Did privacy mean the same thing to women as to men? Questions like these will be offered as a provocation to discussion and further enquiry.
FORMAT: Seminar

ENGL 5265 Writing Women/Women Writing in Early Modern England 1540-1640

CREDIT HOURS: 3
This half-credit course explores the context and range of women's writing in Tudor and Stuart England. Adopting a multidisciplinary approach, we will examine a range of works by and about women, from witchcraft trials and medical treatises, to poems, plays, translations and polemical pamphlets in an attempt to determine the relation of early women writers to their culture. Writers to be studied in depth include Mary Wroth, Elizabeth Cary, and Aemilia Lanyer.
FORMAT: Seminar

ENGL 5266 Mothers and Maternity in Early Modern England 1580-1670

CREDIT HOURS: 3
This course explores motherhood in the culture and literature of early modern England.
FORMAT: Seminar

ENGL 5267 Shakespeare's Sister: Lady Mary Wroth

CREDIT HOURS: 3
Mary Wroth, the gifted and prodigious author of a prose romance, sonnet cycle, and pastoral drama, offers us a unique opportunity to study the literary achievements of one who was both (as a member of the Sidney family) heir to cultural privilege and (as an unchaste woman) a marginal and subversive figure. Her work will be studied in the context of early modern notions of gender, class and authorship.

ENGL 5268 Gender and Politics in Jacobean London 1610-1624

CREDIT HOURS: 3
The seminar will seek to understand the intersection between politics and gender during the turbulent Jacobean years. Beginning with the writings of King James himself, we will read widely in the prose, poetry and drama of the period 1610-1624, from Shakespeare and Webster to Lady Mary Wroth.
FORMAT: Seminar

ENGL 5271 Renaissance Friendships

CREDIT HOURS: 3
This seminar is concerned with a variety of the ways in which friendship was conceptualised in the classical and Renaissance theories of friendship, and with how it is imagined in literature of the English Renaissance.
FORMAT: Seminar

ENGL 5275 Voyeurism in Early Modern Culture

CREDIT HOURS: 3
The work of the seminar will fall into three major categories: (1) theories of voyeurism; (2) voyeurism in early modern art; and (3) voyeurism in early modern literature. Topics for discussion will include the ethics of voyeurism, the male gaze, surveillance, interiority, the eye of providence, and erotic fantasy.
FORMAT: Seminar

ENGL 5276 Spectatorship in Early Modern England

CREDIT HOURS: 3
This seminar will focus on the subject of spectatorship in England in the early modern period. We will use a number of works from the visual arts to begin an examination of how spectatorship was depicted in various texts from the early modern period.
FORMAT: Seminar

ENGL 5280 The Theory and Practice of Literary Pleasure

CREDIT HOURS: 3
An enquiry into some of the established ways of talking about literary pleasure, with a view to devising new and more persuasive ways of doing so.
FORMAT: Seminar

ENGL 5290 Writing Illness in Early Modern Literature

CREDIT HOURS: 3
This Seminar examines the contexts and texts of early modern illness, considering the work of writers medical, literary, and popular. As well as examining the role of language in shaping the realities of mind and body, the course considers how those realities were shaped by a rapidly changing medical epistemology.
FORMAT: Seminar

ENGL 5306 The Restoration Theatre

CREDIT HOURS: 3
This half-credit course traces various aspects of the English stage from 1660 to 1700. In addition to approximately a dozen plays, the course will consider the theatrical milieu of the period, including the audience, casts, and spectacular production techniques. Related political events and theoretical controversies will also be surveyed.
FORMAT: Seminar

ENGL 5316 Studies in the Eighteenth-Century English Novel

CREDIT HOURS: 3
This half-credit course is devoted to the study of a special subject in the early English novel (e.g. Desire, the image of America, the comic novel, the rise of the female novelist).
FORMAT: Seminar

ENGL 5331 Eighteenth-Century Constructions of Authorship

CREDIT HOURS: 3

This seminar considers the changing status of literary authorship in eighteenth-century England. Topics for discussion include patronage, plagiarism, literary biography, the advent of copyright, visual and satiric representations of authors, and the professionalization of letters.
FORMAT: Seminar

ENGL 5335 Reading Pope and Swift: Satire, Entrapment, Theory

CREDIT HOURS: 3
This course has two aims: to consider the virtues and limitations of reader-response criticism, and to assess the value of this approach in interpreting satiric works by Jonathan Swift and Alexander Pope. Of principal concern is the degree to which satire exerts a rhetorical and affective force upon readers that encourages them to work, to make meanings in negotiating twists and turns in the text, and to revise continually their own assumptions about what they are reading.
FORMAT: Seminar

ENGL 5355 Eighteenth-Century Popular Literature and History: An Interdisciplinary Approach

CREDIT HOURS: 3
This half-credit course engages in the interdisciplinary study of popular literature. Various theories of popular culture are considered. Students encounter relevant scholarship outside of literary criticism (e.g., art, legal, and economic history, social psychology, folklore and music) by way of an examination of selected episodes in eighteenth-century English life.
FORMAT: Seminar

ENGL 5402 Literary Theories In/Of Romaticism

CREDIT HOURS: 3
This course surveys a number of the debates and key texts essential to the study of Romanticism, including material from the Romantic period (c. 1780-1837) on authorship, representation, aesthetics, genre, and mode, with some attention in the final weeks to major approaches to Romantic literature in the twentieth century.
FORMAT: Seminar

ENGL 5403 The Gothic Century: Romanticism and Gothic Literature from 1764-1864

CREDIT HOURS: 3
Romanticism have recently proposed the Romantic Century (1750-1850) to address changing idea of the field, and this course will explore the heuristic value of an overlapping Gothic Century, from Walpole's *Castle of Otranto* (1764) to LeFanu's *Uncle Silas* (1864).
FORMAT: Seminar

ENGL 5405X/Y The Wordsworth Circle: The Politics and Poetics of Literary Converse

CREDIT HOURS: 6
A sustained exercise in “intertextual genetics”, this course will uncover the dynamics of collaboration, debate and ‘joint labour’ at work in the production of texts by Coleridge and the two Wordsworth (William and Dorothy), and will consider the implications of this exercise for our ideas of literature: nature of poetry, identity, society and gender which these writers have bequeathed to us.
NOTES: 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

ENGL 5407 Landscape and Loss: Nineteenth-Century Irish Literature

CREDIT HOURS: 3
This course will examine the representation of land - as property, landscape, and foundation of national identity - in nineteenth-century Irish literature with particular attention to the genres of topographical poetry, the "big house" novel, and the gothic, as well as the colonial context which complicated both the material relationship to the land and its cultural representation.
FORMAT: Seminar

ENGL 5408 Radical Arts, Romantic Acts: Reading John Thelwall

CREDIT HOURS: 3
Uniting arts and acts of voice, literature and politics at the turn of the romantic century, this seminar provides comprehensive introduction tithe life and work of "Citizen John" Thelwall, orator, political/poetical activist, reformer, pioneer of free speech and maker of the English working class.
FORMAT: Seminar

ENGL 5413 Dramatic Monologues and the Construction of Poetic Traditions

CREDIT HOURS: 3
This course takes as its starting point some influential "stories" that set out to explain how dramatic first-person poems became "in one form or another the norm" in the post-Romantic poetic tradition. These "stories" range from Robert Langbaum's classic 1957 study, *The Poetry of Experience: The Dramatic Monologue in the Modern Literary Tradition*, to Alan Sinfield's *The Dramatic Monologue*(1977), to Isobel Armstrong's reconstruction of the development of the dramatic monologue in *Victorian Poetry: Poetry, Poetics and Politics* (1993).

ENGL 5414 Romantic Women Writers

CREDIT HOURS: 3
Contributes to ongoing feminist reassessments of “English Romanticism” by surveying key genres and forms to which women made notable contributions (the sonnet, the Jacobin & gothic novel, the heroic epistle) and examining the nature of the influence that writers like Wollstonecraft, Smith, Barbauld, Hemans and Baillie had on their contemporaries and are having on current scholarship.
FORMAT: Seminar

ENGL 5415 Wordsworth and Coleridge

CREDIT HOURS: 6
The close literary relations between these Romantic authors often followed the class of a dialogue in which they responded to one another in alternating poems. Their disagreements over the locus of ultimate value and the solace of nature will be explored.
NOTES: 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

ENGL 5416 Brontë Disseminations

CREDIT HOURS: 3

This class focuses on a close study of works by the Brontës, with particular attention to the ways in which their texts have been disseminated in both high and low culture.

FORMAT: Seminar

ENGL 5417 The 1790s: The Revolutionary Decade

CREDIT HOURS: 3

This class focuses on the discourse of the 1790s, a turbulent transitional period in which vigorous debates about the rights of man and the wrongs of woman, the politics of class and race, reshaped literature even as they rocked the foundations of English society. Reading a range of canonical and non-canonical Romantic writers in their contemporary contexts, students will gain new insight into the origins of romanticism, as well as gaining a new perspective on current debates about the politics of literature.

FORMAT: Seminar

ENGL 5418 The Poetics and the Politics of Literary Couplings: The Brownings In Their Cultural Contexts

CREDIT HOURS: 3

Drawing on theories of authorship, literary collaboration, gender and genre, this course studies the poetical interactions and innovations of the Brownings in the contexts of the cultural, social and political movements of the nineteenth century, and the reception practices that have shaped responses to literary couples.

ENGL 5419 Digital Romanticism & Print Culture: The Case of John Thelwall

CREDIT HOURS: 3

This seminar will explore forms and functions of Romantic-era print culture, and its intersections with other cultural media from a perspective at once historical and practical, by offering students the opportunity to edit the works of the Romantic-era poet, orator, educator, political theorist and speech therapist John Thelwall.

FORMAT: Seminar

PREREQUISITE: Admission to Graduate English (MA or PhD) program

ENGL 5420 Keats and Shelley

CREDIT HOURS: 3

Experiments in longer poetic forms by the younger Romantics will be the focus of this seminar. The literary rivalry between the two poets will help to guide discussion. Their disparate views on political action and on the adequacy of language will be explored.

FORMAT: Seminar

ENGL 5423 Nineteenth-Century Literary Transnationalism

CREDIT HOURS: 3

This study of selected generically mixed British and American nineteenth-century texts investigates the intersections of race, religion, gender and nation. The course gives particular attention to historical connections linking the anti-slavery movement in the United States with British working class activism, the Italian liberation movement, and nineteenth-century Zionism.

FORMAT: Seminar

ENGL 5424 Postcolonial Intertextualities and Victorian Ghosts: Dialogues in Decolonization

CREDIT HOURS: 3

This course explores some of the intertextual and historical dialogues connecting postcolonial to nineteenth-century literature by examining contemporary texts that engage with Victorian texts.

FORMAT: Seminar

ENGL 5426 The Ethics of Victorian Fiction

CREDIT HOURS: 3

This course examines the Victorian debates about the morality of fiction, about the ethical and philosophical implications of particular narrative choices, and about the social and moral role (real and ideal) of the novel. Readings include selected Victorian novels along with 19th and 20th -century theoretical writings on ethics and fiction.

FORMAT: Seminar

ENGL 5450 Studies in the Victorian Novel: George Eliot and History

CREDIT HOURS: 3

A study of George Eliot's novels and essays as contributions to 19th-century debates over historiographical styles and standards.

FORMAT: Seminar

ENGL 5460X/Y The Moral of the Story: Reading in Fiction and Ethics

CREDIT HOURS: 6

This course studies examples of ethical criticism of fiction from the 19th and 20th centuries along with novels which test or exemplify various theoretical or philosophical paradigms. Theorists include E.S. Dallas, G.H. Lewes, George Eliot, Mathew Arnold, Henry James, F.R. Leavis, Wayne Booth, Martha Nussbaum, Cora Diamond, J. Hillis Miller, David Parker and Tobin Siebers; novelists include Jane Austen, Charles Dickens, George Eliot, Henry James, Joseph Conrad and Mark Twain.

FORMAT: Seminar

ENGL 5465 Victorian Women Writers

CREDIT HOURS: 3

This course looks at fiction, poetry, and non-fiction prose by 19th-century women writers including Charlotte Brontë, George Eliot, Elizabeth Barrett Browning, Elizabeth Gaskell, and Harriet Martineau, considering their works both as part of the vigorous intellectual environment of Victorian Britain and as part of a burgeoning tradition of women's writing.

FORMAT: Seminar

ENGL 5518 Catholicism and Modern Literature

CREDIT HOURS: 3
This course examines the relationship between Catholicism (Anglo- and Roman) and literature, beginning with the Oxford Movement (1833-45). Texts studied include spiritual autobiographies, novels, and lyric poetry, by authors such as John Henry Newman, Gerard Manley Hopkins, James Joyce, Graham Greene, Thomas Merton, and Mary Gordon.
FORMAT: Seminar

ENGL 5523 Postmodern Fiction

CREDIT HOURS: 3
This course is designed to introduce students to the theory and practice of postmodern fiction, covering representative texts from the 1960s to the present.
FORMAT: Seminar
PREREQUISITE: Admission to Graduate English Program

ENGL 5524 Sonic Fiction

CREDIT HOURS: 3
This course will introduce students to the "auditory turn" in the humanities - a movement that challenges the dominance of the visual by analyzing how sound is conceptualized, technologized, politicized, materialized and aestheticized. Over the course of the semester students will investigate not only how sounds are represented in literary texts.
FORMAT: Seminar

ENGL 5530 Irish Literature and Bilingualism

CREDIT HOURS: 3
This will be a broad examination of some key texts of 20th century Irish culture. We will pay special attention to Irish culture ad bi-or multi-lingual, and will also pay some attention to the play between media forms such as film, television and radio. The complex politics of language in Ireland will be a recurring topic.
FORMAT: Seminar

ENGL 5541 Politics and the British Novel, 1945-1979

CREDIT HOURS: 3
David Kynaston begins his social history of postwar Britain, Tales of a New Jerusalem, with the end of WWII and the election of a Labour government in 1945. He plans to conclude the series with the election of Margaret Thatcher in 1979. This seminar will examine selected British novels from 1945-1979, and trace the shifts in social and political attitudes that took place between these two elections.
FORMAT: Seminar

ENGL 5545 George Orwell and the Politics of the Plain Style

CREDIT HOURS: 3
This course examines a wide selection from Orwell's documentaries and other non-fiction, as well as his six novels in addition to the significant predecessors to *Nineteen Eighty-Four* - Yevgeny Zamyatin's We and Aldous Huxley's *Brave New World*. We will also evaluate claims recommending and criticizing plainness of literary style.
FORMAT: Seminar

ENGL 5562 Telling the Truth in America: Franklin to Faulkner

CREDIT HOURS: 3
This course will examine the importance of the concept of truth in American literature and culture, and how it is reflected in the writings of a number of writers and thinkers from the Puritans to the twentieth century. Special attention will be given to the works of William Faulkner.
FORMAT: Seminar

ENGL 5605 The Travel Book in Canada: Authorship and Audience, 1670-1870

CREDIT HOURS: 3
This course considers English-language travel reportage from what is now Canada, 1670-1870, in the form of journals, letters, and narratives. It focuses on the material and institutional circumstances in which texts were produced, as well as their contemporary reception.
FORMAT: Seminar

ENGL 5625 Studies in Modern Canadian Poetry

CREDIT HOURS: 3
This course studies a selection, which varies from time to time, of major figures in Canadian poetry, from the beginning of the twentieth century to the present day. A mixture of theoretical approaches is encouraged.
FORMAT: Seminar

ENGL 5635 Representation of the Urban in Canadian Literature

CREDIT HOURS: 3
This course will challenge our learned associations of Canada as an inherently uninhabited space, and consider the role of the Canadian urban landscape in producing cultural images and myth.
FORMAT: Seminar
PREREQUISITE: Admission to the Graduate English Program

ENGL 5650 Nations Within: The Politics and Poetics of Native American Literature

CREDIT HOURS: 3
Literature by First Nations writers poses a challenge to the ideas of nation and national literature. The study of Native Literature asks us to consider seriously the politics of literary representation and the way this politics is conditioned by literary reception.
FORMAT: Seminar

ENGL 5651 Indigenizing Modernism

CREDIT HOURS: 3
The gap between 1913 and the late 1960s has been characterized as the "barren period," and "the nadir of Native-white relations." Given this conjuncture of a decline in First Nations literary production and a rise in non-aboriginal writers' appropriations of aboriginal cultural goods, this seminar interrogates a problematic site of contradiction at the advent of modernist literary culture in Canada.
FORMAT: Seminar

ENGL 5670 Canadian Editions

CREDIT HOURS: 3
This course will examine ways in which editors of literary texts by English and Native Canadian authors contribute to the construction and interpretation of these texts, mediate translations from oral performance to print, facilitate reconstructions of "corrupted" texts and recoveries of "lost" texts, and chronicle material histories of textual production.
FORMAT: Seminar

ENGL 5675 Editing Canadian Modernism

CREDIT HOURS: 3
Beginning with the McGill Movement in the 1920s, this course follows the activities of poets and editors of modernist little magazines in Canada through the mid-1950s.
FORMAT: Seminar
PREREQUISITE: Admission to Graduate English (MA or PhD) program

ENGL 5680 Writing in Canadian: Globalization and Contemporary Canadian Literature

CREDIT HOURS: 3
Beginning with an introduction to debates about globalization and literary studies, this course explores the tension between the local and the global in contemporary Canadian literature. In an attempt to understand the relationship between cultural identity, nationalism, and literature in Canada, we also consider the popular scholarly reception of books on our reading list.
FORMAT: Seminar

ENGL 5681 The Irish in Contemporary Canadian Prose Writing

CREDIT HOURS: 3
This course examines works of Canadian authors who draw on Ireland, Irish themes or the Irish in Canada in their writings, and the work of Irish-born authors living in Canada with Irish-Canadian content.
FORMAT: Seminar

ENGL 5682 Papers Please: Identity Documents, Immigration, and contemporary Canadian Literature

CREDIT HOURS: 3
Beginning with an introduction to the growing field of citizenship studies, this course considers how some Canadian writers have responded to various processes and technologies that seek to make immigrants more 'legible' to the state. Broadly we will ask, how do stories about 'being I.D. ed' affect the ways we understand the relationship between citizenship and print?
FORMAT: Seminar

ENGL 5700 South African Literature in a Century of Struggle

CREDIT HOURS: 3
At the center of all South African anti-apartheid writing, from the manifesto to the poem, is the following question: what is the relationship between writing and fighting? This course explores the ways in which ethical and political relations have been imagined, revised, and represented in twentieth-century South Africa.
FORMAT: Seminar

ENGL 5805 Walt Whitman and Emily Dickinson

CREDIT HOURS: 3
A close study of the works and lives of two great American poets of the nineteenth century.
FORMAT: Seminar

ENGL 5811 American Lives

CREDIT HOURS: 3
Drawing on a wide range of experiences and texts from the eighteenth and nineteenth centuries, this course is an exploration of possible lives, of the give and take between literary imagination and the other determining forces of life.
FORMAT: Seminar

ENGL 5812 Ideas of the Western

CREDIT HOURS: 3
This course deals with representations of the American West in fiction and film, exploring the various cultural, social, and political functions that those representations have served.
FORMAT: Seminar

ENGL 5813 Literature of the American Prison

CREDIT HOURS: 3
This course examines literary depictions of the prison in the US, paying particular attention to writings by prisoners. The course also surveys the modern prison's larger relations to literature, from the eighteenth century and sensationalist literature through to the current period of mass imprisonment and contemporary political autobiography.
FORMAT: Seminar

ENGL 5814 The Afterlife of Henry James

CREDIT HOURS: 3

This course approaches the fiction of Henry James by way of its reception history. A representative of James's fiction will be studied, along with criticism of that fiction, biographies of James, film adaptations, and novels about James or responding to works by him.
FORMAT: Seminar

ENGL 5815 American Travel/American Literature

CREDIT HOURS: 6
This course explores the connections between the rich archive of travel reportage from the eighteenth and nineteenth centuries and American works of fiction and poetry during the same period. An hypothesis of the course is that travel genres exerted a profound influence on the American literary imagination of the nineteenth century.
NOTES: Students taking ENGL 5815 must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

ENGL 5818 The Nature of America: Nature in American Literature and Culture

CREDIT HOURS: 3
This course examines the function of the idea of nature in American literature and in the formation of the American cultural and national self-definition. A central theme will be the claim, explicit or implicit, that the new world affords a privileged and exclusive access to truth.
FORMAT: Lecture| Seminar

ENGL 5821 American Utopias

CREDIT HOURS: 3
In this course, we focus on utopian and dystopian literature of the nineteenth-century, while framing that focus with reading from earlier periods and from the twentieth century. We study a variety of topics, examining both literary Utopias and actual utopian societies in the US, but the course is designed to allow student entry points into other areas not explicitly covered.
FORMAT: Seminar

ENGL 5828 Ralph Ellison's America

CREDIT HOURS: 3
This half-year course will consider the vision of America that emerges from the work of Ralph Ellison. Perhaps more specifically, the course juxtaposes Ellison's vision with the national image which has taken on the status of an originary myth. We will read *Invisible Man* and a selection of Ellison's essays, as well as texts which will help contextualize Ellison's ongoing discussion of the place of African Americans in the larger social and political landscape of the United States.
FORMAT: Seminar

ENGL 5830 Reading American Modernism

CREDIT HOURS: 3
This course looks at the initial reception of some central works of High Modernism as well as works that have been considered to be at its fringes. In doing so, it considers questions of how the canon was formed.
FORMAT: Seminar

ENGL 5835 Finding a Centre: Making Literary History in Contemporary American Poetry

CREDIT HOURS: 3
Selecting from a wide range of poetic practices, this course considers the work of five or six contemporary poets. It does so in order to explore the contesting aesthetic principles critics and poets are currently using to construct versions of contemporary poetic history.
FORMAT: Seminar

ENGL 5841 Literary Talk: Modernism

CREDIT HOURS: 3
This course discusses the variety of forms and strategies that were used to invent Anglo-American Modernism as a recognizable moment in literary history; that is, as a literary period, with its own techniques, central and marginal authors, paradigmatic stories, and boundaries.
FORMAT: Seminar

ENGL 5845 Forms of Modern Literary Production

CREDIT HOURS: 3
This course examines the context in which the texts of modernism were produced. It considers the roles of little magazines, anthologies, manifestos, and the rise of literary criticism as a profession.
FORMAT: Seminar

ENGL 5850 Aesthetic Scandals of the Twentieth Century

CREDIT HOURS: 3
This course is based on some major aesthetic scandals of the twentieth century?literary, visual, and acoustic. The seminar explores such things as recurrent patterns of behavior in scandals, formalism as a technique for dissipating scandal, and the relation of scandal to canon formation and cultural capital.
FORMAT: Seminar

ENGL 5875 Twentieth-Century African-American Intellectual Debate

CREDIT HOURS: 3
This course offers a selection of the diversity of voices emanating from that American ethno-cultural field still called "the black community." What is at stake in such a term at a time when the diversity of opinion among African-Americans is public and vast? Why is the label of "conservatism" seen as an accusation among many African-American thinkers? Do concerns with group solidarity overmatch, interfere with, or aid advancement of the group as a whole? The writings considered will provoke students to pose their own speculations on the issues raised.
FORMAT: Seminar

ENGL 5911 Between Literature and Philosophy

CREDIT HOURS: 3
In this course, we consider the relations between philosophy and literature through the lens of several texts that seem to cross their respective discursive boundaries. In

the words of philosopher Philippe Lacoue-Labarthe, philosophy has been defining itself against literature, insisting that it conveys truths that are absolute in nature and thus independent of its written medium. The theoretical texts we read in the course, by authors such as Plato, Kierkegaard, Nietzsche, Blanchot, de Man, Derrida, Cixous and Irrigaray, however, explore the texture of language and reveal philosophy's dependence on literary devices. On the other hand, we examine the texts that belong to the domain of literature yet engage in a philosophical reflection, such as Kafka's parables, poetry by Waldrop and Celan, and novels by Michel Tournier and Jeanette Winterson.
FORMAT: Seminar

ENGL 5916 The Rhetoric of Literary Criticism

CREDIT HOURS: 3
This seminar consists of the rhetorical and epistemological history of the literary-critical profession, examining arguments made by recent proponents of an increasingly inclusive discipline as well as those of their professional forbearers. Readings include rhetorical as well as theoretical texts, and participants engage in close textual analysis as they interrogate the profession's practices, assumptions, and beliefs.
FORMAT: Seminar
PREREQUISITE: Registration in the graduate program

ENGL 5917 Critical Theory: The Ethical Turn

CREDIT HOURS: 3
Under fire for a lack of commitment in the 1980s, critical theory (postmodernism, post structuralism, and deconstruction) takes an "ethical turn" in 1990s to explore issues of social and political justice and to interrogate notions of identity, politics, and the social construction of gender. This course attempts to study some of these innovative critical interventions and to re-enact them in the classroom.
FORMAT: Seminar

ENGL 5919 Postcolonial Studies in the New Millennium

CREDIT HOURS: 3
This course looks at recent literary and theoretical developments in postcolonial studies, including the shift away from identity politics and national allegory, which shaped the field in the 1980s and 90s. We read novels, theory, and scholarship from the new millenium in order to consider where postcolonial studies is now.
FORMAT: Seminar

ENGL 5926 Travelling East

CREDIT HOURS: 3
This course focuses on travel writing about the Orient. We consider such things as the historical nuances of orientalism, the "Eastern" question, the gender of the writer, the representation of the harem, the politics of the (un)veiling of women, and the genre of travel writing.
FORMAT: Seminar

ENGL 5928X/Y Literary Couples and Collaborators

CREDIT HOURS: 6
This team-taught course questions paradigms of the "solitary genius" by approaching the works of literary couples and collaborators in conjunction with one another. It considers the dynamics of interpersonal and intertextual relationships; the differing trajectories of the "family romance"; mutual differences and difficulties with the muse; mentoring versus "mothering" a partner's creativity; anxieties of authorship and of mutual influence; sexual/textual tensions; playing the role of an implied, ideal or actual reader/listener; and revising or editing a partner's works as a form of co-authorship and/or co-option.
NOTES: 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

ENGL 5935 Canonicity

CREDIT HOURS: 3
This course is intended as an experiment in "teaching the conflicts" that are currently vexing the profession of English literature about the nature of literary value and the "canon". Readings for the course will include "classic" statements on value by Hume, Johnson, and Arnold, and more recent position papers on the theory of canonicity by such critics as Harold Bloom, Frank Kermode, Pierre Bourdieu, and others. Among the questions that may be addressed are the following: is aesthetic value enduring or relative to specific social formations? What do we mean when we say a work is good or a classic? Is there a test of time and should we abide by it? Is value something that inheres in a text or something assigned to it? How are literary canons formed and for what purpose? What is the relation between the canon and the curriculum?
FORMAT: Seminar

ENGL 5942 Gender and the Holocaust

CREDIT HOURS: 3
This course focuses on the politics of gender in Holocaust testimonies, both eye witness reports and fictionalized accounts. We read texts through the lens of theories of gender, trauma, and memory studies, asking questions about the impact of extreme violence on the intersectionality of oppression on the strategies of remembrance and representation, and on the transgenerational transmission of memory.
FORMAT: Seminar

ENGL 5944 Afrofuturism

CREDIT HOURS: 3
This course focuses on non-realist works by African American and African Canadian authors and how non-realist modes respond to and challenge institutional and other forms of racism in North America. We will study critical theories of Afrofuturism, science fiction, and non-realism more generally. This course will engage African American history, theories of science fiction and race, gender and queer studies.
FORMAT: Seminar

ENGL 5945 Representations of Slavery: Race, Writing and Gender

CREDIT HOURS: 3
This course focuses on narratives of and about slavery written over three centuries in a range of genres on both sides of the Atlantic. The selection of texts is designed to foreground the syncretic hybridity of cultural traditions and to problematize binary oppositions between black and white, and female and male authors, between history and literature, and between traditional and postmodern works.
FORMAT: Seminar

ENGL 5950 Literary Labours

CREDIT HOURS: 3

This seminar addresses English-language working-class literature and culture in early twentieth-century North America. Readings include the stories and histories of literary labour?not only of those who define themselves as members of the working class but also of those who work alongside them as poets, songwriters, journalists, dramatists, activists, essayists, short-story writers, and novelists.

FORMAT: Seminar

ENGL 5951 Modernisms and Masculinities

CREDIT HOURS: 3

This seminar pursues a narrative trajectory that moves from a time of heteronormative and reactionary masculinities and (anti) modernisms in the postwar and early interwar periods toward a signal moment in Canadian literary history beginning in the mid-1930s when hegemonic masculinities and modernisms started to fall into decline and marginalized masculinities and modernisms (queer, ethnic, diasporic) entered an emergent phase of cultural formation.

FORMAT: Seminar

ENGL 5952 Writing the Spanish Civil War: Literature, History, and Popular Culture

CREDIT HOURS: 3

This graduate seminar seeks to examine the remembered stories of the Spanish Civil War through literature by George Orwell, Ernest Hemingway, W.H. Auden, and in film, with attention to Canadian representations of the conflict through poetry, fiction, reportage, magazines, and other print ephemera.

FORMAT: Seminar

ENGL 5957 The Reception of Fairy Tales

CREDIT HOURS: 3

A survey of the Western fairy tale tradition (mainly Perrault, Grimm, and Andersen), followed by a close analysis of British and American modernist and post-modernist reversionings of the tales.

FORMAT: Seminar

ENGL 5970 Technoculture Studies

CREDIT HOURS: 3

This course examines the history of technology and the ways in which technological developments have been imagined, represented, and resisted in literary texts over the course of the past century.

FORMAT: Seminar

ENGL 5971 Literature and Media

CREDIT HOURS: 3

This course is designed to introduce students to the field of literary and media studies, covering representative texts from the 19th century to the present.

FORMAT: Seminar

ENGL 5972 Book Design in the Digital Age

CREDIT HOURS: 3

This seminar is an introduction to the study of contemporary experimental book design through a series of case studies, which includes collage novels, concrete novels, hypertext and new media writing. Students will examine how design elements foreground and thematize the narrative. How have new technologies historically influenced the form and content of literary narratives?

ENGL 5996 Canadian Multicultural Fictions: Ethnicity, Race and Reading

CREDIT HOURS: 3

Drawing on a wide range of theoretical writing about identity formation, ethnicity, race, diaspora, and migration, this course aims to develop a nuanced understanding of multiculturalism as it is represented by a number of contemporary Canadian writers whose narratives explore its pleasures and discontents.

FORMAT: Seminar

ENGL 8000 English MA Thesis Prospectus

CREDIT HOURS: 0

This registers the students' involvement during the winter term of their academic year-in-residence in developing the thesis prospectus for the MA and then in reading towards the thesis.

ENGL 8500X/Y Professional Development

CREDIT HOURS: 0

This non-credit, pass/fail course is required of all MA and PhD students in the first year of their respective programs. As well as effective teaching and research, topics include writing grant applications, delivering conference papers, finding alternative careers, and competing on the academic job market.

FORMAT: Lecture| Discussion

ENGL 9000 MA Thesis

CREDIT HOURS: 0

ENGL 9530 PhD Thesis

CREDIT HOURS: 0

Environmental Engineering

Location:
Building/Room: Sexton Campus
Street Address 1: 1360 Barrington Street
Street Address 2: D215
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3960
Fax:
Website: www.environmental.engineering.dal.ca
Email Address: cregrad@dal.ca

Introduction

This program is comprised of faculty from different departments in the Faculty of Engineering who have research interests in the multidisciplinary field of environmental engineering. Graduate education in environmental engineering builds upon a strong foundation in science and engineering principles which are applied to the solution of important problems related to sustainable utilization of natural resources and protection of the environment.

Master of Engineering (MEng) and Master of Applied Science (MASc) degree programs are available for students interested in obtaining a graduate degree in Environmental Engineering. Students have a wide choice of courses and research topics to meet their particular interests and needs. Graduate level courses in the areas of energy and environment, soil and water quality management, waste management and remediation, pollution control and environmental assessment are available in the Faculty of Engineering and other faculties offering graduate studies at Dalhousie University.

Graduate students can also conduct field research studies on soil erosion, bio-chemical transport phenomena, engineered wetlands, bio-waste composting and bioremediation at the Bio-Environmental Engineering Centre jointly administered by the Faculty of Engineering and Faculty of Agricultural and located in Truro, Nova Scotia.

Facilities

Several modern, well-instrumented specialized laboratories in environmental engineering are housed in participating departments in the Faculty of Engineering. These specialized research laboratories include: biochemical analysis, water quality, waste treatment, soil erosion, environmental measurements and hydraulics.

Graduate students also have access to excellent research facilities in the Bio-Environmental Engineering Centre (BEEC), the Centre for Water Resource Studies (CWRS) and the Canadian Residential Energy End-use Data and Analysis Centre (CREEDAC).

Graduate students have the technical support of highly-qualified and experienced research support technicians and technologists in bio-chemical analysis, measurement and control systems, and design and manufacture of specialized research equipment.

Staff

Graduate Coordinator

El Naggar, H., MESc, PhD (UWO), PEng, civil construction, geotechnical and structural engineering and research, analysis and design of foundations and soil structure interaties of buried infrastructures

Faculty

Ben Abdallah, N., BSc, MASc, PhD, PEng, PAg., solar energy, thermal energy storage, environmental control and air quality
Duinker, P., BSAgr, MES, PhD, environmental impact assessment, climate change and forests
Gagnon, G. A., BScE, PhD, PEng, Water and wastewater treatment, water quality
Ghaly, A. E., BSc, MSc, PhD, PEng, waste management and utilization, bioremediation, biomass energy, environmental biotechnology
Hansen, D., BScE, MScE, PhD, PEng, hydrology, river hydralics, flow through porous media, municipal water systems
Hill, J., BSc, MSc, PhD, environmental geology, acid rock management
Hughes, F. L., BSc, MSc, PhD, Energy security, modelling energy systems energy transition pathways
Jamieson, R., BEng, MASc, PhD, watersheds, contaminant transport, ecological engineering
Lake, C., BEng, PhD, geotechnical and geoenvironmental engineering, geosynthetics performance
Little, T., BScEng, MEng, PhD, wind energy, electric energy storage systems
Pelot, R., BSc, MSc, PhD, risk analysis, operations research
Satish, M. G., BSc, BECivEng, MEng, PhD, PEng, water resources engineering, numerical modelling of flows, system optimization, open channel flow

VanderZwaag, D., BA, MDiv, JD, LLM, PhD, environmental law
Walsh, M., BEng, MEng, PhD, water and wastewater treatment
Watts, K. C., BSA, MSc, PhD, biodiesel, alternative energy

Adjunct (FGS)

Gordon, R. J., BSc, MSc, PhD, bio-waste management, constructed wetlands systems, climate change
Stratton, G. W., BSc, MSc, PhD, environmental microbiology, biodegradation of environmental toxicants, industrial wastes and pesticides

Master of Applied Science (MASc)

Refer to the Engineering section for admissions requirements, academic regulations, program duration and other relevant information.

Master of Engineering (MEng)

Refer to the Engineering section for admissions requirements, academic regulations, program duration and other relevant information.

Application Forms and Procedure

Application forms may be obtained from

- Registrar's Office
- Faculty of Engineering, Dalhousie University
  PO Box 15000
  Halifax, NS B3H 4R2
- through the University's website on the internet.

Application forms, transcripts, two letters of reference and a statement on area of research interest should be sent to the Faculty of Engineering.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ENVE 6000 Directed Studies in Environmental Engineering

CREDIT HOURS: 3
This course is available to graduate students enrolled in a Masters program in Environmental Engineering wishing to gain knowledge in a specific area for which no graduate course is offered. Students are assigned an advisor and are required to produce a formal report at the end of the course.

ENVE 6800 Graduate Seminar - Master's Level

CREDIT HOURS: 3
This seminar course is designed to provide graduate students with the opportunity to search the literature for information on current topics related to their projects/thesis. All graduate students pursuing MEng and MASc degrees in the Environmental Engineering program are required to take this course and offer their findings, orally in one presentation to the faculty memebers of the department and students, four months prior to the completion of their program. This presentation will be followed by a question adn answer session. Graduate students might also be asked to submit a written version of their presentation skills, scientific content, ability to field questions and regular attendance. Graded pass/fail.

NOTES: This is a required course for all Master students in Environmental Engineering: (2) Registration of this course is required for the Fall and Winter terms only.

ENVE 8891 Work Term I.
CREDIT HOURS: 0

ENVE 8892 Work Term II
CREDIT HOURS: 0

ENVE 8893 Work Term III
CREDIT HOURS: 0

ENVE 8894 Work Term IV
CREDIT HOURS: 0

ENVE 9000 Master of Engineering Project
CREDIT HOURS: 0

ENVE 9001 Master of Applied Science Thesis
CREDIT HOURS: 0

Environmental Studies

Location:
Building/Room: Kenneth C. Rowe Management Building
Street Address 1: 6100 University Avenue
Street Address 2: Suite 5010
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3632
Fax: (902) 494-3728
Website: sres.management.dal.ca
Email Address: sres@dal.ca

Introduction

The School is the centre for graduate environmental scholarship and research at Dalhousie. It is a leading institution in environmental management and capacity building in Canada and abroad.

At the core of the School are interdisciplinary teaching and research programs emphasizing rigorous inquiry and ethical practice as the foundation of responsible environmental and resource management. Efforts are devoted to addressing causes rather than symptoms and learning to anticipate and adapt to change. The School offers two Masters programs. One is a two-year Master of Environmental Studies (MES) degree which includes course work and a thesis. The other is a 16-month Master of Resource and Environmental Management (MREM) degree involving course work and an internship practicum. A combined 28-month MLIS/MREM program is also available.

In addition to working partnerships within the Faculty of Management, SRES draws on an extensive network of cross-appointed Dalhousie faculty and adjunct appointments from other universities, government departments and NGOs. SRES contributes to many programs and institutes on the Dalhousie campuses. The School, through its many teaching, research and community service initiatives, strengthens the University's capacity in resource and environmental studies.

Staff

Director of School

Tyedmers, P.

Academic Program Coordinator

Sherren, K.

Professor Emeritus

Côté, R. P., BSc (Loyola), MSc (Memorial). Industrial ecology; marine environmental protection strategies; management of chemical hazards and wastes; environmental policy

Professors

Beazley, K. F., BLA (Guelph), MA (Waterloo), PhD (Dalhousie). Biodiversity conservation; protected area system design; ecosystem and protected area management; focal species; landscape ecology and conservation biology; environmental ethics
Duinker, P., BSc Agr (Guelph), MES (Dalhousie), PhD (UNB). Forest management and policy, environmental impact assessment, sustainable development, sustainability indicators, public participation and conflict resolution, forest biodiversity assessment, wildlife habitat analysis, climate change and forests, public opinions on environment and natural resources
Tyedmers, P. H., BSc (Hons) (Waterloo), LLB, PhD (UBC). Academic Program Coordinator. Ecological economics, biophysical accounting, sustainable development, fisheries and aquaculture

Associate Professors

Adams, M., BEng, MSc (Royal Military College), PhD (Dalhousie). Industrial ecology, community energy systems (renewable), multi-criteria evaluation, sustainable industrial development, business sustainability, eco-industrial networks, rural economic development, community/industry inter-relationships
Sherren, K., BES (Hons) (Waterloo), PhD (ANU). Landscape values; sustainable small communities; natural resources; environmental education; photo elicitation; spatial analysis; social network analysis; stakeholder engagement.

Assistant Professors

Walker, T., BSc (Univ of Portsmouth), MPhil (Essex), PhD (Nottingham), PDF (Dalhousie). Remediation, Impacts of industrial pollution, Environmental management, Ecological risk assessment (ERA), Environmental effects monitoring (EEM), Environmental impact assessment (EIA), Aquaculture management, Arctic and Antarctic natural resources, Air pollution.

Cross-Appointed Professors

Gagnon, G., BScE (Guelph), PhD (Waterloo), PEng, major appointment in Civil Engineering. Water and wastewater treatment, water quality, environmental engineering
Grant, J., BA (UWO), MA (McMaster), MA, PhD (Waterloo), MCIP, major appointment in Planning
Guernsey, J., BSc (Hons) (Carleton), MSc, PhD (Iowa). Health and safety in agriculture (pesticides), fisheries and forestry; exposomics; theoretical considerations of physical-environmental structural factors impeding the health and well-being of rural people, especially women; air quality and health.
Rainham, D., BES (Waterloo), MSc (Alberta), PhD (Ottawa), [Elizabeth May Chair in Sustainability and Environmental Health] Broad research interests are directed at understanding the associations between human health and ecological integrity. Geographic information science, spatial analysis and eco-epidemiology provide some of the tools and theories to guide his research. Current research uses wearable global positioning system technology to investigate the influence of neighbourhood characteristics on human health and measures of environmental sustainability.
Sheehan, L., BSc (Alberta), MEDes, MBA, PhD (Calgary). Current research includes a stakeholder approach to strategic management and tourism destination management. Coauthor on research related to entrepreneurship and tourism, socially inclusive tourism, and risk and tourism.
Ülkü, M. A., BSc (Bilkent), MSc (Çukurova), PhD (Waterloo). Theoretical modeling of service and manufacturing systems, the development of practical logistics policies for green supply chains, and such interdisciplinary topics as behavioural issues in operations management, sustainable consumption, and the mathematical modeling of societal problems. Ali believes in the “science and teaching of better.”
VanderZwaag, D., BA (Calvin), MDiv (Princeton), JD (Arkansas), LLM (Dalhousie), major appointment in Law. Environmental law reform, Canadian ocean law and policy, Arctic marine transportation
Wright, T. S., BES (Waterloo), MES (Dalhousie), PhD (Alberta), major appointment in Faculty of Science Undergraduate Environmental Programs. Environmental sustainability in higher education; indicators of environmental sustainability; institutional environmental change; environmental education (particularly applying experiential and transformative learning theories).

Cross Listed Faculty

Cameron, G. A., BA (St. FX), MA (York), PhD (London), Faculty of Agriculture
Clark, S., BA (Guelph), MSc (Saskatchewan), PhD (North Carolina State), Faculty of Agriculture
France, R., BSc, MSc (Manitoba), PhD (Toronto), Faculty of Agriculture, Environmental Sciences Department
Kevany, K., BA (Carleton), MEd, EdD (Toronto), Business and Social Sciences Department Faculty of Agriculture
Schnurr, M., BSc (Queen's), MA (SOAS, London), PhD (UBC), International Development Studies

Adjunct (FGS)

Beckley, T., AB (Bowdoin College), MSc, PhD (Wisconsin-Madison), Professor, Faculty of Forestry & Environmental Management, University of New Brunswick
Biro, A., BA (Toronto), MA, PhD (York), Associate Professor and Department Head, Department of Politics, Acadia University
Brazner, J., BSc (Wisconsin), MS (Syracuse), PhD (Wisconsin), Ecosystem and Habitat Specialist, Wildlife Division, NS Department of Natural Resources
Bundy, A., BSc (Edinburgh), MSc (North Wales, UK), PhD (UBC). Research Scientist-Marine Ecosystems, Fisheries and Oceans Canada
Bush, P., BA (Laurentian), MSc (Lakehead), PhD (Western ON). Provincial Landscape Ecologist, Forest Research and Planning, NS Department of Natural Resources
Cameron, R., BSc (UNB), MSc (Acadia). Protected Areas Branch, Nova Scotia Environment and labor
Charles, A. T., BSc (Carleton), PhD (UBC), School of Environment, Saint Mary’s University
Charles, J., BA (Guelph), MURP (Dalhousie), Regional and Community Planner, Halifax Regional Municipality
Conrad, C., BA (St. Mary's), MES, PhD (Wilfred Laurier), Department of Geography, Saint Mary’s University
Harper, K., BA (Middlebury College), MSc, PhD (Alberta), Environmental Programs, Faculty of Science, Dalhousie University
Hatcher, A., BSc, MSc (Dalhousie), PhD (Univ Western Australia, Perth), Hatcher Research Associates.
Laroque, C., BSc (Saskatchewan), MSc, PhD (Victoria), Department of Soil Science, University of Saskatchewan
Looker, D., BA (Carleton), MA (Waterloo), PhD (McMaster), Professor Emerita, Sociology and Anthropology, Mount Saint Vincent University
Walters, B. B., BSc (UBC), MES (Dalhousie), PhD (Rutgers), Mount Allison University
Warner, A., BSc (Brown’s), MA, BEd, PhD (Dalhousie), Acadia University
Wells, P. G., BSc (McGill), MSc (Toronto), PhD (Guelph), Research Fellow, International Oceans Institute, Dalhousie University
Willison, J. H. M., PhD (Nottingham), Retired Professor

Wood, R. S., BA, MA (Oregon), Retired Professor

Research Associate

Chute, J., BA (Dalhousie), MA (Memorial), MA (Toronto), PhD (McMaster)

Adjunct (FGS)

Castleden, H., BA (Manitoba), MEd, PhD (Alberta). Associate Professor, Departments of Geography and Public Health Sciences, Queen's University
Colton, J., BA (Washington), MA, PhD (Alberta). Professor, Departments of Community Development and Environmental and Sustainability Studies, Acadia University
Groszko, W., BSc (Calgary), PhD (Dalhousie). Renewable Energy Coordinator, Ecology Action Centre
McCarthy, C., BSc (Memorial), MSc (Wales). A/Manager, Resource Conservation, Kejimkujik National Park and National Historic Site
Sur, S., BSc (Jawaharlal Nehru Univ), MBA, PhD (Concordia). Associate Professor (Sustainable Management), Sprott School of Business & Carleton Sustainable Energy Centre, Carleton University

Admission Requirements

As established by the Faculty of Graduate Studies, the entrance requirement for both degrees is an Honours Bachelor Degree or the equivalent of honours with at least a B average (3.0 GPA) from a university recognized by the Senate of Dalhousie University. A four-year Baccalaureate degree may be considered as the equivalent of honours if there is significant evidence of independent research capacity.

Deadline for completed applications is January 31, although MES applicants applying for tri-council funding (NSERC, SSHRC, CIHR) must contact department by October 1 to notify of pending applications.

Master of Environmental Studies (MES)

For most students, the minimum program will occupy two calendar years (24 months). The minimum requirement is 21 credit hours and a thesis.

The program is designed to broaden a student's perspective on natural resource and environmental issues while strengthening their research capabilities. Course work beyond the minimum load may be suggested in consultation with faculty advisor/supervisor.

The 21 credit hours are made up as follows:

Course Requirements:

- MGMT 5000.03: Management without Borders - a seminar course taken during the second year of study
- ENVI 5035.03: Research Design and Methods - taken in the first year of study
- ENVI 5009.06: The Graduate Seminar - all MES students are expected to attend and participate, but only enrol in second year.
- Thesis

Students can select a minimum of three electives in consultation with faculty advisor/supervisor.

Master of Resource and Environmental Management (MREM)

The Master of Resource and Environmental Management (MREM) involves intensive coursework and an applied internship during a 16-month period. It graduates highly skilled professionals with the problem-solving tools and scientific (social and biophysical) understanding to create innovative solutions to resource and environmental issues.

The program's goal is to produce graduates who can confidently and collaboratively address the interdisciplinary dimensions of resource and environmental problems. The MREM degree is an advanced "professional" degree aimed at management and practical problem-solving.

The MREM involves three course work terms and one internship term. The internship will be undertaken during the summer months. The minimum course requirement is 39 credit hours. This includes the internship and five electives.

The elements of the MREM Program are:

Term One

Required courses:

- ENVI 5504.03: Management of Resources and the Environment
- ENVI 5507.03: Environmental Informatics

Plus two electives from a cognate discipline.

Term Two

Required courses:

- ENVI 5505.03: Biophysical Dimensions of Resource and Environmental Management
- ENVI 5500.03: Sociopolitical Dimensions of Resource and Environmental Management
- ENVI 5205.03: Law and Policy for Resource and Environmental Management

Plus one elective from a cognate discipline.

Term Three

- ENVI 5501.03: MREM Internship

Term Four

Required courses:

- MGMT 5000.03: Management Without Borders
- ENVI 5508.03: MREM Project

Plus two electives from cognate disciplines.

Master of Library and Information Studies/Master of Resource and Environmental Management (MLIS/MREM)

A 28 month course of study leading to the combined degrees Master of Library and Information Studies and Master of Resource and Environmental Management (MLIS/MREM). A total of 22 courses (eight MLIS, six MREM including an internship, MGMT 5000: Management Without Borders and seven electives) are needed to complete the MLIS/MREM Program.

Applicants must gain separate and independent admission to both Schools. For further information, contact the MLIS Program Coordinator or the SRES Academic Program Coordinator.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Notes

All courses except MGMT 5000.03, ENVI 5009.03, ENVI 5501.03, ENVI 5508.03 and ENVI 9000.00 are open to students in other programs by permission of the instructor.

Course Descriptions

ENVI 5001 Environmental Assessment

CREDIT HOURS: 3
Students explore all aspects of environmental assessment (EA), with a focus on EA processes in Canada. The course examines professional practice in scientific, procedural and political dimensions. Current cases are studied opportunistically. Students learn the materials through case studies, seminars, group projects and research papers.
CROSS-LISTING: MGMT 4705.03

ENVI 5009X/Y Graduate Seminar

CREDIT HOURS: 6
Through student delivered seminars, this course will assist graduate students work through difficult theoretical or methodological challenges related to their research and help them hone skills as presenters and discussants. Along the way, students will be exposed to emerging issues and findings across a range of contemporary areas of enquiry.

ENVI 5010 Introduction to Environmental and Occupational Health

CREDIT HOURS: 3
This course will introduce students to many of the principles and concepts underlying environmental and occupational health, focusing on human health. It will review the nature of a variety of agents, including chemical, physical, biological, ergonomic and radiation hazards, how these agents are dispersed and transformed in the environment, the pathways of human exposure to these agents, and characterization of the health effects resulting from exposure. It will present methods for evaluating and controlling hazards, including occupational hygiene evaluation techniques and risk assessment models used in environmental settings. A number of case studies will be covered in detail, including indoor air quality, heavy metals exposure, and organic dust in workplace environments. Special topics will include risk communication and health promotion in the workplace. The course will conclude with a summary of legislative initiatives and standards which have been implemented to protect human health and an evaluation of their effectiveness.
CROSS-LISTING: CH&E 6001.03

ENVI 5021 Fisheries Management

CREDIT HOURS: 3
This interdisciplinary course focuses on the theory and practice of fishery management, with emphasis on Sustainable Fishery Systems. It will address the structure and dynamics of fisheries, and key themes in managing fisheries for sustainability and resilience, through class seminars and discussion, as well as attendance at related fisheries and coastal events.
CROSS-LISTING: MARA 5021.03

ENVI 5023 Qualitative Data Analysis

CREDIT HOURS: 3
Exposure to the theories and techniques of qualitative data analysis can improve research design and execution. This course will combine theory- on research paradigms, design, data collection and analysis- with practice designing, using qualitative analysis software to carry out, a small-scale research project with secondary data.
ASSESSMENT METHOD: Written submissions (assignment 1 and 2 concept papers, 10% each), discussions (assignment 1, 2, and 3 discussion, 5% each), presentations (research proposal 15%, research findings 20%), an academic poster design (20%) and overall participation (10%).

ENVI 5031 Economics for Resource and Environmental Management

CREDIT HOURS: 3
This course is designed as a one term introduction to economics for graduate students who do not have any or limited undergraduate economics training. However, it is also suitable for students with prior economics training who are interested in exploring the environment-economy relationship further. The course begins with a brief but intense guided tour of economics. We then focus on key topics in environmental economics, including among others:* the sustainable economy* theory of market failure, public goods and externalities* environmentalist critiques of economic thinking* environmental and natural resource accounting* economic valuation of the environment* time in economic/environmental analysisThe final part of the class explores the theory and practice of a new discipline which better integrates environmental and economic analysis; namely the field of “ecological economics”. The course is open to students in other parts of the University who are interested in economy and environment.
CROSS-LISTING: MGMT 4031.03

ENVI 5035 Research Design and Methods

CREDIT HOURS: 3
What is research? This question is central to the areas of inquiry touched upon in this course. In this course we will cover topics such as: the philosophy of knowledge creation; science wars; methodological literacy; approaches to analysis (rigour, triangulation, etc); research proposal design (both qualitative and quantitative); intellectual property; inter/multi/transdisciplinarity; research ethics; and knowledge dissemination. There are four key course objectives: 1) develop foundational understanding of key research concepts; 2) develop an ability to evaluate all forms of research; 3) prepare graduate students with the ability to execute individual thesis research projects through research proposal preparation and communication; and 4) provide graduate students with a general introduction to research related skills that will provide a foundation for research careers. Readings, discussion, guest speakers, and practical exercises will be used throughout the course. Please note that this course is not intended to teach any specific methodological tool, rather it is a point of departure for developing a sound research question, and exploring potential research methods to answer the questions in a research proposal.

ENVI 5039 Indigenous Perspectives on Resource and Environmental Management

CREDIT HOURS: 3

This Field School explores issues concerning Indigenous peoples' relationships with natural resources and settler populations within a broad socio-politico-environmental context. In developing an understanding of Indigenous peoples' perspectives on resource and environmental management, direct engagement must be central to the process. As such, throughout the Field School (3 days on campus; 7 days in Mi'kmaq communities), we will review key Canadian legal cases affecting land use, resource access, management, planning, and environmental protection, as well as recent developments in other regions and in an international context by engaging with Indigenous leaders, Elders, traditional knowledge-holders, and resource users. Diverse topics are supplemented with community-based activities, readings, discussions, and films. Returning to campus from the Field School, students complete a Digital Storytelling weekend workshop and complete an independent research assignment.
NOTES: In addition to the standard course fee, a non-refundable Field School fee is required in advance.
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: MGMT 4039.03

ENVI 5041 Environmental Education

CREDIT HOURS: 3
This course provides a broad examination of the conceptual bases of learning and understanding the environment. It will consider current educational efforts to promote values, attitudes, and behaviors protective of environmental integrity. Topics covered will include environmental education in formal school programs, experiential environmental education, environmental literacy initiatives, continuing professional education, and the role of the media in environmental education.
CROSS-LISTING: MGMT 4041.03

ENVI 5044 Patterns for Sustainable Industrial Development

CREDIT HOURS: 3
It is becoming increasingly obvious that human economies depend on the products and services provided by healthy, functioning ecological systems. By studying the flow of materials and energy through industrial systems, industrial ecology identifies economic ways to lessen negative environmental impacts - through pollution prevention, innovative waste management strategies, improved energy efficiency, design for the environment, and promoting sustainability - within the carrying capacity of the surrounding ecosystems. The course will also include the social dimensions related to industrial ecology by focusing on the organization and management dimensions that are related to the reduction of industrial emissions, waste flows, energy use and usage of materials within in-company procedures and beyond the level of single organizations. The format will include lectures, seminars, discussion and guest speakers.
CROSS-LISTING: BUSI 6044.03

ENVI 5047 Biodiversity Conservation System Design

CREDIT HOURS: 3
Biodiversity conservation systems are increasingly necessary as human activities dominate the landscape. Precise prescriptions for their design are evolving. The theory and practice of conservation system design are explored through lectures, student presentations, discussions and a major term project, as an active learning module involving the students, the instructor and the broader community. Topics include ecological integrity, focal species, population viability, habitat suitability, road ecology, connectivity, and resilience in a context of climate change.
CROSS-LISTING: MGMT 4047.03

ENVI 5048 Directed Study - Special Topics

CREDIT HOURS: 3
Students may undertake an independent study if no similar course is available. A faculty member must agree to oversee the study, and approval by Program Coordinator is required. Only 2 Directed Study or Special Topics courses are permitted per program.
NOTE: Course Details listed here also apply to ENVI 5049.

ENVI 5049 Directed Study - Special Topics

CREDIT HOURS: 3
See ENVI 5048.

ENVI 5050 Special Topics in Environmental Studies

CREDIT HOURS: 3
A suitable combination of directed readings, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area. Each separate topic must be approved by the Graduate Coordinator, at the request, in writing, of the instructor. A course outline must be submitted before approval can be given.

ENVI 5051 Special Topics in Resource and Environment Management

CREDIT HOURS: 3
A suitable combination of directed readings, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area. Each separate topic must be approved by the Graduate Coordinator, at the request, in writing, of the instructor. A course outline must be submitted before approval can be given.

ENVI 5204 Coastal Zone Management

CREDIT HOURS: 3
This seminar is designed to introduce students to the concepts, principles, approaches and issues associated with integrated management of coastal zones worldwide. Coastal zones are critical areas of transition between land and sea, involving complex overlaps between resource uses and government jurisdictions. This course will address the legal, policy and administrative frameworks prevailing in Canada, but will do so within the global context of coastal zone management. Case studies and examples from developed and developing countries will be used to present practical approaches to the management of multiple uses in coastal zone, including community-bases management models. The seminar will be conducted by lecture, formal student presentations, questioning and discussions of course material.
CROSS-LISTING: LAWS 2041.03, MARA 5009.03

ENVI 5205 Law and Policy for Resource and Environmental Management

CREDIT HOURS: 3
This course provides students with an overview of substantive and procedural aspects of Canadian law and policy related to natural resources and the environment. The course will involve lectures, guest speakers, seminar discussions and class participation. Strong emphasis is placed on the Canadian legislative and regulatory framework and the unique character of the regulated subject areas such as toxic substances, air and water quality, fisheries, forests, agriculture, minerals, parks and biodiversity. The role of the common law in preventing or redressing environmental degradation will also be addressed.
CROSS-LISTING: MGMT 4205.03

ENVI 5500 Socio-political Dimensions of Resource and Environmental Management

CREDIT HOURS: 3

The goal of this course is to introduce students to the social, cultural, and political dimensions regarding resource and environmental management. Key objectives are to introduce, analyze, and utilize a range of frameworks for understanding the human dynamics of resource and environmental management decision-making. Students are introduced to a range of tools and techniques for engaging stakeholders in environmental issues (e.g. key informant interviews; focus groups; surveys; community mapping; photovoice). Because this course is integrated with ENVI5205 (biophysical dimensions of resource and environmental management) and ENVI5505 (law/policy dimensions of resource and environmental management) in the same term as required for the MREM program, there is a focus on common case studies to demonstrate the interconnectedness of these dimensions. Student groups in this course undertake in-depth investigation of the socio-political elements of resource and environmental management cases in Atlantic Canada.

CROSS-LISTING: MGMT 4500.03

ENVI 5501 The MREM Internship

CREDIT HOURS: 3

The internship consists of a 12-16 week placement with an organization involved in resource and environmental management. Students gain practical experience by working under professional supervision on key issues faced by the host organizations.

ENVI 5504 Management of Resources and the Environment

CREDIT HOURS: 3

Students explore key management concepts applied in managing natural resources and the environment. Topics include management paradigms, systems, principles, approaches, tools and institutions associated with a wide range of sectors such as fisheries, forests, agriculture, the coastal zone, oceans, parks and protected areas, energy, waste, water, and others. Case studies complement lectures, seminars and field trips.

CROSS-LISTING: MGMT 4504.03

ENVI 5505 Biophysical Dimensions of Resource and Environmental Management

CREDIT HOURS: 3

This course will introduce students to techniques and tools employed in natural resource and environmental management programs and projects and engage students in case-based problem solving learning intended to understand how bio-physical information is utilized in assessing resource and environmental issues and contributing to effective decision-making. Some of the tools that will be reviewed are environmental impact assessment, environmental site assessment, life cycle analysis, environmental monitoring and adaptive environmental assessment and management.

CROSS-LISTING: MGMT 4505.03

ENVI 5507 Environmental Informatics

CREDIT HOURS: 3

Environmental informatics refers to digital systems for environmental monitoring, analysis, communication and decision making. The course will cover: digital data and where to find it; how to access such data ethically and manage it intelligently; tools and techniques necessary for making best use of those data; and, a working knowledge of a subset of those datasets, tools and techniques, including census, spreadsheets, database management systems and geographic information systems.

FORMAT: Lecture| Lab| Discussion

CROSS-LISTING: MGMT 4507.03

ENVI 5508 MREM Project

CREDIT HOURS: 3

The MREM Project represents the culmination of the MREM program. Working with a faculty advisor, each student undertakes an independent project, which is assessed via a scholarly report and an oral presentation. the topic is often, but does not have to be, related to the work undertaken in the MREM Internship.

FORMAT: Discussion

PREREQUISITE: ENVI 5501.03: The MREM Internship

ENVI 6100 Information in Public Policy and Decision Making

CREDIT HOURS: 3

This course addresses the role(s) of information in policy and decision-making at local, national, and international levels. Evidence-based policy making is relatively new and challenging. This course examines the research-policy interface, especially enablers and barriers to use of information of several domains, and uses case studies to illustrate concepts.

FORMAT: Lecture

CROSS-LISTING: PUAD 6150.03, INFO 6100.03

ENVI 9000 Master's Thesis

CREDIT HOURS: 0

French

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Staff

Chairperson of Department

Elson, C.

Graduate Coordinator

Milicevic, J.

Professors Emeriti

Bednarski, H. E., BA (London), MA (Dalhousie), PhD (Laval). Quebec literature and culture, literary translation
Bishop, M., BA, BEd (Manchester), MA (Man), PhD (Kent, Canterbury). Poetry and poetics, modern and contemporary literature, contemporary culture, French art, symbolism, nineteenth-century literature
Gordon, W. T., BA, MA, PhD (Toronto). Semantics, history of linguistics, translation theory, general linguistics, French second language studies, contrastive studies
Kocourek, R., State Examination, PhD, CSc (Charles, Prague), McCulloch Professor, Chevalier dans l'ordre des Palmes Académiques

Professors

Frigerio, V., Beaux Arts (Geneva), BA (York), MA, PhD (Toronto). Nineteenth-century literature, Romanticism, popular writing, Swiss-French literature, sociocriticism
Oore, I. Z., BA (Tel-Aviv), MA (Waterloo), PhD (Western). Quebec literature and culture

Associate Professors

Aissaoui, D., DEA (Metz), PhD (Ottawa)
Elson, C., BA (Vind), MA (Dalhousie), Dr de 3e cycle (Sorbonne). Modern and contemporary literature and culture, theory, philosophy, art, music, cinema
Masse, V., BA, MA (McGill), PhD (Toronto). Sixteenth-century literature, contact literature, exoticism
Milicevic, J., BA (Belgrade), MA, PhD (Montreal). Linguistics (morphology, lexicology, semantics, pragmatics). Translation
Mopoho, R., BA (Yaounde, Cameroon), MA, PhD (Montreal). Linguistics, lexicology, the science of translation

Assistant Professor

Simedoh, V., PhD (Queen's). Francophone literature, translation, literature and culture of Francophone minorities outside of Quebec

Adjunct (FGS)

Best, J., BA (UWO), MA, PhD (Strasbourg), Acadia University
DeMéo, P., BA, MA, PhD (UCLA)

Edwards, J., BA (UWO), MA, PhD (McGill), Saint Francis Xavier University
Gamble, D. R., BA, MA (Toronto), PhD (St. John's, Oxford), Memorial University of Newfoundland
Steele, L., BA (UBC), MA, PhD (Man), Mount Saint Vincent University

Research Associate

Pearre, A., BA (Dalhousie), MA (McGill), PhD (Dalhousie)

Master of Arts (MA)

For general admission rules, see the Faculty of Graduate Studies regulations.

1. Courses and research leading to the MA degree in French are offered in the areas of French and francophone literature, linguistics, second language studies and culture. Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies and must show evidence of proficiency in spoken and written French. A minimum B+ average (3.30) from a university of recognized standing is required.
2. Students may be accepted on a full-time or a part-time basis. A full-time student must spend a minimum of one year in full-time graduate study. The minimum requirement to complete the full-time program is one year for holders of a French Honours degree or equivalent, and at least two years for holders of a general degree.
3. In a one-year full-time program, the equivalent of at least 30 credit hours is required. This will consist of a thesis (usually equivalent to 12 credit hours) plus 18 5000-level credit hours. In a two-year full-time program, students have to attain the equivalent of Honours status (see Undergraduate Calendar) and obtain the additional 30 credit hours as required in a one-year full-time program.
4. In addition to the 30 credit hours, all MA students are normally expected to take three credit hours in Research Methods. When appropriate, up to six additional undergraduate or graduate credit hours may be required in order to improve the student's proficiency in French. Part-time students carry no more than 15 credit hours during one year. A one-year full-time program corresponds to three years part-time. A two-year full-time program corresponds to six years part-time.
5. The thesis, written in French, is to be submitted and approved within the time limits set out in the Faculty of Graduate Studies regulations of this calendar.

Doctor of Philosophy (PhD)

For general rules, see the Faculty of Graduate Studies regulations.

The admission requirements are as follows: An MA thesis degree in French, an excellent French oral and written proficiency, a scholarly interest in one of the PhD thesis areas: all periods of French, Québec and Acadian literature and culture, with certain emphases, and the field of Linguistics, equally with particular emphases. Please consult the Department's PhD document for full details.

The requirements after admission are the following: Two years of Dalhousie residency, four full graduate credits (from the departmental offerings in the years of residency), a second language examination (within two years after admission), preliminary and comprehensive written and oral examinations (not less than one year prior to submission of thesis), and the PhD thesis (normally written in French) and its oral defence.

Selection of Courses and Registration

It is the responsibility of students admitted to one of the graduate programs to report to the graduate coordinator in the week preceding the beginning of classes, or earlier. The purpose is a briefing interview, the final selection of courses, completion of course selection forms and the drawing up of the program of graduate studies. All graduate students must be registered before classes begin.

Thesis Areas

Literature

French literature from the Middle Ages to the 21st century; Quebec, African and Caribbean literatures; popular literature, mass culture, bande dessinée, écriture féminine, travel literature, literature of the self; Francophone cinema; discourse analysis, deconstruction, mythocriticism, post-modernism, post-structuralism, sociocriticism, postcolonial theories.

Linguistics

Semantics and lexicology, syntax, morphology; sociolinguistics; translation and terminology; linguistics applied to language teaching (learner's dictionaries, adaptation of linguistic tools for language teaching).

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

What follows is a list of PhD and MA courses. Courses required in particular cases will be specified in each student's Program of Graduate Studies. Only a limited number of courses is offered in any given year. Descriptions of the graduate courses offered in a particular year will be made available to students. Unless specified otherwise, all courses are given in the seminar format.

Course Descriptions

FREN 5002X/Y Méthodes de recherche/ Research Methods

CREDIT HOURS: 3
Introduction to bibliographical research and styles of presentation geared to individual thesis projects. Includes library workshops on electronic search tools and the establishment of a properly formatted working bibliography in the thesis field.

FREN 5016 Aspects de la traduction/Topics in the Science of Translating

CREDIT HOURS: 3
This course aims to acquaint students with aspects of the theory and practice of translation. It assumes no prior knowledge of the field and focuses on the following topics: the presentation of key principles and concepts in the science of translating, a discussion of major theoretical issues, a description of the methodology and the cognitive process involved in translation, an examination of pertinent approaches and techniques. Class work for evaluation purposes consists of oral presentations, a mid-term and a final exam, a term paper and the translation of a variety of texts from French into English and vice versa.

FREN 5110 Lexicology Seminar/Seminaire de lexicologie

CREDIT HOURS: 3
The course is an advanced survey of the field of lexicology within the Explanatory-Combinatorial Lexicology paradigm. It focuses on fundamental concepts and formalisms needed to describe the structure of the lexicon and that of individual lexical units, combining theory with hands-on lexicographic experience, involving mainly (but not exclusively) French lexicon.
FORMAT: Lecture
PREREQUISITE: FREN 3022.03 or FREN 4011.03 or instructor's permission

FREN 5122 Créativité lexicale/Lexical Creativity

CREDIT HOURS: 3
Detailed study of the main forms of lexical unit creation in the French language, namely derivation, compounding, lexicalization, abbreviation, and borrowing. Application to general language, as well as to literary and scientific texts. Class work: article and book reviews; oral presentations relating to word formation in any given special language or area of activity.

FREN 5124 Vocabulaire et culture/Vocabulary and Culture

CREDIT HOURS: 3
Examination of the influence of societal structures, traditions, values, beliefs, ideologies, etc. on language in general, and vocabulary in particular. Texts from specific groups, areas, and eras will be analyzed for illustration. Oral presentations by students.

FREN 5125 Sémantique/Semantics

CREDIT HOURS: 3
This course situates contributions to semantics from French scholars during the past 100 years in the broader context of international scholarship on semantics - the study of meaning which is the crossroads of linguistics, philosophy, psychology and anthropology. The course will focus on approaches to the study of meaning as they contrast with each other and as they evolve in the work of various scholars from Arsène Darmesteter (1846-1888) and Michel Bréal (1832-1915) to current practitioners of semantics.

FREN 5126 Aménagement linguistique/Language Planning

CREDIT HOURS: 3

Study of the relationship between languages and society, with a special emphasis on the theoretical issues involved in the concept of language planning, the typology of multilingual settings, the promotion of languages, the design and implementation of language policies, the notion of language rights, and the preservation of endangered languages. Students will be required to make oral and written presentations based on relevant cases in Canada and around the world.

FREN 5127 Paraphrase en langue et en traitement automatique des langues/Paraphrase in language and Natural Language Processing

CREDIT HOURS: 3
The course focuses on linguistic models of production of paraphrases and their use in Natural Language Processing (automatic text generation, reformulation, abstracting, machine translation) as a way to enhance the quality of automatically produced texts.
FORMAT: Lecture
PREREQUISITE: FREN 3020.03 or FREN 2020.03 (Introduction to Linguistics) or equivalent or instructor's permission

FREN 5181 Linguistics & Literature / Linguistique et Litterature

CREDIT HOURS: 3
The class deals with interactions between the disciplines of linquistics, discourse analysis, and literary critism.
FORMAT: Lecture| Seminar
PREREQUISITE: 3000-level French literature or linquistic class

FREN 5295 Séminaire: Didactique des langues secondes/Seminar: Second-Language Teaching

CREDIT HOURS: 3
This course will provide an introduction to the key issues in French second-language (FSL) teaching. It is primarily intended for French graduate students who are also teaching a first-year course in the French Department. In addition to a discussion of current trends in FSL education, there will be opportunity to practice skills in specific aspects of FSL teaching. As such, there is a strong practical component to this course, which will include peer and faculty classroom visits and critiques as well as micro-teaching during class time.
NOTE: Course Details listed here also apply to FREN 5296.

FREN 5300 Séminaire de littérature médiévale/Mediaeval Literature Seminar

CREDIT HOURS: 3
Topics will vary from year to year and could involve specific authors (e.g. Chrétien de Troyes, François Villon), specific genres (e.g. poésie courtoise, encyclopedic literature), or specific discursive phenomena (e.g.: mouvance of the texts, representations of Islam).

FREN 5350 Aspects de la littérature des 14e - 16e siècles / Topics in Middle French Literature

CREDIT HOURS: 3
Intensive research seminar dealing with selected Middle French discursive phenomena (14th-16th c.), underlining the continuities and discontinuities between the late Middle Ages and the early Renaissance.
FORMAT: Lecture

FREN 5405 Séminaire de littérature du 16e siècle / 16th Century French Literature Seminar

CREDIT HOURS: 3
Intensive research seminar dealing with one aspect of 16thc. French literature, such as a given genre (e.g., love poetry, the essay), a single author (e.g., Rabelais) and his fortune, or specific discourses and discursive phenomena (e.g., the rise and fall of cosmography, the advent of visualism).
FORMAT: Lecture

FREN 5500 L'Aventure intellectuelle du Grand Siècle/The Intellectual Adventure of French Classicism

CREDIT HOURS: 3
This course examines 17th-century French literature by focusing on a major writer, movement, genre or theme. Please contact the professor for details.

FREN 5550 Aspects de la littérature de la première modernité/Topics in Early Modern French Literature

CREDIT HOURS: 3
Intensive study of a specific aspect of French literature as it unfolded throughout the Early Modern period (16th - 18th c.), such as the invention or the transformation of a single genre (e.g., the autobiography, the novel), the reception of a specific author or idea (e.g. the Noble Savage), or broader issues such as satire, geographical literature, or religious heterodoxy.
FORMAT: Lecture

FREN 5600 Le roman épistolaire du 18e siècle/18th Century Epistolary Novel

CREDIT HOURS: 3
The course will focus on the rise of the epistolary novel as a literary genre and its influence on the development of fiction. The research conducted in the seminar will be an attempt to determine and to assess some elements for a theory of the epistolary novel in 18th century France. This will be done through the study of letter manuals and novels such as those of Madame Riccoboni or *Les Liaisons dangereuses* by Laclos. Novels will be studied in the intellectual context of the time.

FREN 5610 Ethique et esthétique de la nature dans l'art et la littérature du 18e siècle/Ethics and Aesthetics in 18th century art and literature

CREDIT HOURS: 3
In this seminar students will examine, on the one hand, theoretical writings dealing with the aesthetics of nature, and, on the other hand, the ethics of virtue and the vogue of sensibilité as reflected in selected 18th century literary texts (poetry, novel, short stories, *traits*) and in art (painting, landscape architecture).

FREN 5700 La révolution romantique/The Romantic Revolution

CREDIT HOURS: 3
Romanticism will be viewed as a rebellious and creative force which greatly contributed to the reshaping of traditional society. The course will attempt to evaluate the French Romantics in their intellectual and cultural significance, by defining Romantic characteristics, and studying Romantic aesthetics through their theoretical writings and their literary works. These will include works by Benjamin Constant, Mme de Staël, Chateaubriand, Lamartine, Vigny, Musset, Hugo, G. Sand and others.

FREN 5701 Le roman du 19e siècle/ 19th-Century Novel

CREDIT HOURS: 3

The course involves the intensive study of an aspect of the 19th century novel. It may be the study of a major novelist of the 19th century (e.g. Dumas, Sand, Hugo, Stendhal, Flaubert, Balzac, Zola). Alternatively, the course may be organized around themes common to several novelists.

FREN 5702 Mouvements littéraires du 19e siècle/19th Century Literary Movements

CREDIT HOURS: 3

Intensive study of an aspect of 19th century French literary movements, such as: romantisme, realism, symbolism, their interaction (e.g., naturalisme and décadentisme), and individual adaptations or refusal thereof.

FORMAT: Seminar

FREN 5705 Le poème en prose au 19e siècle/ The Prose Poem in the 19th Century

CREDIT HOURS: 3

The prose poem is a literary genre that attained pre-eminence in the 19th century due in large measure to a reaction among writers against traditional poetics. The rise of the prose poem coincides with an attempt to find a "new language" that would express the spirit of modernism. Works studies will include Bertrand's *Gaspard de la Nuit*, Baudelaire's *Petits Poèmes en prose* and Rimbaud's *Illuminations*.

FREN 5706 Impressionnisme et symbolisme/ Impressionism and Symbolism

CREDIT HOURS: 3

A critical assessment of the evolution, the specificities and the interweavings of Impressionist and Symbolist practice and theory from Manet and Mallarmé to Redon and Laforgue, Rodin and Lautréamont.

FREN 5801 Anti-romans du 20e siècle/ Anti-Novels of the 20th Century

CREDIT HOURS: 3

Textual practice and aesthetic conception in the work of new novelists such as Butor, Robbe-Grillet, Sarraute and Duras, as well as "new new" novelists such as Sallenave, Ndiaye, Toussaint and Echenoz.

FREN 5802 La poésie moderne de Char à Bonnefoy/Modern Poetry from Char to Bonnefoy

CREDIT HOURS: 3

The evolution of modern poetic theory and textuality from poets such as Char and Frénaud, through Chedid and Bonnefoy, to Du Bouchet, Albiach, Bancquart and Réda.

FREN 5803 La littérature contemporaine I/ Contemporary Literature I

CREDIT HOURS: 3

Analysis, both in-depth and more cursory, of a wide range of contemporary literary oeuvres: from Simon, Roche, Chawaf and Cixous to Deguy, Jaccottet, Zins and Tellermann. Individual aesthetic conception and practice will be related to contemporary theoretical and critico-methodological considerations.

FREN 5804 Art et littérature/Art and Literature

CREDIT HOURS: 3

Why write, why paint, Yves Bonnefoy asks. Multiple yet criss-crossing, chiasmic answers to this question will emerge from discussion of the writing and art of nineteenth and twentieth-century creators such as Desbordes-Valmore, Ingres, Flaubert, Corot, Zola, Cézanne, Aragon, Braque, Ponge, Ubac, Bonnefoy, Da Silva.

FREN 5806 Poétique et théorie de la littérature/ Poetics and Theory of Literature

CREDIT HOURS: 3

Various 20th century literary theoreticians and critics in the "Geneva" and "French" schools will comprise the subject matter of this course: Starobinski, Richard, Barthes, Todorov, Greimas et al. Topics might include: thematic and/or phenomenological criticism, Marxist and ideological criticism, structuralism, post-structuralism and semiotics.

FREN 5807 Culture contemporaine/ Contemporary Culture

CREDIT HOURS: 3

Discussion of contemporary cultural theory and practice in the work of writers, philosophers, artists, etc. such as Barthes, Baudrillard, Blanchot, Bonnefoy, Derrida, Hyvrard, Irigaray, Jaccottet, Lyotard, Tal Coat, Tàpies, Wittig.

FREN 5808 La littérature contemporaine II/ Contemporary Literature II

CREDIT HOURS: 3

Further analysis, independent of that of FREN 5803.03, of contemporary literature's many modes and meanings: from Dupin, Noël, Le Dantec and Redonnet to Stétié, Djebar, Glissant and Ernaux. Generic, textual and conceptual specificities will be related to theoretical and critico-methodological considerations.

FREN 5809 Art, cinéma et littérature en France: 1980-2002/Contemporary Art, Literature, and Film in France

CREDIT HOURS: 3

This course will assess the practice and theory of contemporary creation in French painting and other plastic forms, film and literature of the last twenty years. Discussion and analysis will lead both to work on a range of individually selected oeuvres and to one in-depth research project. It is hoped, equally, to establish the parameters of a broad contemporary aesthetics within which individual oeuvres may be understood to deploy themselves.

FREN 5876 Aspects de la littérature du Canada français/Studies in French Canadian Literature

CREDIT HOURS: 3

Major texts will be studied in depth and will be seen in relation to their unique social, historical and political context and, above all, to the problematics of literature itself. Topics will vary from year to year and could involve examination of a single author, period or genre, or equally, of broader issues.

FREN 5877 Analyse de textes littéraires québécois/ Analysis of Quebec Literary Texts

CREDIT HOURS: 3

Selected literary Québec texts from the Nineteenth and/or Twentieth Centuries will be closely analyzed (the selection may vary from year to year). Recurring images and myths, central themes, main structures will be discussed and various critical approaches explored.

FREN 5878 Postcolonial Theory in African and West Indian Literature

CREDIT HOURS: 3
This course builds upon the elements of Francophone literature taught in the FREN 4811 literature course. It focuses on the African and West Indian Literature evolution in the postcolonial context. It aims at giving students a broader understanding of contemporary literary and linguistic theories.
PREREQUISITE: FREN 4811 or equivalent or instructor's permission

FREN 5930 Aspects de la littérature populaire/Topics in Popular Literature

CREDIT HOURS: 3
Intensive study of an aspect of popular literature written in French, such as specific genres (e.g., the detective novel, comics, the graphic novel), specific authors (e.g., Ragelias, Dumas), or means of distribution (e.g., la literature de colportage). Depending on the year, the course can focus on any one century from the 15th to the 21st.
FORMAT: Lecture

FREN 5995 Recherches indépendantes/Independent Research

CREDIT HOURS: 3

FREN 5996 Etudes indépendantes/Independent Studies

CREDIT HOURS: 3

FREN 5998 Recherches indépendantes/ Independent Research

CREDIT HOURS: 3
Subject to approval by graduate coordinator and department chairperson.
NOTE: Course Details listed here also apply to FREN 5999.

FREN 5999 Independent Research

CREDIT HOURS: 3
See FREN 5998.

FREN 9000 Master's Thesis

CREDIT HOURS: 0

FREN 9530 Doctoral Thesis

CREDIT HOURS: 0

German

Location:
Building/Room: Marion McCain Arts and Social Sciences Building
Street Address 1: 6135 University Avenue
Street Address 2:
P.O. Box: Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2161
Fax: (902) 494-2719
Website: www.german.dal.ca
Email Address: german@dal.ca

Introduction

Graduate courses leading to the degree of MA are offered in the history of German literature and thought. Research in the Department is concerned principally with the literary and philosophical tradition of German Idealism, modernity, and the culture of the twentieth century. Special expertise in the following fields: Reception of Islamic Orient, Reception of Greek and Roman Antiquity, General and Comparative Aesthetics.

Language of instruction is German; the texts are also in German. Graduate students may concentrate on any of the periods or any particular aspect of the history of German literature and thought. Interested and gifted students may continue with doctoral studies under the supervision of Dalhousie Faculty at the University of Heidelberg. The Department also actively participates in The Interdisciplinary PhD Program offered by the Faculty of Graduate Studies.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Staff

Chairperson of Department

Sidler, J.

Graduate Studies Coordinator

Schwarz, H. -G.

Professor Emeritus

Gaede, F. W., PhD (Freiburg), FRSC

Professor

Schwarz, H. -G., MA (Munich), PhD (McGill), McCulloch Chair, Lehrauftrag (Univ of Heidelberg)

Associate Professor

Sidler, J., MA (Freiburg), MA (Dalhousie), PhD (Queen's)

Cross-listed Faculty

Curran, T. H., MA, (Dalhousie), PhD (Durham, England)

Adjunct (FGS)

Aurnhammer, A., Dr. phil. habil (Univ of Freiburg)
Grüning, H. -G., Dott. (Univ of Macerata)
Heuer, F., Dr. phil. (Univ of Heidelberg)
Joachimsthaler, J., Dr. phil. habil (Univ of Marburg)
Kanzog, K., Dr. phil. habil. (Univ of Munich)
Roesch, G. M., Dr. phil. habil (Univ of Heidelberg)

Master of Arts (MA) Degree Program

Depending on their level of preparation, students spend either one or two years towards completion of their courses and thesis.

Candidates are expected to have a reading knowledge of a third modern or ancient language. A thesis is required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

GERM 5520X/Y Goethe and the Enlightenment

CREDIT HOURS: 6
A study of German literature and thought of the time which preceded and witnessed the great revolutions of the 18th century.
NOTES: 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 5530X/Y Hegel's Aesthetics and the Ancients

CREDIT HOURS: 6
Study of Hegel's Aesthetics and Walter Pater's "Winckelmann" from the Renaissance as well as selected poetry of Goethe, Schiller, Hölderlin, Stefan George and Hugo v. Hofmannsthal.
NOTES: 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 5540X/Y Kant and the History of German Idealism

CREDIT HOURS: 6
A study of Kant's relation to modern Rationalism and Empiricism, and an inquiry into the principles of Idealism.
NOTES: 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 5550 Hegel: Phenomenology of Spirit

CREDIT HOURS: 6
The Phenomenology of Spirit, published in 1807, was Hegel's first major work. He intended to write an introduction to philosophy by demonstrating the necessity of the advance from the most immediate form of knowledge to absolute knowledge. To achieve this he had to write the Phenomenology as an introduction to his own philosophy.
NOTES: 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 5570X/Y Goethe and Romanticism

CREDIT HOURS: 6
A study of Goethe, Novalis, F. and A.W. Schlegel.

NOTES: 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 5580X/Y Goethe's Faust

CREDIT HOURS: 6
A close reading of Goethe's *Faust*, Part I and II, will give rise to questions about the unity of the work, the theory of drama and the reshaping 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.
NOTES: 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 5590 Studies in German Idealism

CREDIT HOURS: 6
The specific content of the seminar varies from year to year, but is always related to some aspect of Idealism.
NOTES: 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 5600 Heidegger and German Idealism

CREDIT HOURS: 6

NOTES: 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 5610X/Y Literature of the 19th Century

CREDIT HOURS: 6
A discussion of essential literary texts which throw a critical light on the growing forces of materialism and positivism.
NOTES: 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 5620X/Y Modern German Literature

CREDIT HOURS: 6
Modern authors as witnesses of the philosophical and social changes of our century: a study of selected prose texts of Hugo v. Hofmannsthal, Robert Musil, Franz Kafka, Arthur Schnitzler, Hermann Broch, Thomas Mann and Günter Grass.
NOTES: 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 5630X/Y Aesthetics and Poetics

CREDIT HOURS: 6
An historical study of the development of aesthetic theory and its foundation in the history of thought. Hegel's *"Aesthetik"*, Heidegger's *"Ursprung des Kunstwerkes"* and Gadamer's *"Aktualität des Schönen"* will be studied.
NOTES: 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 5640 Ancient and Modern Dialectics

CREDIT HOURS: 6

NOTES: 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 5660X/Y History and Theory of the German Novel

CREDIT HOURS: 6
Representative works from the Baroque Age to the 20th Century are studied and the principles of the genre are discussed.
NOTES: 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 5670 Hegel's Philosophy of Nature

CREDIT HOURS: 6

NOTES: 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 5700 Special Topics I

CREDIT HOURS: 3
This is an intensive research seminar dealing with selected topics to be announced.

GERM 5701 Special Topics II

CREDIT HOURS: 3
This is an intensive research seminar dealing with selected topics to be announced.

GERM 5800X/Y Research Seminar

CREDIT HOURS: 6
Special Research Topics Course. This is an intensive research seminar dealing with selected topics to be announced.
NOTES: 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 9000 Thesis

CREDIT HOURS: 0

Health Administration

Location:
Building/Room: Sir Charles Tupper Medical Building (effective Sep 2016)
Street Address 1: 5850 College Street
Street Address 2: 2nd Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-7097
Fax: (902) 494-6849
Website: www.dal.ca/sha
Email Address: healthadmin@dal.ca

Objectives - MHA

The MHA program is accredited by the Commission on Accreditation of Health Care Management Education (CA+HME), and the School is a full member of the Association of University Programs in Health Administration.

The School of Health Administration offers a Master of Health Administration (MHA) degree which meets the needs of those pursuing administrative careers in the Canadian healthcare delivery system. The program is designed to prepare individuals for careers in hospital administration, nursing administration, continuing care administration, public and community health administration and administration in municipal, provincial and federal governments in health and health-related areas. There are employment opportunities for individuals with an MHA in policy, planning, evaluation, administration and research.

The program seeks to provide a conceptual background for the increasingly complex managerial tasks that need to be performed in health institutions and health related governmental departments. Every effort is made to balance political, social, economic, cultural, medical and ethical approaches to understanding the healthcare delivery system with those of the management sciences.

The emphasis in the program is on an academic, multidisciplinary and professional education. It is academic in that it emphasizes knowledge of current research findings and treats the practice of health administration as phenomena subject to social scientific analysis. It is multidisciplinary in that faculty are drawn from traditional social and administrative sciences. It is a professional program in the sense that it will attempt to broaden the social perspectives of the student emphasizing that a professional has a social responsibility to society and must have an appreciation of the ethical standards appropriate to a career in health administration.

Staff

Director of School

Byrne, J., BA (St. FX), MA, PhD (Kansas), MHSA (Dalhousie). Administrative ethics, executive decision-making, managing change, health policy

Professors Emeriti

Cohen, M., BA, DMD, MSD, PhD, MPH, major appointment in Faculty of Dentistry
Nestman, L., BComm (Saskatchewan), CA, MHSA (Alta)

Professors

Byrne, J., BA (St. FX), MA, PhD (Kansas), MHSA (Dalhousie). Administrative ethics, executive decision-making, managing change, health policy
Johnston, G., BSc (Hons) (McGill), MHSA (Alta), PhD (Western). Palliative and end of life care (Retired)
Rockwood, K., BA (Memorial), MPA (Queen's), MD, FRCPC, major appointment in Faculty of Medicine
Sketris, I., BSc (Pharm) (Toronto), PharmD (Minn), MPA (HSA) (Dalhousie), major appointment in College of Pharmacy

Associate Professors

Lahey, W., BA (Mt. A), BA (Juris) (Oxford), LLM (Toronto), major appointment in Schulich School of Law
Persaud, D. D., MSc (Queen's), MSA (Central Michigan), PhD (Toronto). Performance driven organizational innovation and change; organizaitonal learning, innovation, adaption, and sustainability; vision care integration

Assistant Professors

Hadskis, M., BSc (Hons), LLB (Dalhousie), LLM (York), Legal aspects of healthcare administrtion, tort liability of healthcare professionals/institutions, regulation of biomedical research, neuroethics, end-of-life decision making
Hajizadeh, M., BA, MSc (Iran), PhD (Australia), Healthcare financing and utilization, equity in healthcare, health inequality and inequity, health policy, health economic evaluation
Luu, S., BS (Taiwan), MPH (Emory), PhD (USA)
Simms, C., BA (St. Mary's), MPA (Dalhousie), MHSc (John Hopkins), DPhil (Sussex), Health policy, strategic planning, global health and equity issues

Adjunct (FGS)

Ashton, S., BSc (Hons), MBA (Dalhousie)
Horsburgh, A., BComm (St. Mary's), CA
MacPherson, C., BHSc (Hons) (McMaster), MHSA (Dalhousie), CHE
Mouland, D., BSc, DHSA, MHSA (Dalhousie)
Schwartz, J., BSc (Psychology), MBA/LLB (Dalhousie)
Stevenson, C., BSc, MHA (Dalhousie)
Stoddard, E., RN, BScN (Victoria), MHSA (Australia)

Application Procedure

Application forms are available from the Registrar's Office of Dalhousie University. Applications should be submitted as early as possible. Application forms, letters of reference forms etc., can be downloaded at www.dal.ca/admissions/graduate/admission_process.html.

The following supporting documents are to be sent directly to the School:

1. Original transcripts of all previous academic work (two copies) (B+ average)
2. At least two academic letters of reference
3. Résumé/Curriculum Vitae
4. A statement of career interests and reasons for seeking admission to the MHA Program
5. GMAT (minimum score of 550)
6. English language proficiency for International Students (see below)
7. Faculty of Graduate Studies and Department copy of the application form.

Note:
Letters of Reference must not be generic. They must articulate how the applicant's skills, experience and career objectives clearly fit the program.
The Statement of Career Interests must articulate the applicant's career goals and rationale as to how successful completion of the program is essential to achieving these career goals.

Deadlines for September admission:
April 1 International - other, and Canadian automatic scholarship consideration
June 1 Canadian - final deadline (no automatic scholarship consideration)

The GMAT may be taken at conveniently-located computer-based testing centres throughout North America and in many other parts of the world. Candidates in US and Canada may schedule a GMAT CAT (computer-adaptive test) appointment by calling either 1-800-GMAT-NOW or a local testing centre. Candidates can schedule their test within a few days of actually taking it. However, they should consider admission deadlines and call early to maximize their chances of securing their preferred test date at the centre most convenient to them. School of Health Administration GMAT Number is 0690.

Students for whom English is not their first language will need to submit proof of English language proficiency. Dalhousie accepts a number of English proficiency test scores. For more information please see section 3.4 of the Faculty of Graduate Studies Regulations.

CANDIDATES ARE ADVISED TO TAKE THE TEST(S) AT THE EARLIEST POSSIBLE DATE.

For international students, it is strongly recommended that all documents (transcripts and references) be submitted prior to April 1st.

Master of Health Administration (MHA)

The MHA program offered through the School is available onsite, on either a full-time or part-time basis. Full-time students normally complete the program in two years.

A part-time student may enrol in up to two and one-half credits in any one academic year. In order to ensure that graduate students benefit from a reasonable concentration of their studies, part-time studies must normally be completed within six years.

The MHA program is accredited through the Commission on Accreditation of Healthcare Management Education (CA+HME). The MHA at Dalhousie University is one of only three programs in Canada with the prestigious CA+HME Accreditation.

The Master of Health Administration degree features both an academic and results-oriented curriculum. It requires the successful completion of 54 to 66 credit hours. Please refer to the courses section for program requirements.

IPHE 5900: Interprofessional Health Education

Students are required to maintain enrolment in IPHE 5900 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.

Master of Health Administration (MHA) +: Legal Matters in Health Administration

Certificate in Advanced MHA Studies: Legal Matters in Health Administration

The purpose of the MHA+ Certificate in Advanced MHA Studies: Legal Matters in Health Administration is to provide MHA students with advanced knowledge of the myriad legal matters in healthcare administration. The Certificate is not a free-standing, nor an entry-level credential. Certificate recipients can neither practice law nor represent themselves to imply the right or competence to practice law.

Only students of the Master of Health Administration program (MHA) will be eligible to complete the MHA+ Certificate. The four law-related courses will be completed concurrently with the MHA degree.

The four courses include:

- HESA 6360: Healthcare Law
- HESA 6361: Business Law for Health Administrators
- HESA 6362: Advanced Healthcare Law
- HESA 6363: Healthcare Law and Policy: Current Issues

MHA students choosing not to complete the Certificate, continue to access other elective courses.

Students should declare the MHA+ at the beginning of their program, however they may opt out and complete the regular MHA program of study.

Master of Health Administration (MHA) +: Strategic Decisions in Health Administration

Certificate in Advanced MHA Studies: Strategic Decisions in Health Administration

The purpose of the **Master of Health Administration (MHA^{Plus}) - Certificate in Advanced MHA Studies: Strategic Decisions in Health Administration** is to provide interested Master of Health Administration (MHA) students with advanced knowledge of the science of decision-making. The Certificate is neither a freestanding nor an entry-level credential.

Only students of the MHA program can obtain the proposed **Certificate in Advanced MHA Studies: Strategic Decisions in Health Administration**. The Certificate requires that students complete the following four courses to be completed concurrently with the MHA degree:

- HESA 6100: Ethical Decisions in Health Administration
- HESA 6341: Management and Union Relations: Decisions and Implementation
- HESA 6345: Healthcare Leadership: Decisions, Ownership & Accountability
- HESA 6400: Executive Decisions: The Dynamics of Bias, Risk & Persuasion

MHA students choosing not to complete the Certificate, continue to access other elective courses.

Master of Health Administration (MHA) Online

Admission to the MHA online delivery mode is suspended.

Juris Doctor/Master of Health Administration (JD/MHA)

The four-year JD/MHA program is a collaborative effort between the Schulich School of Law and the School of Health Administration. The combined JD/MHA enables students to select courses leading to degrees of Master of Health Administration and Juris Doctor.

Candidates for the JD/MHA program must satisfy the entrance requirements of both programs, and may obtain further information about the combined program by contacting either the School of Health Administration or the Schulich School of Law. For admission, students must apply to both the School of Health Administration and the Schulich School of Law individually. Students applying for the MHA program may submit LSAT results in lieu of GMAT results. Please consult departments for program of study details.

Note: For all combined degrees, requirements for both programs must be met before a student can convocate.

Master of Nursing/Master of Health Administration (MN/MHA)

The combined MN/MHA program, a collaborative undertaking between the School of Nursing and the School of Health Administration, enables students to select courses leading to degrees of Master of Nursing and Master of Health Administration. A minimum three year commitment will normally be necessary to satisfy the requirements of this program.

Candidates for the MN/MHA program must satisfy the entrance requirements of both programs, and may obtain further information about the combined program by contacting either the School of Health Administration or the School of Nursing. For admission, students must apply to both the School of Health Administration and the School of Nursing individually. Please consult departments for program of study details.

Note: For all combined degrees, requirements for both programs must be met before a student can convocate.

Master of Health Administration (MHA) Thesis Option

The School offers an MHA thesis option that typically is open to one to three new students per year. Thesis option students are expected to complete their MHA within a similar time frame as course-work MHA students, this is a normally 20 months for full time students although the time period may be longer for thesis students. Student research topics should be consistent with the School's research strategy and the availability of research advisors. Research topics should be interdisciplinary where appropriate and grounded in the field experience. Course work and Thesis Option MHA students would complete the same first 10 required MHA courses. Admittance into the Thesis Option would occur only after completion of the 10 required courses.

General Admissions Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Enrollment in the School is limited. In general successful applicants should have attained at least a "B+" standing in their previous university work - undergraduate degree, honours or equivalent, required.

Admission is based on an assessment of all documents as outlined in the Application Procedure.

Exemption

Applicants wishing to receive exemption from a required course should include course outlines for those courses previously taken which they consider to be equivalent to Dalhousie HESA courses. Where it is determined at time of admission that a student has the equivalent of a required course but is not granted advanced placement, an exemption may be permitted, so that another course is substituted for the required course.

Practicum/Fieldwork Placements Outside Halifax

Students enrolled in entry-to-practice graduate programs of study in the Faculty of Health Professions are advised that they may have to do some or all of their required clinical education/fieldwork at sites outside Halifax, and hence may 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.

Master of Applied Health Services Research (MAHSR)

Admission to the Master of Applied Health Services Research (MAHSR) program is suspended. The program will continue to be delivered to any current students until all students have graduated, or the time allowed for program completion has elapsed, or all students have left the program.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Required Courses:

First Year

- HESA 5300: Introduction to the Canadian Healthcare System
- HESA 5315: Managing Change in Health Systems
- HESA 5320: Managerial Epidemiology
- HESA 5330: Management & Design of Healthcare Organizations
- HESA 5341: Healthcare Economics: Evaluation and Policy
- HESA 5345: Financial Accounting, Governance and Management Control in Healthcare
- HESA 5350: Management Control and Funding Systems in Healthcare
- HESA 6360: Healthcare Law
- HESA 6505: Statistics for Health Administration
- HESA 6390: Health Administration Residency

Second Year

- HESA 5335: Information Systems in Health Administration
- HESA 6100: Ethical Decisions in Health Administration
- HESA 6305: Analyzing the Outcomes of Healthcare
- HESA 6310: Healthcare Policy
- HESA 6330: Strategic Planning in Healthcare
- HESA 6340: Human Resources in Healthcare
- HESA 6365: Quality Management in Healthcare
- HESA 6380: Senior Seminar

Elective Courses

Students choose nine credit hours from the following, or other Faculties, pending approval of the Graduate Coordinator. Please consult School as electives may not be offered every year.

- HESA 6000: Nursing Administration and Leadership
- HESA 6325: Continuing Care Administration
- HESA 6341: Management Union Relations: Decisions and Implementation
- HESA 6345: Healthcare Leadership: Decisions, Ownership and Accountability (2017-18)
- HESA 6361: Business Law for Health Administrators
- HESA 6362: Advanced Healthcare Law
- HESA 6363: Health Law and Policy: Current Issues
- HESA 6394: Directed Project
- HESA 6395: Directed Reading

- HESA 6345: Healthcare Leadership: Decisions, Ownership & Accountability (2017-18)
- HESA 6400: Executive Decisions: Dynamics of Bias, Risk, and Persuasion (2017-18)

Course Descriptions

HESA 5300 Introduction to the Canadian Health System

CREDIT HOURS: 3

This course provides a brief introduction to the history, legislation, financing and payment systems, health professionals, health promotion, ethics and values, and trends (e.g. regionalization, consumerism, primary healthcare) in the Canadian healthcare system. The class is designed as an introduction to the Health Administration program. The discussion and tasks are directed toward the development of a lifelong and self-directed learning focus, the importance of networking and interpersonal skills, written and oral communication, and values.

HESA 5315 Managing Change in Health Systems: Sustainability and Adaptation

CREDIT HOURS: 3

This class provides a theoretical and practical understanding of the design, implementation, and assessment of transformational and adaptive change processes within healthcare systems. Health system transformation is initiated and sustained by the broader social, political, technological, and economic context within which health systems function. Therefore, assessments of these and other factors related to health system change are examined. Specifically, topics that are covered include examining the environments of healthcare organizations, organizational culture, organizational effectiveness, knowledge management, organizational learning and innovation, business process reengineering, marketing in health systems, and creating and managing the future. Case analysis utilizing health systems examples, individual and group exercises, as well as the completion and presentation of a field project are used to facilitate participation and learning.

HESA 5320 Managerial Epidemiology

CREDIT HOURS: 3

This class is designed for health administrators, not researchers. The course has three components: assessing the health status of a population using existing data; using Epi-Info for statistical analysis of associations (relative risk, odds ratio, chi-square test, confidence intervals, Mantel-Haenszel analysis, multiple logistic regression); and clinical guideline monitoring. Throughout the course, recurring themes are: understanding the meaning of numbers, assessing validity, and ascertaining causation, including the concepts of confounding and effect modification. A lecture format with guest speakers and some discussion is used. There two required assignments (community health profile interpretation of statistical analysis) and one optional assignment (clinical guidelines) as well as mid-term and final exams.

HESA 5330 Management and Design of Healthcare Organizations

CREDIT HOURS: 3

Healthcare organizations are inherently complex and function in an increasingly dynamic environment. This course provides an introduction to the knowledge and skills necessary for the effective management of healthcare organizations. This is accomplished by examining the foundations of management thought, managerial roles, motivation, leadership, and job design as they relate to healthcare organizations. Additionally, topics such as organizational structure and design, teamwork, coordination and communication, and conflict management and negotiation will be examined. The major course objectives will be to provide opportunities for learning key concepts and theory in a setting which encourages discussion and feedback.

HESA 5335 Information Systems in Health Administration

CREDIT HOURS: 3

The main objective of this course is to prepare health administrators to manage information systems and to use information technology effectively. The strength of the course is the use of real problems, situations, cases, and experiences as supplements to the textbook and references. Students are expected to learn about processes and issues related to planning, analysis, design, procurement, implementation and management of information and information technologies in the health system.

HESA 5341 Healthcare Economics

CREDIT HOURS: 3

This course entails the study of health economics and its impact on health policy, funding and service delivery. Students will learn the concept, theories and methods of analysis of health economics; they will conduct a project-based health economics analysis and evaluation with reference to health policy. Students will identify assumptions used in analysis of economic issues, and explain the theory underlying the assumptions, notably the theories of consumer behavior and production as they relate to health. Important concepts to be covered include: traditional theory of demand and supply and market equilibrium, the invisible hand and consumer choice, market failure, Pareto optimality and social welfare, elasticity, production and cost, public, private and quasi-public good; equity and redistribution. With the aforementioned framework as reference, the course will then focus on economic analysis and evaluation in the field with some coverage of related policy issues that are important for health care manager. Student will learn and apply techniques of economic analysis to current health issues with special emphasis on cost-effectiveness analysis, Cost utility analysis and cost benefit analysis. Students will learn the techniques of using patient-level data in economic evaluation and the basics of economic analysis using decision-making modelling.

HESA 5345 Financial Accounting, Governance and Management Control in Healthcare

CREDIT HOURS: 3

The purpose of this course is to provide a basic understanding of management control techniques and management accounting decision making techniques and processes that exist for health administrators. The class will cover the following topics: an introduction to management control; financial statement and analysis; breakeven analysis; responsibility accounting; socio-economic aspects of budgeting; financial decisions and relevant costs.

HESA 5350 Management Control and Funding Systems in Healthcare

CREDIT HOURS: 3

The purpose of this class is to provide a basic understanding of management control and decision making techniques and funding systems that exist for health administrators. The course will cover the following topics: management control; performance budgeting; patient classification; work measurement; responsibility accounting; socio-economic aspects of budgeting; cost allocation; multi-year cost; financial decisions; relevant costs; and funding systems.

HESA 6000 Nursing Administration and Leadership

CREDIT HOURS: 3

This course will provide a general overview of organizational theories, and their relationship to nursing administration. The role of the Nurse Administrator and current

issues and challenges facing nurse administrators in the nineties will also be examined. Students will compare and contrast selected theories of management and be able to discuss their relationship to administrative theory and nursing practice; examine the changing roles of the nurse administrator; critique existing nursing administrative practices from a multi cultural , feminist perspective; analyze an existing nursing management organization; discuss current issues and challenges facing Canadian nurse administrators and, formulate a personal philosophy of administration.
CROSS-LISTING: NURS 6000.03

HESA 6100 Ethical Decisions in Health Administration

CREDIT HOURS: 3
This course has three objectives: first, to raise the student's awareness of the ethical implications of decision-making in healthcare administration. Second, it will assist students in the development of approach for exploring and resolving ethical dilemmas in the workplace. Third, the course will assist students in examining and developing a greater understanding of their own value system as it relates to the decision-making and management practice. The course is a combination of case study analysis, group projects, guest speakers and self-directed study.
PREREQUISITE: HESA 5315

HESA 6305 Analyzing the Outcomes of Healthcare

CREDIT HOURS: 3
Determining the outcomes of healthcare provision and measuring the performance of healthcare organizations are redefining how healthcare is strategized and delivered. This is a reflection of the urgent need to improve healthcare quality and the imperative of assessing healthcare interventions. The objective of this class is to expose students to the origins of the medical outcomes movement, the importance of understanding the forces driving outcomes management, and the necessity of developing the requisite skills for managing healthcare organizations. Topics examined in the course include developing strategies for implementing an outcomes measurement system, assessing customer satisfaction and feedback, quality of life measurement, the utilization of health services, small area variations, clinical practice guidelines, disease management, measuring outcomes in long term care, the dynamics of waiting lists, and system performance measurement. Didactic lectures, case analysis, assigned readings, assignments which combine theoretical and practical application, and a final presentation providing detailed analysis of an outcomes management project will be used to expose students to this area of healthcare management.

HESA 6310 Healthcare Policy

CREDIT HOURS: 3
This course introduces the student to the evolution of Canadian healthcare policy. Students are exposed to three streams of study which, when taken together, help to illuminate how our healthcare system has emerged over time. The first stream will provide a conceptual and practical examination of public policy making which delimits the art and science of crafting healthcare policy. Public policy analysis will be introduced in a way that provides an overview of techniques and issues that are applicable to an understanding of healthcare policy at the provincial and federal levels. With this approach providing the backdrop, a second stream concentrates on current developments in the Canadian healthcare system as both a direct and indirect consequence of explicit and implicit public policy decisions. Finally, to facilitate interactive learning, problem solving, and critical thinking, students are required to examine and analyze a number of contemporary healthcare policy issues.

HESA 6325 Continuing Care Administration

CREDIT HOURS: 3
This course is designed to enable students to understand and appraise government policies that have shaped the direction of Long Term Care/Continuing Care in Canada with particular emphasis on Nova Scotia; organize and contrast a number of current structures that have been put in place to provide care to seniors; explain the concepts of aging, disabilities, dementia, and the social and medical model of care; and explain, compare, contrast, and critique a variety of issues in Long Term Care/Continuing Care including facility and community based care, leadership styles, aging in place, home care models, living wills/advanced directives and palliative care.

HESA 6330 Strategic Planning in Healthcare

CREDIT HOURS: 3
The focus of the course is on the processes, methods, models and techniques of strategic planning and project management in a changing healthcare system. Relationships between strategic and operational planning will be explored, as will the factors that both inhibit or facilitate the planning process. The overarching objective of the class is to provide students with a firm grounding in the analytical, political and interpersonal skills necessary to enable them to assess health needs, plan services accordingly, implement and to evaluate the planning process.
PREREQUISITE: HESA 6505 and HESA 5320

HESA 6340 Human Resources in Healthcare

CREDIT HOURS: 3
The Canadian healthcare system, like many others, is facing unique challenges to the management of human resources. The healthcare environment poses particular challenges as governments and employers struggle with reform and restructuring, cost containment, and labor shortages. Human resource management is integral to the overall strategic planning process and key to organizational performance. Key industry leaders are calling for change and shifting focus to the healthy workplace to ensure success and sustainability in Canada's healthcare system. This course will provide the student with an opportunity to explore the challenges and best practices of administrative and operational management of human resources within the healthcare industry. Students will be challenged to understand human resource management strategies and the roles of leaders and managers to enable organizational, effectiveness and efficiency and performance excellence.

HESA 6341 Management Union Relations: Decisions and Implementation

CREDIT HOURS: 3
This course provides a comprehensive overview of labor relations in the healthcare system. Real life situations, cases and arbitration decisions will be analyzed and discussed. Issues studied include the certification process, the collective bargaining process, the outcomes of collective bargaining, grievance handling and the disciplinary process in a unionized environment. As well, trends in healthcare labour relations and management's role in maintaining and ensuring effective relations with unions will be addressed.

HESA 6345 Healthcare Leadership: Decisions, Ownership and Accountability

CREDIT HOURS: 3
Effective leadership is foundational to successful organizations, determining not only strategic direction but ultimately determining success and sustainability. The topics to be covered include: a) Authentic leadership and decision making; b) Team-based decisions; c) Alignment of Commitment and performance; and d) Leading innovation and organizational effectiveness through strategic decision making. Offered 2017-2018

HESA 6360 Healthcare Law

CREDIT HOURS: 3
This course provides instruction in the principles and practice of health law that are of relevance to health administrators in the public, private or public-private health sectors. By the end of the course, students will be familiar with many of the key laws and the public policy rationale that underlie them, will understand how the law applies to particular healthcare delivery situations, and will be able to identify potential and actual legal problems when they arise. The course beings by providing a foundation in the mechanics of the Canadian legal system (e.g., the difference between common law, statutes, and constitutional documents; the life cycle of a legal action from the initiation of a lawsuit to appealing a court decision) and by outlining the basic legal framework of Canada's healthcare system, including the implementation and enforcement of the Canada Health Act and important legal constitutional challenges to the single-payer system. With this as a backdrop, the course takes a detailed look at fundamental health law topics, including: negligence as it relates to healthcare providers' misdiagnosis and improper treatment of patients and institutional liability; the regulation of healthcare professionals; malpractice issues relating to consent to medical treatment; legal issues that attend the delivery of healthcare to minors; confidentiality of and access to health information, including mandatory reporting obligations of healthcare practitioners and institutions; decision-making about end of life care; mental health law; regulation of human biomedical research; and public health law.

HESA 6361 Business Law for Health Administrators

CREDIT HOURS: 3
This course surveys a wide variety of business law topics with an emphasis on how these topics are relevant in the health administration context. Students will learn legal principles and concepts related to contracts, business structures, employer-employee relationships, labour law, human rights law, property law, debt and security, bankruptcy, and insurance. Students will be able to identify areas of legal risk and apply legal concepts/principles to real case scenarios.
FORMAT: Seminar
PREREQUISITE: HESA 6360.03

HESA 6362 Advanced Healthcare Law

CREDIT HOURS: 3
Over the last decade, there has been an unprecedented introduction of the rule of law into nearly every aspect of healthcare delivery in Canada by creating rights and responsibilities for all individuals and institutions (both public and private) involved in the administration of the healthcare system. The seminar builds on the foundational Healthcare Law (HESA 6360) course by offering a more in-depth examination of some of the topics that were surveyed in that course and exposing students to additional healthcare law topics, such as the regulation of biomedical research involving humans, medical error reporting, and legal responses to chronic disease. Students are encouraged to further develop their understanding of the rules and policies of the legal system and to critically evaluate their efficacy and legitimacy in the healthcare context. Instruction on legal research methodologies is provided since students are expected to prepare a research paper.
FORMAT: Seminar
PREREQUISITE: HESA 6360.03

HESA 6363 Health Law and Policy: Current Issues

CREDIT HOURS: 3
This course offers an opportunity for students to engage critically with a set of lectures on cutting-edge health law and policy issues presented by distinguished guest speakers from a variety of scholarly disciplines and professional fields related to health law and policy. The lecture topics change from year to year, depending on the speakers and issues selected for presentation. Students are required to attend each lecture and to read material relevant to the given topic in advance of the lecture. Immediately following each lecture, students will attend a tutorial that will be facilitated by the course instructor. The tutorials will involve a roundtable discussion by the students of the lecture content and the reading material that was distributed prior to the lecture.
FORMAT: Seminar
PREREQUISITE: HESA 6362.03

HESA 6365 Quality Management in Healthcare

CREDIT HOURS: 3
Quality Management (QM) provides participants with an understanding of QM concepts and practices in healthcare. The goal is to prepare students to actively contribute in a QM context. The scope ranges from broad topics associated with QM as an organization development strategy to teams, tools and techniques for effective process improvement projects.
PREREQUISITE: HESA 5315
CROSS-LISTING: NURS 5865.03

HESA 6370 Comparative Healthcare Funding and Insurance Systems

CREDIT HOURS: 3
On a comparative basis, funding and insurance systems will be analyzed so that critical insights that pertain to present and future issues facing the Canadian and international healthcare systems will be portrayed. Some issues covered: private, social insurance and state funded systems, private insurance, models for assessing risk, management of employer-based healthcare systems, financial incentives, funding systems, financial policy analysis, etc.
NOTES: Not offered in 2016-2017

HESA 6380 Senior Seminar

CREDIT HOURS: 3
Each class member prepares and presents a major analytical paper on a significant, unresolved healthcare problem related to his/her career aspirations. Practitioners and other interested persons are invited to the paper presentations scheduled during the last weeks of class. Classes focus on debates, interprofessional learning modules, a values exercise, and current issues in healthcare management raised by class members and the instructor. The class provides opportunities to analyze, synthesize and integrate knowledge and values while refining communication and appraisal skills. Senior Seminar is normally completed in the last term of the MHA program.

HESA 6390 Health Administration Residency

CREDIT HOURS: 6
A 16 week full time administrative residency is required for all students in the Master of Health Administration program. The objective of the residency is to provide first-hand familiarity with administrative problems and operations of a healthcare organization. Students are mentored by qualified, practicing senior health administrators. They apply and test administrative theories and concepts in a practical setting, and acquire administrative skills, knowledge, and perspectives through observation and contact with a diversity of programs and managers. Residency guidelines and information will be available to students in September of their first year.
NOTES: Residencies are required for all students. However, due to enrollment levels, not all placements may be available in the Halifax area.

HESA 6394 Directed Project

CREDIT HOURS: 3

In order to obtain credit, students are required to complete a written report based upon research in, or exposure to, a defined problem in health administration. For some students, this will involve research within a health agency or government department. It may be based upon the consideration of a problem which they have encountered during their actual employment or residency. In both cases, the design of the project and the preparation of the report will be done under the supervision of a member of the faculty.

HESA 6395 Directed Reading

CREDIT HOURS: 3

A special program of directed reading, with appropriate written assignments, may be arranged with a member of the faculty where the interest in a subject is not sufficiently widespread to warrant offering a regular course.

HESA 6400 Executive Decisions: Dynamics of Bias, Risk and Persuasion

CREDIT HOURS: 3

Powerful psychological constructs affect decision making. The course will focus on: a) recognizing the psychological constructs that can profoundly affect the decision-making process and the decision rendered; b) formulating strategies to effectively manage the potential influence of these psychological constructs; c) formulating strategies to influence and communicate decisions. Offered 2017-2018

HESA 6505 Statistics for Health Administration

CREDIT HOURS: 3

This course provides graduate student in health administration with the skills to understand and carry out statistical analyses in their field. Computer labs using Excel form an integral part of the course. The course covers data acquisition and presentation, fundamentals of probability, distributions, inference, analysis of variance, and regression models.

EXCLUSIONS: STAT 5990, HESA 6500

HESA 9000 Thesis

CREDIT HOURS: 6

HESA 9001 Thesis Continuation

CREDIT HOURS: 6

Health (PhD)

Location:
Building/Room: Burbidge Building
Street Address 1: 5968 College Street
Street Address 2: Room 312
P.O. Box: 15000
Halifax, NS B3H 4R2
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Fax: (902) 494-1966
Website: dal.ca/phdhealth
Email Address: phdhealth@dal.ca

Introduction

The PhD in Health is built upon the World Health Organization (WHO) definition of Health: *A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity*, a picture produced by combining:

1. body structure and function
2. tasks and actions and
3. participation (involvement in life situations)

The program offers a Doctor of Philosophy (PhD) degree in Health and will train health scientists to conduct high quality research on important health issues and to promote their research to inform practices, programs and policies. It will also provide a depth of experience in a focused research area and expose the students to methods and issues in the broader health research context that includes concepts of disease burden, function and disability.

Staff

Dean

Webster, WG, PhD

Graduate Coordinator

Kozey, J., BSc, MSc (Waterloo), PhD (TUNS)

Professors

Gahagan, J., BA, BA Honours (Carleton), MA (Univ of Windsor), PhD (Wayne State Univ). End of life care, Gender and health, Sexual health, Social determinants of health, Harm reduction
Jackson, L., BA, MA, PhD (Toronto). Harm reduction, Rural women's health, Marginalized populations, Sex industry
Jakeman, D., BSc, PhD (Sheffield). Chemical biology, Medicinal chemistry, Protein engineering, Natural products, Carbohydrates
Johnston, G., BSc (Hons) (McGill), MHSA (Alberta), PhD (Western). Record linkage, Administrative databases, End of life and palliative care, Cancer control, Assessing population registries data quality, Epidemiology
Karabanow, J., BA (Hons), MA (McGill), PhD (Wilfrid Laurier). International social work, Organization theory, Globalization, Housing, Political economics, Homelessness and poverty
Kay-Raining Bird, E., BA, MSc, PhD (Wisconsin), Cultural and linguistic diversity, Down Syndrome, Language assessment and intervention, Autism, Child language development and disorders, Bilingualism
Kiefte, M., BA, MSc, PhD (Alberta). Speech processing, Speech perception and production
Kozey, C., BPE (UNB), MSc (Waterloo), PhD (Dalhousie). Muscle activation and movement, Low back pain, Interrelationship of muscles in normal and pathological conditions, Knee joint pathologies, Osteoarthritis
MacKay-Lyons, M., BSc (PT) (Toronto), MScPT (USC), PhD (Dalhousie) Neurotherapeutics
Packer, T., BSc (OT) (Western) MSc, PhD (Queen's). Participation, Self Management, Disability, Chronic conditions, Health Education
Rehman, L., BHK, MA (UBC), PhD (Waterloo). Work relationships and health, Access to recreation, Youth and leisure, Children and leisure, Leisure and the internet
Singleton, J., BA (Waterloo), MS (Penn State), PhD (Maryland). Therapeutic recreation, Social gerontology, Leisure research, Leisure and aging
Sketris, I., BSc (Pharm) (Toronto), PharmD (Minn), MPA (HSA) (Dalhousie). Pharmacy practice, Drug safety, Pharmacoepidemiology, Pharmaceutical policy
Thomas Bernard, W., BA (MSVU), MSW (Dalhousie), PhD (Sheffield). End of life care, Gender, Aging, Racism, Well-being
Ungar, M., BA, BSW, MSW (McGill), PhD (Wilfrid Laurier). Social constructionism, Cross-cultural diversity research, Family therapy, Child and adolescent mental health, Delinquency, Program evaluation, Child development, Ecological social work, Resilience
Wang, J., BS, MA, PhD (SUNY). Instrumentation in audiology, Hearing Science, Neuroscience
Westwood, D., BSc, MA, PhD (Waterloo). Movement disorders, Cognitive neuroscience, Kinesiology, Physiology, Motor control

Yeung, P., BSc (Pharm), MSc (Man), PhD (Saskatchewan). Pharmacokinetics, Bioanalysis, Pharmacodynamics, Biomarkers, Drug metabolism

Associate Professors

Agu, R., BPharm, MPharm (Univ Nigeria), MPharm, PhD (Katholieke Universiteit, Belgium). Drug delivery, Toxicity screening, Transporters, Respiratory-Nasal
Aiken, S., BA, MSc, PhD (Toronto), Binaural processing, Hearing aid processing, Cortical event related potentials, Electrophysiology, Auditory temporal processing, Speech evoked responses, Auditory steady-state responses
Beagan, B., BA, MA (Dalhousie), PhD (UBC). Social Class, Professional Practice, Sexual and Gender Identity, Diversity Inclusion, Health Professional Education, Disability, Social Inequality and Occupation, Race Ethnicity and Racism
Brown,C., BA, MA (Manitoba), MSW (Carleton), PhD (Toronto). Feminist research, Cross-cultural diversity research, Depression, Sexual abuse, violence against women and children, Women's Health, Health and mental health policy, Eating disorders and body image, Childhood trauma, Addictions
Cleave, P., BA/BSW, MClSc, PhD (Kansas). Language and literacy skills of children with language impairment and Down Syndrome
Goralski, K., BSc, PhD (Manitoba). Pharmacokinetics, Breast Cancer, Chermerin and Chemokin-Like Receptor 1 (CMKRL 1), Adipose (Fat) Tissue and Adipokines, Pharmacology, Obesity, Jadomycins
Harman, K., BScPT (Toronto), MSc (Ottawa), PhD (Carleton). Chronic pain, Sub-acute low back pain, Workplace injury
Hickey, E., BS, MA, PhD (Washington). Global health, Aphasia, Quality of life, Communication activities and participation, Treatment efficacy outcomes, Dementia, Traumatic brain injury
Hutchinson, S., BA (Victoria), MA (Dalhousie), PhD (Georgia). Leisure education; leisure and health promotion/risk prevention; leisure-based responses to stress; theory-driven program design and evaluation
Ingles, J., BA, PhD (Dalhousie). Language and cognition in adults with neurological disorders
Keats, M., BA (Calgary), MA (Alberta), PhD (Calgary). Physical activity, Exercise and cancer, Health promotion, Young adult cancer
Kirk, S., BSc Honours (Leeds Metropolitan Univ), PhD (Univ of Leeds). Health intervention, Physical activity, Health promotion, Obesity
Kozey, J., BSc, MSc (Waterloo), PhD (TUNS). Clinical and occupational biomechanics, Ergonomics, Biomechanics and psychophysics, Accessibility, Workstation design, Anthropometry
Latimer, M., BA (MAU), BScN, MN (Dalhousie), PhD (McGill), RN
MacDonald, J., BSW (STU), MSW (Carleton), PhD (Memorial). Anti-oppressive practice, Disability, Women's Health, Feminist counselling
Merritt, B., BS, MS (OT), PhD (Colorado State). Curriculum Evaluation, Health Professional Education, HIV, Objective Measurement, Chronic conditions, Rehabilitation, Activities of daily living
Persaud, D., MSc (Queen's), MSA (Cntrl Mich), PhD (Toronto). Multi-disciplinary health care teams, Organizational learning adaptation and innovation, Performance management and measurement, Change management
Robinson, L., BSc Honours 1st. class (UVIC), MA, PhD (Simon Fraser). Cancer patients, Stress and social support, Stress and coping, Child and adolescent mental health, Information technology as a source of support information for health, Psychosocial aspects of cancer, Adolescent mental health, Relationships and health
Sabo, B., BA (Manitoba), MA, PhD (Dalhousie), RN. Knowledge to Action, Palliative care, Psychosocial oncology, Oncology
Steenbeek, A, BScN, MScN, PhD (UBC), RN. Aboriginal health, Sexually transmitted infections, Community-based research, Health services among marginalized populations
Versnel, J., BSc (OT) (Toronto), MSc (OT) (Western), PhD (Queen's). Children Youth Young Adults and Families, Chronic disease, Evidence Based Practice, Participation, Interprofessional Practice, Transition to Adulthood, Self Management, Chronic conditions, Knowledge Translation
Warner, G., PhD (Epidemiology) (Case West Reserve Univ). Home Based Rehabilitation, Health Services Research, Aging, Participation, Mixed Methods, Implementation Science, Self Management, Family Centred Care
Weeks, L., BSc (UPEI), MSc (Maine), PhD (Virginia Tech). Rural issues, Care transitions, Senior housing, End of life care, Gender and aging, Aging, Elder abuse, Family caregivers

Assistant Professors

Boe, S., BPhEd (Brock), MPT, PhD (Western). Central and peripheral nervous system adaptations, Neurorehabilitation, Corticol contributions to balance control
Bombay, A., BSc (Ottawa), MSc, PhD (Carleton). Aboriginal health and well being, mental health, cultural identity, stress and trauma, intergenerational transmission, Indian Residential Schools, historical trauma, discrimination and intergroup relations, quantitative and/or qualitative methodologies
Campbell-Yeo, M., BN, MN (Dalhousie), PhD (McGill), RN. Clinical trials examining the impact of family and novel interventions on infant outcomes, pain stress, skin-to-skin contact, co-bedding. Clinical trials examining the impact of family and novel interventions on infant outcomes, pain stress, skin-to-skin contact, co-bedding
Curran, J., BScN, MEd (Memorial), PhD (Dalhousie), RN
Dechman, G., BScPT (Queen's), PhD (McGill). Outcome measures to assess changes in activities for individuals with disabilities, Exercise to improve function for those with chronic diseases
Dieleman, C., BSc (OT) (Western), MSc, PhD (Queen's). Qualitative Research Methods, Diversity Inclusion, Professional Practice, Policy Implementation, Community Capacity Mapping Building, Mental Health, Forensic Correctional Services
Dithurbide, L., BA (St. Mary's), MA (Brock), PhD (Michigan State)
Fenety, A., BSc (UNB), DPT (Manitoba), MSc (Alta), PhD (Dalhousie). Workplace modifications to prevent injury, Workplace injury
Grandy, S., BSc, MSc, PhD (Dalhousie). Cardiac function and aging, Cardiac cellular function, Cardiac disease prevention, Exercise and cardiac disease
Kimmerly, D, BSc (Hons) (Waterloo), MSc, PhD (UWO). Cardiovascular disease and exercise, Cardiac function, Exercise physiology, Nervous system and exercise
Ladouceur, M., BSc, MSc (Sherbrooke), PhD (McGill). Spinal cord injury, Rehabilitation, Spasticity management, Physiology, Sport
Lauckner, H., BSc (OT), MSc, PhD (Queen's). Diversity Inclusion, Community Engagement, Collaborative Community Practice, Collective Occupations, Community Development
MacKenzie, D., BSc (Saskatchewan), BSc (OT) (Alberta), MA (Ed) (MSVU), PhD (Dalhousie). Observation and eye movement, Neurological rehabilitation, and interprofessional education
Martin, D., BRec (Memorial), MA, PhD (Dalhousie). Food justice, Social determinants of health, Community based participatory research, Oral health promotion, Aboriginal-Indigenous health
Meisner, B., BSc Hon (Toronto), MSc, PhD (York). Health psychology, Critical multiplism, Health promotion, Gerontology, Adult development and aging
Rutherford, D., BSc (UWO), BSc PT (Toronto), MSc, PhD (Dalhousie). Knee osteoarthritis, Lower extremity injury and disease, Quantifying mechanics and muscle activation, Neuromusculoskeletal therapeutics
Stadnyk, R., BSc OT, MSc (Queen's), PhD (Toronto). Occupational Choice, Participation, Social Inclusion, Family Caregiving, Continuing Care, Aging, Community

Music Making, Health Policy
Weinberg, M., BA (Toronto), MSW (Smith College), PhD (Toronto). Gender, Difference and identity, Discourse analysis, Qualitative research, Ethics in the helping professions, Critical post-structural feminist theory
Welch, J., BA, BSc Honours (Carleton), MSc (Alberta), PhD (Purdue Univ). Bones and nutrition, Obesity remediation, Bone imaging, Health benefits of sports, Bones and exercise

Admissions
Admissions

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In addition to the Faculty of Graduate Studies requirements, the program has the following the following requirements:

Students will be accepted into the PhD program after completion of a Master's degree from an accredited program. Eligible students who have completed a research Master's will be enrolled in the two year PhD program. Students who have completed a non-thesis Master's program are eligible for the three year PhD program.

Independent Research (non-thesis Master's degree applicants only)

Students with non-thesis Master's degree may be eligible for the two-year program if they can demonstrate independent research. Following the guidelines provided by the Faculty of Graduate Studies, ways to demonstrate equivalency include: major research paper; presentation at scholarly conferences; publications in journals, etc.

A cumulative GPA of 3.7 is required for admission to the program.

Financial Support

Prior to being accepted into the program, an approved plan of funding must be submitted by the applicant and supervisor. The requirement is that the plan consist of two years of guaranteed funding at a minimum rate of $12,000 plus tuition each year. Normally, students who are accepted are supported financially either by external sources, Dalhousie scholarships or supervisors research funding. Additional financing is available for students with external scholarships.

Applications should be made early, preferably by January 15th of the year before the proposed start of the program.

Degree Requirements
Degree Requirements

The PhD in Health is offered as a two-year program for students who have completed a thesis-based Masters and a three-year program for students with a non-thesis based Masters. Students in the three-year program will complete research experience courses and a small-scale research/pilot project in their first year. These must be completed before the student pursues the regular HLTH 6100 program requirement. Students **MUST** be registered in the program on a **full time** basis.

Please note that the terms ***two-year*** and ***three-year*** refer to the amount of time a full-time student is expected to take to complete required coursework and comprehensive exams. It is generally expected that research and dissertation completion will take approximately two additional years.

Two-Year Program Requirements

Requirement	Expected Completion Date
HLTH 6000, HLTH 6100 an Advanced Research elective and two additional electives	End of Year 1
Comprehensive Exams: HLTH 8000	End of Year 2
Thesis Proposal: HLTH 9530	End of Year 2
Research and Dissertation Completion	End of Year 4

Three-Year Program Requirements

Requirement	Expected Completion Date

Research experience courses, including additional statistics/methodology course: HLTH 5101/HLTH 5102	End of First-Term, Year 2
All coursework, including required courses (see two year requirements above)	End of Year 2
Comprehensive Exams	End of Year 3
Thesis Proposal	End of Year 3
Research and Dissertation Completion	End of Year 5

Additional Requirements

- participate in a Health Network Event. This yearly event will create links between the PhD in Health program and important stakeholders such as government representatives and the members of the clinical community. As part of this event, students will make brief presentations on their research.
- present at a local (e.g. The Crossroads Interdisciplinary Student Health Research Conference) or other scholarly conference at least once.
- present twice to stakeholders (e.g. government and policy makers, industry representative, practitioners, voluntary health organizations, Worker's Compensation, etc).
- produce 2 peer-reviewed publications.
- apply for at least one funding/scholarship award either prior to or during their program

Supervisory Committees

Each student will have a supervisory committee consisting of their thesis supervisor(s) plus two faculty members appointed to the Faculty of Graduate Studies, The supervising committee will meet at least twice a year (including September following admission) or when called by any member of this committee or the student.

Courses

Course Descriptions

HLTH 5101 Research Project I

CREDIT HOURS: 3
Students will undertake a small-scale research project. Students will complete a comprehensive literature review, identify the research question, and write a proposal. This will be completed by the end of the 2nd term. Upon completion, student will enroll in HLTH 5102 in which the student will conduct the study.

HLTH 6000X/Y Health Seminar Series I

CREDIT HOURS: 3
This seminar will expose students to the range of methods and issues in health research and increase their understanding of the potential contributions made by diverse interpretations, methods and disciplines. It consists of students and invited guest's presentations. Seminars will help students develop the ability to present in an academic/professional setting.
NOTES: HLTH 6000.03 is a 3-unit (half) elective credit course encompassing the Fall (X) and Winter (Y) terms; students taking this class must register and complete both the X and Y terms consecutively in their first year of the PhD in Health Program.

HLTH 6100X/Y Fundamental, Applied and Translational Aspects of Health Research

CREDIT HOURS: 3
The objective o this course is to expose students to current/critical topics in Health research. The course will consist of invited research/clinical/administrative /policy presentations related to the latest findings in health. These seminars will provide knowledge in the basic and applied aspects of health research that spans a number of disciplines/professions.
NOTES: HLTH 6100 is a 3-unit (half) credit course encompassing the Fall (X) and Winter (Y) terms; students taking this class must register and complete both the X and Y terms consecutively in their first year of the PhD in Health program to receive course credit.

HLTH 7001 Directed Study I

CREDIT HOURS: 3
Individual students work with a designated faculty member to conduct an indepth examination of a specific topic. The content, resources, and evaluation methods are customized to address a learning issue that relates to the student's research interests. The Independent Study HLTH 7001 is independent of Independent Study HLTH 7002.

HLTH 8000 Comprehensive Examination

CREDIT HOURS: 0
Following completion of all course work, students will register in the Comprehensive Examination course while they prepare for and until they have passed the Comprehensive Examination.
PREREQUISITE: Completion of course requirements

HLTH 9530 Doctoral Thesis

CREDIT HOURS: 0

Health and Human Performance

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Building/Room: Stairs House
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Street Address 2:
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Halifax, NS B3H 4R2
Telephone: (902) 494-2152
Fax: (902) 494-5120
Website: www.dal.ca/hahp
Email Address: hahp@dal.ca

Introduction

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.

The School of Health and Human Performance offers master's degree programs in three areas: Master of Arts in Health Promotion, Master of Science in Kinesiology and Master of Arts in Leisure Studies. There are ongoing research programs in each of the areas of health promotion (basic health-related research and evaluation of health education/health promotion policies, programs, practices and content), kinesiology (exercise physiology, neuromuscular physiology, ergonomics, motor performance, bone and nutrition, physical fitness across the lifespan, health and exercise psychology, biomechanics and sport psychology) and leisure studies (leisure and social groups such as older adults, youth or persons with health problems/disabilities; historical analysis of leisure and sport; analysis of sport and recreation administration and cultural services).

For more detailed information on the regulations regarding these programs, students are invited to visit our Website at http://www.dal.ca/hahp

Staff

Director of School

McGinn, F., BRec (Dalhousie), MA (Western Michigan), PhD (Southern Illinois Univ of Carbondale)

Professors

Gahagan, J., BA, BA (Hons) (Carleton), MA (Windsor), PhD (Wayne State). HIV/AIDS prevention, care, treatment and support issues; sexual and reproductive health; access to health care resources among socially marginalized populations; HIV testing and counseling among pregnant women in Canada.
Jackson, L. A., BA, MA, PhD (Toronto). The social determinants of health among vulnerable populations (e.g. youth, women in the sex trade); rural health; HIV/AIDS; addictions and harm reduction; and qualitative methods.
Karabanow, J., BA (Hon), MA (McGill), PhD (Wilfred Laurier), major appointment in Social Work. Homelessness and poverty, Housing, Globalization, International social work, Organization theory, Political economics.
Kirby, R. L., MD (Dalhousie), FRCP (C), major appointment in the Department of Medicine (Division of Physical Medicine and Rehabilitation). Clinical Biomechanics. Studies are conducted in clinical aspects of biomechanics, particularly as related to the safety and performance of mobility aids like wheelchairs, ambulation aids and artificial limbs.
Klein, R. M., BA (SUNY), MA, PhD (Oregon), University Research Professor, major appointment in the Department of Psychology. Human attention and information processing, oculomotor control, cognitive neuroscience, language and literacy, applied cognitive psychology.
Kozey, C. L., BPE (UNB), MSc (Waterloo), PhD (Dalhousie), major appointment in the School of Physiotherapy. Research focus is on neuromuscular control patterns during normal movement and neuromuscular impairments associated with musculoskeletal disorders. The two key clinical areas are low back pain and knee joint osteoarthritis. These studies involve the use of electromyography (EMG) and other sensors to measure muscle function and motion parameters. Signal processing and statistical pattern recognition are the main analysis tools.
Rehman, L. A., BHK, MA (UBC), PhD (Waterloo). Leisure and entrepreneurship; leisure and work life balance; leisure and access by marginalized groups; physical activity and leisure.
Singleton, J. F., BA (Waterloo), MS (Penn State), PhD (Maryland). Leisure and aging; therapeutic recreation for persons with Alzheimer's disease; pre-retirement planning; leisure and ethnicity; gender and leisure; leisure and people with disabilities; the use of secondary data in leisure research.
Unruh, A., BSc (OT) (Western), MSW (Carleton), PhD (Dalhousie), major appointment in the School of Occupational Therapy. Gender appraisal and coping with pain; leisure occupations or activities and coping with serious life crisis; spirituality in health and evidence-based practice; spirituality and leisure.
Westwood, D. A., BSc, MA, PhD (Waterloo). Neuroscience, cognitive psychology, motor control. Basic research in the visual control of movement using 3D motion analysis, eye-tracking, and functional brain imaging. Applied motor control research in altered thermal environments, psychiatric disorders, and stroke.

Associate Professors

Beagan, B., BA, MA (Dalhousie), PhD (UBC), major appointment in the School of Occupational Therapy. Social inequality, health and illness, gender and health, racism and health, health professions.
Blanchard, C., BA Honours (UPEI), MSc, PhD (Alberta), major appointment in the Department of Medicine. Determinants of health behaviours (mainly physical activity) in diseased (e.g. cardiac patients and cancer survivors) and non-diseased (e.g. adolescents, university students, adults, ethnic disparities) populations; quality of life outcomes associated with health behaviours in diseased and non-diseased populations; statistics, research methods, and measurement.
Hutchinson, S. L., BA (Victoria), MA (Dalhousie), PhD (Georgia). Leisure education; leisure and health promotion/risk prevention; leisure-based responses to stress; theory-driven program design and evaluation.
Kirk, S., BSc (Hons), PhD (Univ of Leeds). Health services, health promotion, health intervention, obesity, physical activity.
Kozey, J. W., BSc, MSc (Waterloo), PhD (TUNS). Clinical and Occupational Biomechanics and Physical Ergonomics. Research activities include biomechanical analysis of manual materials handling tasks, 3-D reach measurement and modeling, workstation design, personal protective equipment design and factors related to emergency helicopter egress.
McGinn, F., BRec (Dalhousie), MA (Western Michigan), PhD (Southern Illinois Univ at Carbondale). HIV/AIDS and employment; chronic illness and the family; disability management and occupational analysis; distance education.
Robinson, L. M., BSc (Hons. 1st Class UVic), MA, PhD (Simon Fraser). Interactional/interpersonal processes in stress, coping and social support; use of information technology as a source of support and information on health concerns; pediatric and adolescent mental health; relationships and health.

Assistant Professors

Bagnell, A., BSc (McGill), MA (Oxford), MD (Dalhousie), major appointment in the Department of Psychiatry. Early intervention and treatment for anxiety disorders in children and adolescents; mental health literacy (teens); Web-based school interventions (access to health information, promoting help seeking); school programs for early identification and navigation of mental health issues in youth.
Barnes, L. J., BPE, MSc (Dalhousie). Prevention of HIV/AIDS; HIV/AIDS grief and bereavement; school health promotion; health education/health promotion program planning and evaluation; rubella screening among university women, young adults living with cancer.
Dechman, G., BScPT (Hons) (Queen's), PhD (McGill), major appointment in the School of Physiotherapy. Research focuses on using exercise to improve function in people with chronic diseases. This includes assessing the role that aerobic and resistance exercise play in enhancing functional activity in people with chronic pulmonary disease, cancer and obesity; developing functional outcome measures to objectively assess changes in activities of daily living for community-dwelling individuals with disabilities.
Dithurbide, L., BA (St. Mary's), MA (Brock), PhD (Michigan State). Research focuses on the psychosocial aspects of sport and physical activity; the long term goal is to better understand the antecedents and outcomes of team and teammate trust. The results of this research will be useful in helping athletes, coaches, organizational leaders, health service providers with the best ways to help increase the performance, and well-being of their respective groups and teams.
Gallant, K., BSc (Hons) (Mt. A), BJourn (King's), MSc (Guelph), PhD (Waterloo). Volunteerism and organizational participation and their implications for communities; feelings of obligation within volunteering; civic engagement and community development; inclusion of marginalized populations in communities.
Grandy, S., BSc, MSc, PhD (Dalhousie). The effects of age-related alterations in inflammation and oxidative stress on cardiac function (e.g. cardiac contraction and repolarization); and protective effects of physical activity during the aging process.
Keats, M., BA (Calgary), MA (Alberta), PhD (Calgary). Health and exercise psychology. Research goals are to advance the scientific understanding of the interrelationships amongst the biopsychosocial aspects of physical activity and cancer. Research activities include: the examination of the impact of physical activity on cancer control outcomes such as prevention, coping, rehabilitation, health promotion, palliation, and survival; investigating the behavioural determinants of physical activity; and exploring the effectiveness of interventions designed to promote physical activity across the cancer continuum.
Kimmerly, D., BSc (Waterloo), MSc, PhD (Western Ontario). Human Cardiovascular Neuroscience and Exercise Physiology. Our research is focused on the interaction between the autonomic nervous system and cardiovascular function. We are currently using functional brain imaging and microneurography techniques to identify the brain regions involved with autonomic cardiovascular control. Studies are also conducted that characterize the effect that acute (e.g. single bout) and chronic (e.g. training) exercise has on these systems.
Kuhle, S., MD (Georg-August), Doctorate of Medicine (Eberhard Karls), MPH, PhD (Alberta), major appointment in Departments of Obstetrics and Gynaecology and Pediatrics.
Ladouceur, M., BSc, MSc (Sherbrooke), PhD (McGill). Normal and pathological gait from the perspective of neuromuscular control and biomechanics.
Martin, D., BRec (Memorial), MA, PhD (Dalhousie). Aboriginal peoples' health and well-being; Indigenous and qualitative methodologies; community-based participatory research methods; Interconnections between food, culture and health; health and environmental policies as they relate to Aboriginal communities.
Meisner, B., HBSc (Toronto), MSc, PhD (York). Gerontology; health psychology of adult human development and aging; social and positive psychology of aging, health, and chronic disease; promotion of healthy aging among middle-aged and older adults; critical theoretical perspectives of health, health promotion, and aging; behavioural, psychological, and social determinants of health, disease, and aging; influence of aging attitudes, beliefs, and experiences on health and disease outcomes; strategies to challenge misconceptions of normal aging as a function of inevitable decline; health of older adults belonging to other socially marginalized groups; qualitative and/or quantitative data analyses using social, behavioural, and/or epidemiological methods.
Moreside, J., BSR (UBC), MHK (Windsor), PhD (Waterloo), Registered Physiotherapist. The kinematic and electromyographic analysis of human movement as it pertains to the spine, shoulders and hip joints; in healthy and pathological populations.
Neyedli, H. F., BSc Hon (Dalhousie), MASc, PhD (Toronto). Motor control, cognitive ergonomics, neuroscience. Basic research on attention, motor control and decision making using statistical decision theory and human motion analysis. Applied work on human-technology interaction in areas such as stroke rehabilitation and military combat indentification.
Numer, M., BA (Robert Morris Univ), MEd (California Univ), PhD (Dalhousie). Gay men's health, LGBTQ Health, HIV/AIDS, technology in post-secondary education, poststructural theories, queer theory, critical qualitative methodologies, discourse analysis.
Stone, M., BPHE, BSc (Queen's), MSc (Saskatchewan), PhD (Exeter). Physical activity measurement; profiling physical activity and sedentary behaviour, and examining relationships with physiological health outcome; built environment, physical activity and health; independent mobility, physical activity and active transport in children; interventions to promote physical activity and reduce sitting time; community health, population health, health promotion and chronic disease prevention.
Welch, J., BA, BSc Honours (Carleton), MSc (Alberta) PhD (Purdue Univ). Research interests include the effects of exercise and nutrition on bone adaption across the lifespan; nutrition and health; effects of Vitamin D on health in a variety of populations; and the role of Vitamin D in disease mitigation.

Adjunct (FGS)

Bennett, P., BSc (Simon Fraser), MSc, PhD (UBC)
Castleden, H., BA (Manitoba), MA, PhD (Alberta)
Ipson, N., PhD CPRP (Utah)
Kocum, L., BA (Carleton), PhD (Ottawa)
Kolen, A., BSc, MA, PhD (Saskatchewan)
Landry, S., BEng (Dalhousie), BSc (Acadia), PhD (Dalhousie)
Law, B., BKin (McMaster), MA (Ottawa), PhD (UWO)
MacKenzie, S., BSc (Dalhousie), PhD (Saskatchewan)
McCabe, J., BPE, BA (UNB), MSc, MEd (Tenn)
Reading, C., BSc, MA, PhD (Dalhousie)
Veugelers, P., BSc, MA (Univ of Wageningen), PhD (Univ of Amsterdam)
Wien, F. C., BA Honours (Queen's), MA, PhD (Cornell)

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Students seeking admission to any of the master's programs should have earned an excellent record during four years of undergraduate study. Candidates for the Master of Science in Kinesiology must have an honours or honours equivalent degree which includes the completion of an independent research project. Candidates for the Master of Arts in Health Promotion must have a sufficient background in health promotion with at least 24 credit hours in health promotion or health-related courses. Candidates for the Master of Arts in Leisure Studies must have a sufficient background in recreation, leisure studies, or a related field. An honours or honours equivalent degree is recommended for candidates for the Master of Arts in Health Promotion or Leisure Studies. Although Dalhousie's minimum GPA requirement is a 3.0 GPA (B), the School of Health and Human Performance requires a 3.5.

Qualifying work may be required of applicants whose background for advanced studies in Health Promotion, Kinesiology, or Leisure Studies is judged deficient.

The application deadline is January 15, however applications received as late as June 1 will be considered pending space availability.

General Program Requirements

Please refer to each program area section for specific requirements.

Students may take a maximum of six credit hours of ancillary courses above and beyond the required program of study.

Elective courses can be taken from within or outside the School. All courses must be approved by the student's advisor/Graduate Coordinator.

The thesis topic will be determined by the student in consultation with the thesis supervisor. A thesis proposal must be approved by the candidate's thesis supervisory committee, which consists of at least three members (at least two of whom are members of the School's graduate faculty), before the thesis research may be undertaken.

Once the proposal has been approved by the thesis supervisory committee, it shall be submitted to either the Health Sciences Human Research Ethics Board or the Social Sciences and Humanities Research Ethics Board for consideration. Only after approval has been received from both the thesis supervisory committee and the ethics committee, may the student proceed with data collection.

The thesis examination committee is responsible for approving the completed thesis after a final oral presentation by the student covering the nature and findings of the research. This committee is made up of the supervisory committee plus an external examiner approved by the Graduate Coordinator.

The School holds research-oriented seminars during the academic year. Students are expected to attend and participate in these seminars as discussants and presenters.

Master of Arts (MA) in Health Promotion

Program Requirements

One full academic year (12 months) of resident study at Dalhousie University is a minimum requirement for the one-year master's degree. Although the MA degree program officially has a one-year residency requirement, students should expect to take from 18-24 months of full-time work to complete the degree. For full-time students, the degree must be completed within four years of first registration.

Completion of the degree is also possible through part-time study. However, financial assistance is not available for students undertaking the degree on a part-time

basis.

The MA Health Promotion program consists of - 18 credit hours of courses and 12 credit hours of thesis work (30 credit hours). Required and elective courses are listed below. Each course is normally worth three credit hours. Electives may be chosen from the lists of courses listed in the Course Descriptions section, or from graduate courses offered by other departments at Dalhousie University, or, to a limited extent, at other universities.

Required Courses

- HPRO 5501.03: Advanced Research Methods in the Social and Natural Sciences OR comparable course approved by the thesis advisor
- HPRO 5503.03: Intermediate Statistics for Health Sciences, Prerequisite: Before entering HPRO 5503.03, students must have completed an introductory course in statistics with at least a “B” grade
- HPRO 5514.03: Current Frameworks in Health Promotion OR HPRO 5516.03: Theoretical and Scientific Bases of Health Promotion
- HPRO 5595.03: Program Planning and Evaluation in Health Promotion
- HPRO 5620.03: Topics in Biopsychosocial Health
- HPRO 9000.00: Thesis. 12 credit hours

Elective Courses

- HPRO 5514.03 and HPRO 5516.03 as listed above.
- HPRO 5518.03: Women’s Health and the Environment
- HPRO 5600.06/HPRO 5601.03/HPRO 5602.03: Independent Studies. Open to independent completion of study. Interested students should consult the Graduate Coordinator prior to registering in the course.
- HPRO 5620.03: Topics in Biopsychosocial Health. Cross-listed with PSYO 6809.03.
- NURS 5100.03: Qualitative Research Methods.

PLEASE NOTE: Not all courses listed below are offered every year. Please consult the timetable for a current list of courses offered.

Master of Science (MSc) in Kinesiology

Program Requirements

One full academic year (12 months) of resident study at Dalhousie University is a minimum requirement for the one-year master's degree. Although the MSc degree program officially has a one-year residency requirement, students should expect to take from 18-24 months of full-time work to complete the degree. For full-time students, the degree must be completed within four years of first registration.

Completion of the degree is also possible through part-time study. However, financial assistance is not available for students undertaking the degree on a part-time basis.

Students in the MSc Kinesiology program must complete a minimum of 12 credit hours of coursework, a mandatory graduate seminar series worth three credit hours, and 12 credit hours of thesis work, for a total of 27 credit hours.

Required courses

- Two of:
  - KINE 5501.03 (or equivalent): Advanced Research Methods in Social or Natural Sciences
  - KINE 5503.03 (or equivalent): Intermediate Statistics for Health Sciences
  - KINE 5590.03 (or equivalent): Measurement and Instrumentation
- KINE 6000.03: Graduate Seminar in Kinesiology (three credit hours)
- KINE 9000.00: Thesis (12 credit hours)

Elective courses

- One, three credit-hour graduate course must be selected from the Kinesiology offerings.
- The remaining elective course or courses can be chosen from the graduate offerings within or outside of the School of Health and Human Performance. Elective courses must be relevant to the student's degree program and are to be determined in consultation with the Supervisor.

PLEASE NOTE: Not all courses listed below are offered every year. Please consult the timetable for a current list of courses offered.

Master of Arts (MA) in Leisure Studies

Program Requirements

One full academic year (12 months) of resident study at Dalhousie University is a minimum requirement for the one-year master's degree. Although the MA degree program officially has a one-year residency requirement, students should expect to take from 18-24 months of full-time work to complete the degree. For full-time students, the degree must be completed within four years of first registration.

Completion of the degree is also possible through part-time study. However, financial assistance is not available for students undertaking the degree on a part-time basis.

The MA Leisure Studies program consists of - 18 credit hours of courses and 12 credit hours of thesis work (30 credit hours). Required and elective courses are listed below. Each course is normally worth three credit hours. Electives may be chosen from the lists of courses listed in the Course Descriptions section, or from graduate courses offered by other departments at Dalhousie University, or, to a limited extent, at other universities.

Required Courses

- LEIS 5501.03: Advanced Research Methods in the Social and Natural Sciences.
- LEIS 5503.03: Intermediate Statistics for Health Sciences OR another intermediate statistics course approved by the student's advisor. Prerequisite: Students must have completed an introductory course in statistics with at least a “B” grade.
- LEIS 5592.03: Interdisciplinary Basis of Leisure Science.
- LEIS 9000.00: Thesis. 12 credit hours

Elective Courses

- LEIS 5512.03: Lifestyles of Ill and Disabled Persons.
- LEIS 5561.03: Gender, Leisure and the Family.
- LEIS 5562.03: Perspectives on Youth.
- LEIS 5563.03: Leisure Behaviour and the Older Adult.
- LEIS 5600.06/LEIS 5601.03/LEIS 5602.03: Independent Studies. Open to independent completion of study. Interested students should consult with the Graduate Coordinator prior to registering in the course.
- NURS 5100.03: Qualitative Research Methods.

PLEASE NOTE: Not all courses listed below are offered every year. Please consult the timetable for a current list of courses offered.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year’s offering. For further information please contact the department.

Course Descriptions - Health Promotion

HPRO 5501 Advanced Research Methods in the Social and Natural Sciences

CREDIT HOURS: 3

This course addresses research methods, and is designed to accommodate the variety of graduate student research interests in the School of Health and Human Performance. Principles and techniques of natural and social sciences will be examined using relevant examples from published literature. The instructor assumes that students have undergraduate level knowledge of research methods, however, initial classes will be spent reviewing basic principles. In addition, topics will include the philosophy of science, the logic of the research process, causality, measurement, and ethical procedures. Students will be introduced to the philosophical debate about the application of classical scientific methods to social phenomena, the qualitative and quantitative dichotomy, and the role of theory in research. This course provides students the opportunity to develop the research methods section in a research proposal either for their thesis or other research endeavour.

CROSS-LISTING: LEIS 5501.03 and KINE 5501.03

HPRO 5503 Intermediate Statistics for Health Sciences

CREDIT HOURS: 3

This course provides graduate students with a working knowledge of statistical issues and methods commonly used by researchers in the Health Professions. The statistical software package SPSS is introduced and used by students throughout the course. Topics covered include a review of probability and one and two sample inferences for means and proportions. This is followed by some common experimental designs, contingency tables and odds ratios. Final topics are correlation and linear regression (simple and multiple), analysis of variance, analysis of covariance, and logistic regression. A term data analysis project is required in which students make use of both statistical methods learned in class and the SPSS software package.

PREREQUISITE: An introductory statistics course

CROSS-LISTING: KINE 5503.03/LEIS 5503.03/STAT 5990.03

HPRO 5514 Current Frameworks in Health Promotion

CREDIT HOURS: 3

The purpose of this graduate seminar is to offer an advanced understanding of the current frameworks used in health promotion research and practice. Students will critically examine key approaches to research and practice such as the social determinants of health framework and the harm reduction framework. A key focus of the course will be on exploring population health interventions that utilize these and other frameworks, and that are aimed at reducing health inequities. The challenges and opportunities in developing and implementing population health interventions for different populations will also be debated.

HPRO 5516 Theoretical and Scientific Bases of Health Promotion

CREDIT HOURS: 3

This course provides an opportunity for students to develop and further their expertise in selected areas of health education content. These areas will be examined by an analysis of relevant health-related theories and scientific inquiry. Students will prepare a paper that might serve as background information in the development of a health education program or program evaluation, and that is in a form suitable for appearance in a scholarly or popular publication.

HPRO 5518 Women's Health and the Environment

CREDIT HOURS: 3

This is a multi- and interdisciplinary seminar for graduate students in any faculty. The goal of the course is to explore the interconnections between women's health and the environment, with an emphasis on environmental contaminants, health, and public policy. The course will examine the evidence linking exposure to toxic chemicals and radiation to cancer, birth defects, and other manifestations of ill-health, as well as links between air and water pollution to human health. It will examine the current policy framework for addressing environmental health issues, with special attention to the tension between industry lobbies and public interest advocacy in the face of scientific uncertainty.

HPRO 5595 Program Planning and Evaluation in Health Promotion

CREDIT HOURS: 3

The impetus for this course is the conviction that and health promotion programs can be improved through evaluation. Students will be introduced to both quantitative and qualitative approaches to measurement and evaluation, in ways that have meaning to health professionals whose primary business is practice. By applying what is learnt to selected health promotion programs, students are encouraged to become practitioners who evaluate.

HPRO 5600X/Y Independent Study in Health Promotion

CREDIT HOURS: 6

This course allows the School to provide more specialized instruction on specific topics to graduate students with particular interests. Class format is variable and may include seminars, lectures, literature searching, evaluation of papers, participation on research projects, etc. There is usually a high degree of one-on-one interaction. The independent studies are organized on a year-to-year basis in accordance with student interest and faculty expertise.

NOTE: Course Details listed here also apply to HPRO 5601/HPRO 5602.

NOTES: 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.

HPRO 5601 Independent Study

CREDIT HOURS: 3

See HPRO 5600.

HPRO 5602 Independent Study

CREDIT HOURS: 3

See HPRO 5600.

HPRO 5620 Topics in Biopsychosocial Health

CREDIT HOURS: 3

This seminar course permits students to carry out an in-depth exploration of specific topics in health from a biopsychosocial perspective. Topics will vary from year to year and may include health issues and outcomes at the individual and societal levels including, but not limited to, HIV/AIDS, addictions, chronic disease, mental health, and disability. The course includes an analysis of selected health and health promotion interventions for addressing specific biopsychosocial health issues

CROSS-LISTING: PSYO 6420.03

HPRO 9000 Master's Thesis
CREDIT HOURS: 0

Course Descriptions - Kinesiology

KINE 5501 Advanced Research Methods in the Social and Natural Sciences
CREDIT HOURS: 3
Please see course description for HPRO 5501.03.
CROSS-LISTING: HPRO 5501.03/LEIS 5501.03

KINE 5503 Intermediate Statistics for Health Sciences
CREDIT HOURS: 3
Please see listing for HPRO 5503.03
CROSS-LISTING: HPRO 5503.03/LEIS 5503.03/STAT 5990.03

KINE 5510 Cardiorespiratory Dynamics in Exercise
CREDIT HOURS: 3
This course will involve an examination of published research concerning the health related aspects of physical fitness. For the most part, the course will follow a seminar format with practical and/or laboratory demonstrations.

KINE 5516 Neuromuscular Physiology
CREDIT HOURS: 3
The objectives of this course are to develop an understanding of how the neuromuscular system controls human movements. Both central and peripheral nervous systems are studied, but the emphasis is on how peripheral mechanisms regulate and control muscle recruitment. Weekly tutorials involve discussions of relevant research and the underlying mechanisms controlling recruitment. A weekly three hour lab allows students to measure many of the mechanisms and properties of muscles under discussion.

KINE 5523 Biomechanics of Human Motion
CREDIT HOURS: 3
This course is designed to provide an advanced understanding of mechanical principles as they apply to the analysis of human movement. Several major directions being taken in the field of Biomechanic research will be covered. This course should provide a solid foundation for students intending to conduct research in Biomechanics. Topics include: kinematics and kinetics of linked systems in two and three dimensions, linear impulse momentum analysis, work-energy analysis, analysis of interactions between linked segments, functional roles of muscles, body segment parameters, data smoothing, modelling and simulation.

KINE 5530 Cognitive Ergonomics
CREDIT HOURS: 3
This course is designed to provide an in-depth treatment of human information processing capabilities and how this knowledge can be applied in ergonomic settings. The format of the course is a combination of brief lectures, group seminars and individual presentations. Each member of the course will complete a project and present the results to the seminar group.

KINE 5572 Topics in Human Performance: Motor Control
CREDIT HOURS: 3
This course is intended to be a graduate level seminar which attempts to provide careful examination of published research and other written work in the area of motor control. The first portion of the course will consist of a brief review of the mechanical and physiological foundations of motor control and an illustration of some of the most useful and popular paradigms in the field. The second portion of the course will turn to classic problems and current theoretical and empirical attempts to solve them. The last portion of the course will involve presentations by members of the seminar group. The format of the presentations can vary according to individual and the topic under consideration. Some suggestions would include: 1) a literature review of a specific topic, 2) a grant proposal for a research project and 3) the results of a study conducted during the class.
CROSS-LISTING: PHYT 5572.03

KINE 5590X/Y Measurement and Instrumentation in Human Movement Analysis
CREDIT HOURS: 3
The objectives of this course are to provide the student with both a theoretical and practical understanding of the many issues related to instrumentation in Kinesiology. Students will be required to apply the fundamentals of measurement theory to specific instruments. Small experiments will be conducted and students will be required to submit a written report demonstrating their understanding of how particular instruments are used, and how results are interpreted.
CROSS-LISTING: PHYT 5590.03

KINE 5600X/Y Independent Study in Kinesiology
CREDIT HOURS: 6
This course allows the School to provide more specialized instruction on specific topics to graduate students with particular interests. Class format is variable and may include seminars, lectures, literature searching, evaluation of papers, participation on research projects, etc. There is usually a high degree of one-on-one interaction. The independent studies are organized on a year-to-year basis in accordance with student interest and faculty expertise.
NOTE: Course Details listed here also apply to KINE 5601/KINE 5602
NOTES: 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.

KINE 5601 Independent Study
CREDIT HOURS: 3
See KINE 5601.

KINE 5602 Independent Study

CREDIT HOURS: 3
See KINE 5600.

KINE 5990 Interdisciplinary Human Nutrition

CREDIT HOURS: 3
Students will acquire current information about the basic principles of human nutrition and nutritional requirements throughout the life cycle. They will also analyze a variety of psychological, social, economic, physical, educational, and cultural factors which influence eating habits. Appropriate nutrition-related community resources will be identified. The students will gain an insight into the similarities of classmates' educational backgrounds and a further understanding of their professional roles, thus enhancing possibilities for interdisciplinary cooperation in future clinical areas and the community.
FORMAT: Lecture| Discussion
CROSS-LISTING: NURS 5990.03

KINE 6000 Graduate Seminar in Kinesiology

CREDIT HOURS: 3
This is a mandatory component of the MSc Kinesiology program. Students will be required to attend a minimum of 12 academic Graduate Seminars, of which at least six will be from the School of Health and Human Performance seminar series (see below*). Each student is also required to present one seminar in the School of Health and Human Performance Graduate seminar series during his/her academic program. Students will receive written feedback on their presentation from faculty and peers. All students are also required to make at least one oral or poster presentation at a local or national research meeting during the course of his/her degree. The suitability of the meeting will be determined by the student's supervisor in consultation with the course coordinator. Students are required to complete this course before graduating. This course will be graded pass/fail.*The School of Health and Human Performance Graduate Seminar series is a series of weekly presentations by visiting scholars, faculty researchers from Dalhousie (i.e., School of Health and Human Performance and other academic units across campus), and graduate students from within the School of Health and Human Performance.
FORMAT: Seminar
ASSESSMENT METHOD: Pass/Fail

KINE 9000 Master's Thesis

CREDIT HOURS: 0

Course Descriptions - Leisure

LEIS 5501 Advanced Research Methods in the Social and Natural Sciences

CREDIT HOURS: 3
Please see course description for HPRO 5501.03.
CROSS-LISTING: HPRO 5501.03/KINE 5501.03

LEIS 5503 Intermediate Statistics for Health Sciences

CREDIT HOURS: 3
Please see listing for HPRO 5503.03.
CROSS-LISTING: HPRO 5503.03/KINE 5503.03/STAT5990.03

LEIS 5512 Lifestyles of Ill and Disabled Persons

CREDIT HOURS: 3
This course involves the identification and critical analysis of issues in the leisure and lifestyle of persons with chronic health problems and disabilities. Students gain a knowledge and understanding of selected issues and research through readings, field experiences, and classroom discussion. Alternative solutions to current problems faced by practitioners and advocates are assessed. Issues include: psycho-social theory of illness/disability, professional preparation, legislation, service development, support services, implementation of the integration process, and research implications.

LEIS 5561 Gender, Leisure and the Family

CREDIT HOURS: 3
The basis of this course is a critical examination of the theories and concepts which have been used to study gender roles and the family in contemporary society. The application of these theories and concepts to leisure is then explored. Particular attention is paid to the relationship between paid employment, household management and leisure for males and females. In addition, the impact of changing patterns of family composition is examined.

LEIS 5562 Perspectives on Youth

CREDIT HOURS: 3
This course reviews some of the current issues facing youth today. Most programs which provide leisure services to youth are targeted at the majority. There are many young people who would be considered "minority" because of ethnic origin, socio-economic status or employment status. These people are seldom served by recreation services. Unemployment and underemployment pose one of the biggest fears for young people in school. The answer may not rest with job creation programs alone. It is the purpose of this course to pursue alternatives and through an experiential component be able to interact with young people directly and identify their needs. This will result in a research project.

LEIS 5563 Leisure Behaviour and the Older Adult

CREDIT HOURS: 3
The purpose of this course will be to enhance the individual's awareness of the role that leisure plays in an older person's lifestyle. The course emphasizes the effect that crime, housing, health status, fitness level, education and income have on individual's leisure behaviour. The role of organized recreation and leisure delivery systems in institutions and community settings is also elaborated on in this course.

LEIS 5592 Interdisciplinary Basis of Leisure Science

CREDIT HOURS: 3
Leisure behaviour is determined by a complex multiplicity of factors including socialization, social-economic status, demographics, politics, economics, motives,

perceptions, attitudes, personality and situational determinants. This course provides an opportunity to analyze leisure behaviour including play, sport, cultural activities, by means of an interdisciplinary perspective. The course is based on social science theory applied to the study of leisure, along with historical analyses, and social and cross-cultural comparisons. A critical evaluation of leisure research is presented throughout the course.

LEIS 5600X/Y Independent Study in Leisure Studies

CREDIT HOURS: 6
This course allows the School to provide more specialized instruction on specific topics to graduate students with particular interests. Class format is variable and may include seminars, lectures, literature searching, evaluation of papers, participation on research projects, etc. There is usually a high degree of one-on-one interaction. The independent studies are organized on a year-to-year basis in accordance with student interest and faculty expertise.
NOTE: Course Details listed here also apply to LEIS 5601/LEIS 5602.
NOTES: 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.

LEIS 5601 Independent Study

CREDIT HOURS: 3
See LEIS 5600.

LEIS 5602 Independent Study

CREDIT HOURS: 3
See LEIS 5600.

LEIS 9000 Master's Thesis

CREDIT HOURS: 0

Health Informatics

Location:
Building/Room: Faculty of Computer Science
Street Address 1: 6050 University Avenue
Street Address 2:
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Halifax, NS B3H 4R2
Telephone: (902) 494-2740
Fax: (902) 492-1517
Website: www.healthinformatics.dal.ca
Email Address: hinf@cs.dal.ca

Introduction

What is Health Informatics? Health Informatics studies the use of computing and information technology in health research, education, patient care, policy setting, and health administration. The fields of information technology, health information management and health care have undergone separate development over the past 30 years. Health Informatics provides a way of studying and disseminating knowledge and skills about the interaction of information technology, health care and people.

The principal purpose of this program is to prepare individuals with knowledge and skills to use information and information technology to support clinical care, health service administration, research, and teaching so that health care and services can be provided effectively, efficiently and to those in need. There is an urgent need for professionals and scholars who understand health and health services systems, and should also understand information technology, to provide the most useful information to meet the challenges of supporting health.

This interdisciplinary program draws on resources across the University, including faculty and courses from the Faculty of Computer Science, the Faculty of Medicine, the Faculty of Management, and the Faculty of Science.

This two-year program fee degree will require full-time students to register consistently for all six terms of residency requirement. The program can also be completed on a part-time basis by students who wish to continue working while studying. Part-time students will also be required to maintain consistent registration until completion of the program. The program consists of course work in health, information technology and management/leadership, plus a work-term or thesis.

Staff

Director

Abidi, S. S. R., MS (Miami), PhD (Surrey)

Faculty

Abidi, S. R. (Medicine)
Abidi, S. S. R. (Computer Science)
Blouin, C. (Computer Science)
Riordan, D. (Computer Science)
Shepherd, M. (Computer Science)
Watters, C. (Computer Science)
Zitner, D. (Medicine)

Academic Objectives of the Program

To prepare individuals with knowledge and skills in health and information technology to:

- Support research and development and education in health
- Support patient care and health promotion
- Support policy development at local, provincial, national and international levels
- Support health administration
- Address the fundamental questions of the purposes of health services and the role of information and information technology in health.
- Address the structuring, collection and use of information for performance indicators and quality improvement
- Address the development of clinical decision support tools and methodologies

Admission Requirements

In order to begin studies in this field at Dalhousie University, you will need each of the following:

- An undergraduate degree in a health profession or in an information technology area
- A university course in statistics is recommended but not required
- A university course in computer programming is recommended but not required
- Preference will be given to students with two years experience in the field (information technology or health professions). Experience will be evaluated on a case by case basis, but should include some work with applying information technology to health issues.

Course Requirements

A student wishing to achieve this degree will have accumulated 42 credit hours consisting of 30 credit hours of required courses and either a thesis or a work term and elective courses.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Courses Notes

First Term (Fall Term)

- Introduction to Health Informatics (one-day orientation- non-credit)
- Health Information: Flow and Use
- Networks and the Web or Fundamentals of Clinical Care for Non-Clinicians
- Health Information Systems and Issues
- Statistics for Health Informatics

Second Term (Winter Term)

- Health Information: Flow and Standards
- Knowledge Management for HI
- Research Methods
- IT Project Management

Third Term (Summer Term)

Registration required.

For work-term students this term will be a work term. Such students will be placed with an industry, health system partner, or health research organization. This will give them an opportunity to apply the program to specific practicum/work situations. A project report is required at the end of the work term. For thesis students, this will be a start of their research and writing work.

Fourth Term (Fall Term)

- Management Skills Development
- Database and Data Mining for HI
- Three elective courses for work term students
  OR
- Research work for thesis students
- One elective for thesis students

Fifth Term (Winter Term)

Registration required.

For work-term students this term will be a work term (if not completed in the third term). Such students will be placed with an industry, health system partner, or health research organization. This will give them an opportunity to apply the program to specific practicum/work situations. A project report is required at the end of the work term. For thesis students, this will be a continuation of their research and writing work.

Research

For students conducting research for a thesis, supervisors are available from a wide variety of speciality fields surrounding medicine, health care and computer science. Research interests of the faculty include electronic health records, Web information systems, data mining, and warehousing, health outcomes, the effect of technology on health policy, tele-medicine, machine learning and decision support systems, knowledge management, patient information systems and the application of standards for the exchange of health information electronically.

Course Descriptions

HINF 6000 Introduction to Health Informatics

CREDIT HOURS: 0
A compulsory non-credit orientation to develop an understanding and framework for the study of health informatics, and to provide an introduction to the core elements of the program.
FORMAT: Seminar
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6020 Research Methods

CREDIT HOURS: 3
This course explores the logic and principles of research design, measurement, and data collection. The course offers a range of methodological issues and methods, including experimental and quasi-experimental designs, survey research and sampling, measurement, and qualitative methods.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6030 Statistics for Health Informatics

CREDIT HOURS: 3
This course will teach students in the necessary skills to carry out a wide range of statistical analyses. Students will learn the basic principles that underlie health research design, data analysis and interpretation of results.
FORMAT: Lecture| Seminar
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6101 Health Information: Flow and Use

CREDIT HOURS: 3
This course tracks the flow and use of health information in relation to population and individual health needs, including its generation, collection, movement, storage and use in various settings. The course includes a discussion of health and health information, and of the measurement of health and health services processes.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6102 Health Information Flow and Standards

CREDIT HOURS: 3
This seminar course discusses technical and philosophical issues related to the capture and use of information. Issues include nomenclature; the reliability and accuracy of coding schema; interoperability; and, ISO/CEN, HL7 and Infoway standards development. Student projects will track the flow and use of information for hospital, community and public health purposes.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6110 Health Information Systems & Issues

CREDIT HOURS: 3

A course about health infostructures and their strengths and weaknesses. Students will learn about how such structures operate, the issues they generate, their impact on the health of populations and their impact on the flow and use of information. Particular attention will be paid to ethical and practical health informatics issues.
FORMAT: Lecture| Seminar
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6120 Fundamentals of Clinical Care for Non-Clinicians

CREDIT HOURS: 3
This course consists of lectures and student-led seminars. The purpose is to enable non-clinicians to communicate with clinical experts by a) outlining the purposes of healthcare, b) providing information about measures of health status (comfort and function), c) outlining diagnostic strategies, d) outlining how clinicians make diagnoses, including information about diagnostic strategies, with particular reference to common ailments, e) outlining treatment choices and how clinicians distinguish between appropriate treatments for a particular condition again with reference to common afflictions.We are not aware of any other such course offered at Dalhousie University. Students are admitted to the Master of Health Informatics program from either an IT background or from a Health sector background. We have found that the entering students must be streamed so that students from the IT background will receive more of an introduction to the healthcare system and those from the Health background will take the introduction to IT course that already exists. This course will serve as the additional course required for students from the IT background.
FORMAT: Lecture| Seminar
PREREQUISITE: Admission to a health related graduate program

HINF 6210 Databases and Data Mining for Health Informatics

CREDIT HOURS: 3
Health organizations collect massive amount of data to support clinical decision-making, outcome measurement, policy setting, administration and research. This course provides a conceptual understanding of various data mining algorithms and introduces healthcare-related data mining strategies to facilitate the mining of real-life healthcare data to provide data-driven healthcare decision-support services.
FORMAT: Lecture
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6220 Networks and the Web for Health Informatics

CREDIT HOURS: 3
The purpose of this course is to provide an introduction to the principle architectures and techniques used to turn individual computers into an information system. An introduction to database design and internetworking will be followed by various protocols for communication among clients and servers across the Web.
FORMAT: Lecture
PREREQUISITE: Admission to Master of Health Informatics Program

HINF 6300 Project Management: A Managerial Approach

CREDIT HOURS: 3
The course will cover the principles of management for information technology project. Project management for information technology has to take into account not only the most effective processes for people to work out the elements of a project, but also how to ensure the best use of information technology available for a project. The way in which groups work most effectively with technology and with each other will impact on the success of a project. Students will learn generic principles of project management as well as of information management within projects. Through case studies and field investigations of actual health information projects, students will gain a real-world understanding.
FORMAT: Lecture| Seminar
PREREQUISITE: Admission to Master of Health Informatics Program
CROSS-LISTING: BUSI 6523.03; ECMM 6022.06

HINF 6310 Management Skills Development

CREDIT HOURS: 3
This course exposes students to key knowledge, skills, and attitudes (KSAs) considered critical to managerial success. Such exposure is designed to provide the student with behaviours that will help ensure that, when managing human resources, staff will perform at or near peak capabilities. This is a skill-building course. Significant amounts of classroom time are devoted to behaviour modeling exercises, role-plays, case studies, and group discussions.
FORMAT: Seminar
PREREQUISITE: BUSI 5305.03
CROSS-LISTING: BUSI 6326

HINF 6901 Directed Studies

CREDIT HOURS: 3
This course offers the student the opportunity to undertake further study into a specific topic of interest that is not covered in the regular course offerings. The student will be supervised by a faculty member competent in the area of interest.
PREREQUISITE: Permission of Director
ASSESSMENT METHOD: A substantial project and report are required.

HINF 6903 Special Topics in Health Informatics

CREDIT HOURS: 3
This graduate course examines topics that are not part of the regular Health Informatics curriculum.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of Director

HINF 7000 Internship

CREDIT HOURS: 6

PREREQUISITE: Permission of Director
ASSESSMENT METHOD: Report from employer and from student

HINF 9000 Graduate Thesis

CREDIT HOURS: 12

PREREQUISITE: Permission of Director
ASSESSMENT METHOD: Written thesis and oral examination

History

Location:
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Street Address 1: 6135 University Avenue
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Telephone: (902) 494-2011
Fax: (902) 494-3349
Website: history.dal.ca/Graduate%20Programs/
Email Address: history@dal.ca

Staff

Chair of Department

Kynoch, G.

Graduate Coordinator

Roberts, J.

Professors Emeriti

Crowley, J. E.
Flint, J. E.
Pereira, N. G. O.
Waite, P.

Professors

Bell, C. M., BA (Calgary), MA (King's College London), PhD (Calgary)
Hanlon, G., MA (Toronto), Dr.de 3e Cycle (Bordeaux), University Research Professor
Kesselring, K., BA, MA (Dalhousie), PhD (Queen's)
Kirk, J., MA (Queen's), PhD (UBC), major appointment in Spanish
Neville, C. J., BA, MA (Carleton), PhD (Aberdeen), FRHistS, FSA Scot, George Munro Professor of History and Political Economy
Tillotson, S., BIS (Waterloo), MA, PhD (Queen's)

Associate Professors

Bannister, J., BA (Memorial), MA, PhD (Toronto)
Cooper, A., BA (Toronto), MA (OISE), PhD (Toronto)
Ghazal, A., BA (AUB, Beirut), MA, PhD (Alberta)
Kozlov, D., MA (Univ of Mass), PhD (Toronto)
Kynoch, G., BA, BED (Queen's), MA, PhD (Dalhousie)
Mitchell, C., BA (Regina), MA (McGill), PhD (Toronto)
Pekacz, J. T., MA (Cracow, Poland), PhD (Polish Academy of Sciences, Warsaw), PhD (Alberta)
Treiger, A., BA, MA, (Hebrew Univ of Jerusalem), MPhil, PhD, Yale
Warwick, J., BMus (Toronto), MA (York), PhD (UCLA)
Zachernuk, P., BA, MA (Dalhousie), PhD (Toronto)

Assistant Professors

Bingham, J., BA (UNB), MA (Toronto), PhD (York)
Corke, S. J., BA, MA (Guelph), PhD (UNB)
Holmlund, M., BA, (Saskatchewan), MA (Readings), PhD (Cambridge)
McCallum, T., BA (Queen's), MA (Simon Fraser), PhD (Queen's)
Riley, P., MA, BA, PhD (Berkeley)
Roberts, J., BA (Hons) (Simon Fraser), MA (Queen's), PhD (John Hopkins)
Ulicki, T., BA (McGill), MA (St. Mary's), DPhil (Univ of Sussex)

Cross-listed Faculty

McOuat, G., BA, MA, PhD (Toronto), King's College
Snobelen, S., BA (Hons), MA (Univ of Victoria), MPhil, PhD (Cambridge), King's College

Adjunct (FGS)

Benzaquén, A., BA, MA, PhD (York), Mount St. Vincent University
Clow, B., BA (Carleton), MA, PhD (Toronto)
Cross, M. S., BA, MA, PhD (Toronto)
Crowley, J. E., AB (Princeton), MA (Mich), PhD (John Hopkins)
Forestell, N., BA (Western), MA (Memorial), PhD (Toronto), St. Francis Xavier University
Gwyn, J., BA (Loyola College), MA (McGill), MLiH, DPhil (Oxford, Balliol College)
Haigh, E., BSc, MSc, (Alberta), PhD (Univ of Wisconsin), St. Mary's University
Heilman, J., BA (Alberta), MA, PhD (Wisconsin-Madison)
Hubley, M., BA (St. Mary's), MA (King's College, London), PhD (Univ of Ottawa)
Morrison, J., BA, BEd (Acadia), PhD (Univ of Ibadan), St. Mary's University
Neatby, N., BA (Hons) (Univ of Ottawa), MA (Queen's), PhD (Univ of Montreal), St. Mary's University
Parpart, J., BA (Brown), MA, PhD (Boston Univ)
Pereira, N. G. O., BA (Williams), MA, PhD (California, Berkeley)
Reid, J., BA (Hons) (Oxford), MA (Memorial), PhD (UNB), St. Mary's University
Roberts, J., BA, MA (McGill), PhD (Dalhousie)
Sewell, B., BSc (Wisconsin), MA (California), PhD (UBC), St. Mary's University
Sluniokoski, C., BA (Carleton), MA, PhD (UNB)
Stretton, T., BA, LLB (Adelaide), PhD (Cambridge), St. Mary's University
Summerby-Murray, R., BA, MA (Univ of Canterbury), PhD (Toronto)
Sutherland, D. A., BA (Mt. A), MA (Dalhousie), PhD (Toronto)
Twohig, P., BA, MA (St. Mary's), PhD (Dalhousie), St. Mary's University
Walls, M., BA (UNB), MA (Dalhousie), PhD (UNB)
Whidden, J., BA (Dalhousie), MA, PhD (Univ of London), Acadia University

Admission Requirements

Candidates for the one year MA degree must hold a BA four year degree in history or a general history BA degree. A candidate with a BA in fields other than history may be placed in a qualifying year program. Candidates for doctoral study must hold an MA degree in history or in a cognate field.

Master of Arts (MA)

The MA is a research degree and can be done full-time or part-time. Students in the program normally spend the first term satisfying course requirements and begin their thesis research early in the winter term, under the supervision of a faculty member, or members, in the student's area of interest.

A candidate for the degree Master of Arts in History will require at least 12 months of full-time study to complete all degree requirements. The course requirement is normally satisfied by taking two designated advanced courses. If there are not two suitable advanced courses offered, a student may, at the discretion of the Graduate committee and on the recommendation of the student's principal supervisor, elect to fulfill one of the course requirements through a Directed Reading Course. Courses and reading courses may be selected from other departmental and extra-departmental offerings, subject to approval of the Graduate committee. (At least one course or reading course must be taught by a member of the History Department). Students will also enroll in HIST 5800, the Masters Seminar, a series of workshops and discussions that will culminate with the production of a thesis proposal. Theses may be orally examined at any time. Topics should be chosen with a view to completion within twelve months; students should note, however, that completion within sixteen months is not unusual. To complete their degree, students must submit and orally defend a thesis of not more than 50,000 words. Students in the one year MA program are required to attend the Department Stokes Seminar during the academic year.

Candidates writing theses in Canadian history must demonstrate a competent reading knowledge of French; those writing theses in other fields must demonstrate a competent reading knowledge of a language other than English, as appropriate. A language examination, when this is necessary, is part of the normal thesis approval

process.

Students admitted to a qualifying year program must in the first year take five upper level undergraduate history courses and secure at least an average of A-.

Doctor of Philosophy (PhD)

For minimum time required to complete the program, see the Faculty of Graduate Studies Regulations in this calendar.

In order to be considered a candidate for the PhD degree, students must prepare three fields, at least one of which must be outside the student's primary research area, present a thesis proposal before the Department and pass written and oral examinations in all three fields. All students engaged in Canadian, Russian, European, Middle East and Medieval history research (and in other areas, if appropriate) must demonstrate a reading competence in a language other than English. A language examination, if appropriate, is part of the normal thesis approval process. A “pass” of the PhD field work is deemed to be a mark of A- or better in each element. Passes are recorded only as “P” on transcripts. Students who fail to attain the pass standard in one of three exams will be permitted to rewrite within three months of the exam. Students who fail to attain the pass standard on two or three of the fields (or who fail in a rewrite attempt) will be required to withdraw from the PhD program.

A thesis is required which shall not exceed 100,000 words in length, excluding footnote references and bibliography. Doctoral theses are usually to be undertaken in the areas of Canadian, British, Russian (mid-19th century to mid-20th century), and African History. Students wishing to do a PhD thesis in areas other than those named above may be recommended for admission providing that resources are available.

To qualify for the award of the PhD degree, the thesis must make a significant and original contribution to historical study by the discovery of new information, or by the original interpretation of known information, or both.

Fields of Study by Directed Reading (PhD)

Canadian History

The following fields are offered: History of Atlantic Canada, social, cultural, and political history of Canada, with emphasis on an integrated approach; legal history; welfare history; naval history; gender history.

Atlantic History

This field explores the history of the Atlantic world and its relationship to the study of Atlantic Canada. Some areas of concentration include the staples trades, Native peoples, Acadians, the first British Empire, forced migrations, maritime labour, reform and responsible government, gender in Atlantic societies, industrialization, and regionalism.

African History

This field may be studied with special attention to conflict and crime, social and economic history, intellectual history or labor history especially of Anglophone Africa during the pre-colonial, colonial and post-colonial periods covering the 19th and 20th centuries.

British History

The following fields are offered: British and Scottish legal history, 1150-1850; political, social, and cultural history of England and Scotland, 1150-1700; the history of northern England, 1100-1700; diplomatic, military and political history in the 19th and 20th centuries.

United States History

Fields are offered in Colonial and Revolutionary America; 19th century American social, labor, and ethnic history; Civil War and Reconstruction; 20th century American foreign relations; intelligence history; intellectual and cultural history.

European History

Fields are available in European history 1650-1914, especially in Italian and French history, intellectual and cultural history, behavioural history, and the social history of music.

German History

Only one field is available in German history: Germany 1870-1945. Within this, students may concentrate upon particular topics or periods especially relevant to their thesis work.

Medieval History

Fields are available in English, Scottish and French medieval history.

Russian History

Two fields are available: one in nineteenth-century Russian history and one in twentieth-century Russian and Soviet history.

Caribbean and Latin American History

Fields may be offered in early modern and modern Latin American history, especially in Cuban diplomatic, history (Cuba-Canada-Mexico), 19th century Cuban intellectual history, and Cuba during the Castro years.

Gender History

Fields are offered, both as single units and in combination, on women and gender in 19th and 20th century North America, early modern England, modern Europe, and Africa.

Middle East and Islamic History

Fields are available in pre-modern and modern history of the Middle East, Central Asia, Muslim Africa and South Asia.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Senior Undergraduate Courses

HIST 4010.03: State Violence, Communal Conflict and Criminality in Modern South Africa

Course Descriptions

HIST 5000 Directed Readings.*

CREDIT HOURS: 3

HIST 5001 Directed Readings II.*

CREDIT HOURS: 3

RESTRICTIONS: Students may only register for this course with the permission of a Faculty member and the Graduate Coordinator.

HIST 5002X/Y Selected Readings in History.*

CREDIT HOURS: 6

NOTES: 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.
RESTRICTIONS: Students may only register for this class with the permission of a Faculty member and the Graduate Coordinator

HIST 5004 Nature and Romanticism

CREDIT HOURS: 3
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 endeavor 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 idealist "naturphilosophie" and its spread throughout European thought by the medium of romanticist art and natural philosophy.
FORMAT: Seminar
CROSS-LISTING: HSTC 4300.03

HIST 5007 The European Enlightenment

CREDIT HOURS: 3
The seminar examines eighteenth-century European Enlightenment and continuing controversies over its interpretations and legacies. Class discussions focus on Enlightenment debates on religion, gender, science, non-European people, society and government, and the possible impact of the Enlightenment on the French Revolution.
FORMAT: Seminar

HIST 5045 The French Revolution

CREDIT HOURS: 3
The seminar will focus on the current interpretations of the French Revolution. Each time the seminar is offered, it may focus on a specific theme related to the French Revolution, for example, the historiography of its origins, the Terror or the legacy of the French Revolution for modern political culture.
FORMAT: Seminar

HIST 5056 Fascist and National Socialist Movements in Europe, 1900-1945

CREDIT HOURS: 3
Between the World Wars, virtually every European country had one or more groups that considered themselves or were considered fascist: in Germany and Italy, of course, but also in France, Spain, Hungary, Romania, and elsewhere. The seminar will explore the ideals, experiences, aspirations and political realities of the simultaneously threatening and fascinating historical problem.
FORMAT: Seminar
CROSS-LISTING: HIST 3053.03

HIST 5060 Topics in the Civilization of Baroque Italy

CREDIT HOURS: 3
Emphasizes the techniques and methods of studying history from archival sources in the Italian context, circa 1570-1740. Areas to be explored are Baroque Catholicism, social interaction, social status and display court culture, standards of living, routine infanticide, historical ecology and geography. Substantial use of translated and transcribed archival sources. Requires reading knowledge of French.
FORMAT: Seminar
CROSS-LISTING: HIST 4060.03

HIST 5061 Prelates, Peasants and Primates: From Italian History to the Behavioral Sciences

CREDIT HOURS: 3
Prelates Peasants and Primates is a directed readings course with an interest in the social sciences as they apply to historical societies. Weekly readings of classic historical scholarship will be complemented by articles and chapters of books drawn from works of sociology, evolutionary psychology, primate ethology, social psychology, and anthropology.
FORMAT: Lecture| Tutorial
CROSS-LISTING: HIST 4061.03

HIST 5090 Russian Society

CREDIT HOURS: 3
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: RUSN 1000.06, 2000.06
FORMAT: Seminar
CROSS-LISTING: HIST 3090.03, RUSN 3090.03

HIST 5091 Soviet History Seminar

CREDIT HOURS: 3

This is an advanced seminar on the history of Soviet Russia from 1917 to 1991. 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.

FORMAT: Seminar

CROSS-LISTING: HIST 4090.03, RUSN 4090.03

HIST 5104 Punishment, Crime, and the Courts in Early Modern England, c. 1550-1850

CREDIT HOURS: 3

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 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 legitimize social and economic structures. We will examine these 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.

FORMAT: Seminar

HIST 5105 The English Civil War: Society, Religion and Politics 1603-1660

CREDIT HOURS: 3

An advanced 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 politics; religious sectarianism; and the impact of the war and its aftermath on the populace.

FORMAT: Seminar

CROSS-LISTING: HIST 3105.03

HIST 5106 Topics in Early Modern English History

CREDIT HOURS: 3

Topics will vary from year to year, but may include the religious reformations, print culture, political protest, and state formation. The course will offer students the opportunity to examine in depth key features of the history and historiography of sixteenth and early seventeenth century England.

FORMAT: Seminar

CROSS-LISTING: HIST 4106.03

HIST 5110X/Y Rome and the East

CREDIT HOURS: 6

This course will consider relations between Rome and her eastern neighbours -- the Parthians and the Persians -- from 54 B.C. to A.D. 628. It will examine the development of Roman policy in the region from the establishment of imperial control in the Near East to the costly wars of the early Byzantine period. Consideration will also be given to the Parthian and Persian kingdoms and to the frontier region.

NOTES: 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 4535X/Y.06, 5535X/Y.06, HIST 4110X/Y.06

HIST 5117 Winston Churchill

CREDIT HOURS: 3

This course focuses on major controversies and events in British and world history in which Winston Churchill was a leading actor. It will examine the historiography of these subjects, and the impact of Churchill's own writing in shaping the historical record.

FORMAT: Seminar

CROSS-LISTING: HIST 4117.03

HIST 5160 Advanced Seminar in Baroque Culture

CREDIT HOURS: 3

This special summer course involves on-site work at the baroque library and theatre in the State Castle of Cesky Krumlov, Czech Republic. Research projects, in areas such as 18th century theatre, opera, court life or architecture, will involve preparatory and follow-up work at Dalhousie. Working knowledge of a relevant language is required.

FORMAT: Seminar| Discussion

CROSS-LISTING: HIST 4160.03, THEA 4733.03

HIST 5222 Topics in Canadian Social History

CREDIT HOURS: 3

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 cultures; the relationship of order and disorder; the family; gender relations; and social classes. Approved with Canadian Studies.

FORMAT: Seminar

CROSS-LISTING: HIST 3222.03, HIST 4222.03

HIST 5250 Popular Culture in the Atlantic World, 1650 to 1800

CREDIT HOURS: 3

This course examines the history of popular culture in the Atlantic world. It focuses on using primary sources, such as diaries and journals, to explore the culture and customs in pre-industrial communities. We will discuss topics such as family relationships, popular ideologies, religious practices and economic discussions. Students will present drafts of their research papers in class, and a revised version of the paper will be submitted at the end of term.

FORMAT: Seminar

PREREQUISITE: Instructor's permission

CROSS-LISTING: HIST 4250.03

HIST 5255 State and Society in Canadian History

CREDIT HOURS: 3

Political history and social history meet in this course. Its theme is the interaction between the power relations of daily life and the process of government. The topics covered may include the role of the press, the emergence of professions, tax revolts, polling, the changing functions of the law, nationalisms, resource management and the environment, patronage, and the welfare state.

FORMAT: Seminar

CROSS-LISTING: HIST 4255.03

HIST 5300 Topics in Latin American History

CREDIT HOURS: 3

This seminar course examines a select theme in Latin American history. The specific theme varies from year to year. Possible topics include race and nation, gender and sexuality, or political radicalism. The bulk of the work involves preparation of a significant research paper and discussion of weekly readings.

FORMAT: Seminar

CROSS-LISTING: HIST 4300

HIST 5335 The Cold War

CREDIT HOURS: 3

The Cold War – a period of intense conflict between the United States and the Union of Soviet Socialist Republics – manifested in the era after the second World War and continued until George Bush and Mikhail Gorbachev proclaimed its end in 1989. In order to explore this topic, we will examine a number of issues including: the origins of the crises; the Korean War; the Cuban Missile Crisis; the Nuclear Arms Race; détente and the end of the Cold War. Rather than concentrating on the events as they unfolded, however, this course will focus on questions of interpretation and methodology. The seminars address both the historiography of the period under question and some of the theories historians have used to think about and/or interpret the Cold War experience.

FORMAT: Lecture| Discussion

CROSS-LISTING: HIST 3335.03

HIST 5365 The Vietnam War

CREDIT HOURS: 3

This course covers the major issues of the war, including: the political and social conditions in Vietnam; the reasons for American involvement; the development of US policy toward Indochina and the legacy of the war. It also deals with the principle domestic issues that were connected to the war. Students will be encouraged to think about the war in Indochina and the domestic crises that occurred during the 1960s as an integral part of the same socio-economic and political process. A central theme of the course is that both the foreign and domestic problems were the product of a unique but interconnected set of circumstances that developed as a result of the onset of the Cold War. 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 period under question and to some of the “theories” historians have used to interpret the American experience in Vietnam.

FORMAT: Lecture| Seminar

CROSS-LISTING: HIST 3365.03

HIST 5400 Topics in African History

CREDIT HOURS: 3

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. Courses will also involve the reading, presentation, and discussion of selected readings.

FORMAT: Seminar

CROSS-LISTING: HIST 4400.03

HIST 5401 State Violence, Communal Conflict and Criminality in Modern South Africa

CREDIT HOURS: 3

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.

FORMAT: Seminar

CROSS-LISTING: HIST 4401.03

HIST 5404 Crime and Punishment in Modern Africa

CREDIT HOURS: 3

This course will interrogate the extent to which questions of state legitimacy and power can illuminate the trajectories of crime, policing and punishment from the early colonial era in Africa to the present day.

FORMAT: Seminar

CROSS-LISTING: HIST 4404

HIST 5430 Making of Colonial Africa (1850-1930)

CREDIT HOURS: 3

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 labor and natural resources. But imperial plans were limited and sometimes frustrated by African interests, and by historical dynamics within Africa, such as the rise of new merchants and Islamic revolution. This course assesses how the realities of Africa intersected with European imperial ambitions to profoundly change African society during this early colonial period.

FORMAT: Discussion

CROSS-LISTING: HIST 3430.03

HIST 5435 Rise and Fall of African Slavery

CREDIT HOURS: 3

Many African societies, like pre-industrial societies elsewhere, used slaves as well as other forms of labor 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 19th

century, many African economies used extensive internal slave labor to produce exports, a pattern 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: Discussion
CROSS-LISTING: HIST 3435

HIST 5452 Apartheid and After: Racial Rule in South Africa

CREDIT HOURS: 3
The course examines not only the changes in race relations and politics, but also the effects of mining and other industries on rural and urban societies after the discoveries of diamonds and gold. Themes will include British policies and the "imperial factor", the growth of Afrikaner and African nationalism, the Boer War and unification, the development of apartheid and South Africa's relations with the wider world.
FORMAT: Lecture| Discussion
CROSS-LISTING: HIST 3452

HIST 5470 Wars and Revolutions in Nineteenth Century Africa

CREDIT HOURS: 3
Africa in the nineteenth century was profoundly reshaped by a complex set of events. Muhammed Ali undertook to modernize Egypt. New Islamic states founded in the west developed plantation economies of unrivaled size. On the Atlantic coast, merchant princes made their fortunes supplying tropical goods for Europe's Industrial Revolution. In Central Africa the search for slaves and ivory both wreaked havoc and stimulated new states. In the south, the rise of Zulu power generated waves of conquest and consolidation. This course assesses the extent to which Africa was reshaped in the revolutionary century before colonial partition.
FORMAT: Discussion
CROSS-LISTING: HIST 3470

HIST 5471 Wars and Revolutions in Twentieth Century Africa

CREDIT HOURS: 3
Africa as portrayed in the Western media is a continent plagued by bloody conflicts. All too often these conflicts have not been carefully explained; rather they have been written off as "tribal" squabbles or incomprehensible episodes of barbarism. This course will examine several types of conflicts throughout the twentieth-century and will seek answers to such questions as: What initiated these conflicts? What were the combatants fighting for? How did these conflicts influence widersocial, economic and political developments? In what ways did colonial policies and the colonial legacy influence African conflicts? What role has the international community played in African conflicts? What roles have African elites or local communities played in these conflicts? Grappling with these questions will allow us to move beyond simplistic explanations to acquire a better understanding of the wars and revolutions that have so marked twentieth-century Africa.
FORMAT: Seminar
CROSS-LISTING: HIST 3471.03

HIST 5475 African Intellectuals and the Modern Experience

CREDIT HOURS: 3
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 intelligentsia 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: What 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 socialist was African socialism? How do postmodern insights about the invention of identify affect the idea of being "African"?
FORMAT: Discussion
CROSS-LISTING: HIST 4475

HIST 5500 Topics in Modern History

CREDIT HOURS: 3
This seminar is specifically intended for students in the Advanced Major and Honours degree programs in History. The specific content of the seminar varies from year to year, but generally involves examination of a subject in history in some depth, and may include an historiographical, comparative or interdisciplinary dimension.
FORMAT: Seminar
CROSS-LISTING: HIST 4500.03

HIST 5503 Sultans and Shahs

CREDIT HOURS: 3
This course will examine the post-Mongol Islamic world, and the emergence and expansion of the Ottoman, Safavid, and Mughal empires between 1500 and 1800. Particular themes of concentration will be notions of legitimacy and authority, religious orthodoxy and heterogeneity and the rise of centralized bureaucracies.
CROSS-LISTING: HIST 3510.03

HIST 5510 Topics in Islam and Middle East History

CREDIT HOURS: 3
This course dedicated to topics dealing with the Islamic world/Middle East from the medieval era to the present. Topics include: political thought in Islam, slavery in Islamic civilization, Nationalism and Ethnicity in the Middle East and Women in the Islamic world.
FORMAT: Seminar
CROSS-LISTING: HIST 4510.03

HIST 5545 Scripture and Statecraft: The History of Islamic Political Thought (7th-21st centuries)

CREDIT HOURS: 3
This seminar focuses on the concept of the Islamic political state as it was first developed during the time of the Prophet Muhammad and the various debates that ensued in the classical and medieval periods. The seminar also focuses on Islamic scholarly discourse regarding 'mosque and state' in the wake of colonialism, westernization, and globalization.
FORMAT: Seminar
CROSS-LISTING: HIST 4545.03

HIST 5550 Orientalism and Occidentalism

CREDIT HOURS: 3

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 consistent theme in European literary and academic traditions. Whether or not it was the apologetic theological rivalry between Islam and Christianity in the Middle Ages, or the Humanist mania for non-European languages and ethnography, Occidental scholarship has historically been attracted to understanding and depicting the non-Occident. 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 "Occidentalism" emerged among Muslim scholars and literati, and the ensuing dialectic between West and East framed the introduction of a number of political 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 - Focault, Chakrabarty, Said - who have commented on these discourses. Equal attention will be given to those Muslim scholars - Shayaghan, Soroush, al-Ahmad - who have written and commented on these dynamics between Western and Islamic civilization.
FORMAT: Seminar
CROSS-LISTING: HIST 4550.03

HIST 5600 Topics in Late 19th and 20th-Century American and British History

CREDIT HOURS: 3
This course will, depending upon the staffing in any particular year, examine a selection of themes in late 19th and 20th century British and American history, including, for instance, labor/labor history, political history (including state formation), cultural history, and history of race and national identify. Depending upon staffing, this course may concentrate upon the history of one country or may offer a comparative aspect. It will be intended for graduate or senior undergraduate students with some background in either British, American or Canadian history. Evaluation will be through research papers and, possibly, a final exam.
FORMAT: Seminar
CROSS-LISTING: HIST 4600.03

HIST 5613 Women's Suffrage from the French Revolution to World War I

CREDIT HOURS: 3
The question of women's participation in representative government first emerged during the French Revolution but by 1914, only two European countries granted women the right to vote. This seminar explores the suffrage movement in nineteenth century Europe and the obstacles in the process of women's enfranchisement.
FORMAT: Seminar
CROSS-LISTING: HIST 4613

HIST 5701 Medieval Civilisation

CREDIT HOURS: 3
Each year several topics are chosen, broad enough to be used as central themes in the context of which medieval civilisation may be closely examined; for instance, monasticism, universities, peasants and popular culture. Such topics are studied in some depth, where possible using original sources, and recent periodical literature and/or monographs. Class discussions are used to unravel contentious or difficult aspects of assigned readings. Students are to write a formal research-based essay as well as several critical book reviews. Some prior knowledge of medieval European history. Graduate level students are expected to use Latin-language primary sources for the research paper; in addition, they are required to complete several critical reviews of secondary sources.
FORMAT: Seminar
CROSS-LISTING: HIST 4003.03

HIST 5702 The Medieval Church

CREDIT HOURS: 3
This course examines the power and influence of the medieval Christian church in the social, political and cultural worlds of medieval Europe, but also includes sections on the impact of the church in a wider global setting. Subjects of study include monasticism, heresy, education, devotional life, "popular" concepts of religion, the crusades, and medieval cosmology. Each year a variety of topics is studied in some 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 which, at the graduate level, must include the use of sources in Latin. A prior knowledge of medieval European history is essential. In addition, students taking the course at the graduate level must complete several critical book reviews.
FORMAT: Lecture| Tutorial
CROSS-LISTING: HIST 3002.03

HIST 5703 Celtic Britain and Ireland to 1400

CREDIT HOURS: 3
This course examines the social, political and cultural history of the Gaelic speaking peoples of the British Isles from c. 1000 to the fifteenth century, with 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 institutions as the family, kinship, the law, and the church down to the end of the first millenium, and explores the impact of the special attention is given to the various sources, written and unwritten, that inform the early history of the Gaelic speaking peoples and their lands. Courses are conducted in the form of lecture/tutorials that is, a single lecture once a week is followed by a tutorial in which readings are discussed. Graduate level students are expected to be able to use Latin-language primary sources for the research paper; in addition, they are required to complete several critical reviews.
FORMAT: Seminar
CROSS-LISTING: HIST 3003.03

HIST 5704 Crime and Society in Post-Conquest England

CREDIT HOURS: 3
This course explores the development of the criminal law in England between 1066 and 1500. 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, itinerant sessions headed by the justices of assize, and the central court of King’s Bench. The origins and elaboration of particular offences, 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. Graduate level students are expected to be able to use Latin-language primary sources for the research paper, in addition, they are required to write several book reviews.
CROSS-LISTING: HIST 4004.03

HIST 5706 Topics in Medieval History

CREDIT HOURS: 3
Topics will vary from year to year, but will include the development of legal institutions in the medieval West, church-state relations, the development of institutions of central government, crown-noble relations. The class will offer student the opportunity to examine in depth key features of the history and historiography of medievall

Europe and medieval Britain in the period between the years 1000 and 1400.

HIST 5800X/Y The Masters Seminar

CREDIT HOURS: 3
This course is intended to hone students' sense of their craft as historians. Its chief objective is to get students thinking about their own historical methodology, in theoretical and especially in practical terms. From the conception of a project through to its conclusion, historians should always be self-conscious about exactly what they are doing, why they are doing it, and how they are doing it. This course is designed to help develop that self-consciousness. The course will also include workshops on professional ethics, drafting grant proposals, and other such practical aspects of life as an historian. Its final product will be a polished thesis proposal. Please note that this course is a requirement for all new MA students.
FORMAT: Seminar

HIST 5988 The Historiography of US Foreign Relations

CREDIT HOURS: 3
This course introduces students to the major historiographical and methodological trends in the study of US foreign relations post 1945. Rather than concentrate on the events as they unfolded this course is concentrated around discussions of the various interpretations and methodologies historians have used to historicize a particular historical events. The goal of the course is to encourage students to think critically about the various forces at work in the development and execution of US foreign Policy.
FORMAT: Seminar
CROSS-LISTING: HIST 4988.03

HIST 9000 Master's Thesis

CREDIT HOURS: 0

HIST 9530 Doctoral Thesis

CREDIT HOURS: 0

Human Communication Disorders

Location:
Building/Room: 1256 Barrington Street
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Street Address 2:
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Halifax, NS B3H 4R2
Telephone: (902) 494-7052
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Website: www.dal.ca/faculty/healthprofessions/human-communication-disorders.html
Email Address: hucd@dal.ca

Staff

Director of the School

Armson, J.

Professor Emeritus

Green, W. B., BS, MA, PhD (Syracuse)

Professors

Armson, J., BA, MS, PhD (Temple). Stuttering
Cleave, P., BA/BSW, MClSc, PhD (Kansas). Specific language impairment, Down syndrome, treatment efficacy, language disorders, intervention
Crago, M., BA, MSc, PhD (McGill). Vice President Research
Kay-Raining Bird, E., BA, MSc, PhD (Wisconsin). Child language development/disorders, Down syndrome, autism, assessment, intervention
Kiefte, M., BA, MSc, PhD (Alberta). Speech and auditory perception
Wang, J., BS, MA, PhD (SUNY). Central auditory and cochlear physiology/pathology
Webster, W., BSc, MA, PhD (Pennsylvania). Dean, Faculty of Health Professions

Associate Professors

Aiken, S., BA, MSc, PhD (Toronto). Electrophysiology, diagnostic audiology, hearing aids
Caissie, R., BPs, MSc, PhD (McGill). Audiological rehabilitation of adults, hearing aids, hearing loss and aging
Hickey, E., BS, MA, PhD (Washington). Treatment of neurological communication disorders, and disability and development/global health issues
Ingles, J., BA, PhD (Dalhousie). Adult neurogenic language and cognitive disorders

Assistant Professor

Hong, P., BSc, MD (Ottawa), FRCS(C). Pediatric otolaryngology, pediatric hearing, microtia reconstruction, external ear, pediatric hearing loss. Appointment in the Department of Surgery, Faculty of Medicine

Instructor

Noel, G., BA, MSc (Dalhousie). Auditory processing disorders, tinnitus/hyperacusis, auditory evoked potential

Academic Coordinators of Clinical Education

Balkam, E., BA, MSc (Dalhousie). Speech-language pathology
Floyd, D., BA, MSc (Dalhousie). Audiology

Special Projects and Clinical Education

Wozniak, L., BA, MA (SUNY). Director, Dalhousie Aphasia Clinic
Kostopolous, E., BSc (Dalhousie). Coordinator - InteRACT

Adjunct (FGS)

Comeau, M., BSc, MSc (Dalhousie)
Delorey, R., BSc, MSc (UWO)
Dobbelsteyn, C., BSc, MSc (Dalhousie)
Fergusson, D., BSc, MSc (Dalhousie)
Foster-MacDonald, L., BSc, MSc (Dalhousie)
Gulliver, M., BSc, MSc (Dalhousie)
Harris, L., BSc, MSc (UWO)
MacKenzie-Stepner, K., BSc, BSc, MSc (UWO)
Mencher, G., BA, MA, PhD (Michigan)
Merchant, M., BA, MSc (Dalhousie)
Santilli, C., BCS, MSc (Dalhousie)
Schmidbauer, J., BA, MA (SUNY)
Scholten, C., BSc, MSc (Dalhousie)
Sharpe, M., BSc, MSc (Dalhousie)
Verge, J., BSc, MSc (Dalhousie)

Master of Science (MSc) Degree Program

The School of Human Communication Disorders provides a three-year program of academic study and clinical experiences leading to a MSc degree in either speech-language pathology or audiology. Courses are normally open only to those that have been accepted as full-time students in the programs.

Students are required to attain a minimum of 84 credit hours in the Thesis Stream and 78 credit hours in the Non-Thesis Stream. Students who are interested in developing independence in conceptualizing and conducting research in communication disorders are encouraged to apply to the Thesis Stream. Application to the Thesis Stream can be made at the time of application for admission to the School or during the fall term of first year.

Extensive supervised clinical practice is required throughout the program. Much of this requirement is met by attending a 12 - week practicum held during the summer between the second and third year of study and one 12 - week practicum during the winter term of the third year.

Master of Science (MSc) Admission Requirements/Deadline

All applicants must possess a minimum of a baccalaureate degree from a recognized institution of higher education. An Honours degree is a strong asset.

The programs are designed for students with either minimal or no previous academic experience in the area of speech-language pathology or audiology. In most cases, applicants should have undergraduate degrees in such areas of study as psychology, biology, health sciences, kinesiology, nursing, linguistics, or education. However, students with other backgrounds will also be considered if they have completed courses in one or more of the following topics: human biology or physiology, acoustics, developmental psychology, gerontology, learning theory or abnormal psychology, speech perception, psychoacoustics, or other areas of language or linguistics. There are no specific prerequisite courses for admission into our programs. Students whose undergraduate degree is in either speech-language pathology or audiology may be considered for entrance into the program at a more advanced level under exceptional circumstances only.

Students must have attained a minimum of a B+ average in the last two years of undergraduate work to be considered for admission. A Graduate Record Exam (GRE) score is required for all applicants. Two academic letters of recommendation from professors in the student's undergraduate major will be required as well as a personal statement. Applicants must indicate their preference for either audiology or speech-language pathology.

Application deadline is January 15 for September admission

Practicum/Fieldwork Placements Outside Halifax

Students enrolled in entry-to-practice graduate programs of study in the Faculty of Health Professions are advised that they may have to do some or all of their required clinical education/fieldwork at sites outside Halifax, and hence may 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.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Foundation Courses

While students pursue a course of study that leads to specialization in either speech-language pathology or audiology, they will be required to take courses that contain information that is basic to both professions. These courses will be described in the course listings that follow.

HUCD 5020.03: Phonetics
HUCD 5050.03: Fundamentals of Speech Science
HUCD 5120.03: Hearing Measurement
HUCD 5130.03: Introduction to Audiology and Speech-Language Pathology
HUCD 5140.03: Aural (Re)Habilitation with Children
HUCD 5150.03: Speech-Language Acquisition
HUCD 5260.03: Hearing Disorders
HUCD 5290.03: Introduction to Neurosciences for Communication Disorders
HUCD 6310.03: Audition I
HUCD 6980.03: Research Design
HUCD 7001.03/7002.03: Project
HUCD 7061.03: Practicum Internship
HUCD 7062.03: Practicum Externship
HUCD 9000.00: Thesis

Speech Language Pathology Courses (in addition to Foundation Courses)

HUCD 5070X/Y.06: Clinical Methods - Speech-Language Pathology
HUCD 5250.03: Speech Disorders - Children
HUCD 5270.03: Language Disorders in Preschool Children
HUCD 6350.03: Assessment of Neurogenic Language and Cognitive Disorders - Adult
HUCD 6370.03: Fluency Disorders
HUCD 6390.03: Voice/Resonance Disorders
HUCD 6450.03: Speech Disorders - Adults
HUCD 6460.03: Treatment of Neurogenic Language and Cognitive Disorders - Adult
HUCD 6470.03: Language Disorders in School Age Children
HUCD 6490.03: Advanced Language Disorders in Children
HUCD 6550.03: Seminar in Adult Communication Disorders
HUCD 6611.03: Augmentative and Alternative Communication
HUCD 6612.03: Dysphagia

Audiology Courses (in addition to Foundation Courses)

HUCD 5071X/Y.06: Clinical Methods - Audiology
HUCD 5220.03: Diagnostic Audiology
HUCD 5280.03: Audition II
HUCD 6070.03: Topics in Audiology Procedures
HUCD 6320.03: Pediatric Audiology
HUCD 6360.03: Amplification
HUCD 6380.03: Electrophysiological Audiometric Measures
HUCD 6420.03: Advanced Diagnostic Audiology
HUCD 6440.03: Noise in Industry and the Community
HUCD 6560.03: Amplification II
HUCD 6630.03: Cochlear Implants and Other Implantable Technologies
HUCD 6640.03: Advanced Audiologic Rehabilitation

Additional Courses Available
HUCD 6500.03: Tutorial Readings
HUCD 6700.03: Independent Study

Interprofessional Health Education

Students are required to maintain enrolment in IPHE 5900 for the duration of their studies. Please register in IPHE 5900.00 (section 2). 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.

IPHE 5900.00: Interprofessional Health Education Portfolio.

Course Descriptions

HUCD 5020 Phonetics

CREDIT HOURS: 3
This course considers the articulatory, linguistic, and acoustic aspects of phonetics. The application of phonetics to communication disorders, and training in broad and narrow phonetic transcription are included.

HUCD 5050 Fundamentals of Speech Science

CREDIT HOURS: 3
This course is an introduction to speech science. It provides an overview of basic acoustics as well as the structure and function of speech systems. It provides preliminary coverage of theoretical research issues in speech physiology as well as basic topics in speech acoustics such as source-filter theory.

HUCD 5070X/Y Clinical Methods - Speech-Language Pathology

CREDIT HOURS: 3
This course will introduce students to the principles and procedures of speech-language pathology clinical practice to develop fundamental skills of clinical competence at an entry level. It will focus on two topics: a) procedural skills and b) interviewing and counselling skills. Students will apply the skills developed in this course to concurrent clinical practicum experience in speech-language pathology.
FORMAT:

HUCD 5071X/Y Clinical Methods - Audiology

CREDIT HOURS: 3
This course will introduce students to the principles and procedures of clinical practice in audiology to develop fundamental skills of clinical competence at an entry level. It will focus on two topics: a) procedural skills and b) interviewing and counselling skills. Students will apply the skills developed in this course to concurrent clinical practicum experience in audiology.
FORMAT:

HUCD 5120 Hearing Measurement

CREDIT HOURS: 3
This course deals with an overview of the basic audiological test battery including pure tone air/bone conduction, speech audiometry, immittance measurements and electrophysiologic testing (i.e., otoacoustic emissions and auditory brainstem response (ABR)). Case studies are used to solidify knowledge into clinical practice. The principles and techniques for audiometric screening are presented.

HUCD 5130 Introduction to Audiology and Speech-Language Pathology

CREDIT HOURS: 3
This course will help students acquire a basic understanding of the roles of speech-language pathologists (SLPs) and audiologists (AUDs) in working with clients with communication disorders. This course is meant to prepare students for further study in other specialized courses; thus, this course is designed to provide an introduction to issues that impact clinical practice in both disciplines/professions (e.g., socio-cultural issues, aging). This course will also discuss advocacy for persons with communication disorders across the lifespan.

HUCD 5140 Aural (Re)Habilitation with Children

CREDIT HOURS: 3

This course is designed to familiarize students with the general principles and features of communication management programs for preschool and school-age children with hearing loss. Emphasis is placed on the role and appropriate use of audition in the habilitative process.

HUCD 5150 Speech-Language Acquisition

CREDIT HOURS: 3

This course acquaints students with current theories of language development, the course of language acquisition, and factors that impact language development. The domains of phonology, semantics, morphology, syntax, and pragmatics are addressed, from infancy through adolescence, in spoken and written modalities. Cultural and linguistic variation is discussed throughout.

HUCD 5220 Diagnostic Audiology

CREDIT HOURS: 3

This course considers the principles and methods of basic audiological diagnostic investigation. Emphasis is placed on speech audiometry, clinical masking, and aural immittance measures. A laboratory component provides experience with measurement techniques and exposure to the instrumentation used in these measures.

HUCD 5250 Speech Disorders - Children

CREDIT HOURS: 3

This course explores the nature and etiology of both articulatory and phonological disorders in children. It strives to provide a broad introduction to theoretical knowledge regarding assessment, differential diagnosis, and treatment of these disorders, with application of this knowledge to clinical populations.

HUCD 5260 Hearing Disorders

CREDIT HOURS: 3

This course considers diseases, disorders and dysfunction of the auditory system that may be encountered by speech-language pathologists and audiologists. Pathologies of the peripheral and central mechanisms are included.

HUCD 5270 Language Disorders in Preschool Children

CREDIT HOURS: 3

This course deals with general principles of assessment and management of language disorders in preschool children across the clinical etiologies. Theories of language and contemporary treatment approaches are presented. A critical review of the evidence base for practice is included.

HUCD 5280 Audition II

CREDIT HOURS: 3

This course provides advanced knowledge of hearing science in close association with clinical practice of audiology. The focus includes cochlear biophysics, physiology and signal processing, signal processing and neurophysiology in the central auditory system, and advanced discussion of psychoacoustics in association with auditory neuroscience.

HUCD 5290 Introduction to Neurosciences for Communication Disorders

CREDIT HOURS: 3

The purpose of this course is to provide the student with a basic knowledge of the neurological foundations for human communication processes. This knowledge will serve as a basis for a variety of classes in the audiology and speech-language pathology curricula.

HUCD 6070 Topics in Audiology Procedures

CREDIT HOURS: 3

Selected topics relevant to the practice of clinical audiology will be covered including tinnitus, balance disorders, ototoxicity, central auditory plasticity, and audiology instrumentation.

HUCD 6310 Audition I

CREDIT HOURS: 3

This course provides knowledge of hearing science at an introductory level. The core of this course is the anatomy and fundamental physiology of the auditory system, from external ear through middle ear, inner to central auditory pathway. It also provides basic knowledge and principles of psychoacoustics and psychological evaluation.

HUCD 6320 Pediatric Audiology

CREDIT HOURS: 3

This course considers the appropriate audiological assessment and management procedures used with the pediatric population. The course prepares the audiology student to work with children in a clinical setting.

HUCD 6350 Assessment of Neurogenic Language and Cognitive Disorders - Adult

CREDIT HOURS: 3

This course will focus on language and cognitive disorders associated with aphasia, dementia, traumatic brain injury, and right hemisphere damage. The neurological foundations, clinical symptomatology, and assessment of these conditions will be covered.

HUCD 6360 Amplification

CREDIT HOURS: 3

This is the first course dealing with amplification. It covers hearing aid components and electroacoustic properties, methods of hearing aid selection, and verification of hearing aid fittings. Hearing needs and amplification options for people of all ages are discussed.

HUCD 6370 Fluency Disorders

CREDIT HOURS: 3

This course deals primarily with the nature and treatment of developmental stuttering. Topics include facts about its features and patterns of occurrence, theoretical perspectives concerning its nature and etiology, and treatment approaches for children and adults. The course also includes a brief overview of cluttering, psychogenic stuttering, and stuttering associated with acquired neurogenic disorders.

HUCD 6380 Electrophysiological Audiometric Measures

CREDIT HOURS: 3
This course considers the theory, technique, clinical application and interpretation of otoacoustic emissions and electrophysiologic measures, including the auditory brainstem response, the auditory steady-state response, and middle- and late-latency potentials.

HUCD 6390 Voice/Resonance Disorders

CREDIT HOURS: 3
This course is designed to provide the student with an overview of the etiology, assessment, differential diagnosis and treatment of voice and resonance disorders in children and adults. Perceptual and instrumental assessment of the laryngeal and velopharyngeal mechanisms are addressed with respect to various disorders.

HUCD 6420 Advanced Diagnostic Audiology

CREDIT HOURS: 3
This course presents advanced concepts dealing with measures sensitive to hearing disorders as they relate to central auditory nervous system. Both behavioural and electrophysiological testing will be reviewed. Remediation and auditory training will be addressed. Screening concepts will be explored. Students will be involved in clinical rotation during the semester.

HUCD 6440 Noise in Industry and the Community

CREDIT HOURS: 3
This course covers a wide range of issues in industrial audiology. It acquaints students with principles of noise measurement and analysis, updated studies on noise-induced hearing loss, and hearing conservation programs. Various national and international standards, legislation, and workers' compensation will be addressed in conjunction with community noise. Laboratory experiences in industrial settings and the community are included.

HUCD 6450 Speech Disorders - Adults

CREDIT HOURS: 3
This course considers speech disorders of neurologic origin in the adult population. The neurophysiologic basis of these disorders, their effect on the motor control of speech, and their clinical diagnosis and management are addressed.

HUCD 6460 Treatment of Neurogenic Language and Cognitive Disorders - Adult

CREDIT HOURS: 3
This course will focus on treatment planning using various aphasia/cognitive-linguistic rehabilitation models and treatment procedures for adults who have acquired aphasia and cognitive-linguistic disorders. Students will achieve the skills and knowledge necessary to develop individualized intervention plans for adults with these disorders.

HUCD 6470 Language Disorders in School Age Children

CREDIT HOURS: 3
This course considers the nature of language impairments in school age children across clinical etiologies. The impact of language impairments on literacy and academic performance are discussed. Contemporary assessment and treatment approaches are presented. The evidence base for various treatment approaches is examined.

HUCD 6490 Advanced Language Disorders in Children

CREDIT HOURS: 3
This seminar-style course explores issues of linguistic and cultural diversity and how they impact the development, assessment and treatment of speech and language disorders. As well, various language disorders such as intellectual disabilities, autism, and specific language impairment are examined in detail.

HUCD 6500 Tutorial Readings

CREDIT HOURS: 3

HUCD 6550 Seminar in Adult Communication Disorders

CREDIT HOURS: 3
This course will focus on contemporary topics in adult speech-language pathology and will vary from year to year. Student-led seminars may cover the relevant research literature, professional issues, and clinical cases.

HUCD 6560 Amplification II

CREDIT HOURS: 3
This course builds on HUCD 6360 and covers advanced hearing aid technology. Emphasis is placed on signal processing, advanced hearing aid features, wireless systems, and selection and verification of technology based on best evidence. Case scenarios provided during labs give students hands-on experience to help improve their understanding of the material.
FORMAT:
PREREQUISITE: HUCD 6360 Amplification

HUCD 6611 Augmentative and Alternative Communication

CREDIT HOURS: 3
This course provides introduction to augmentative and alternative communication (AAC) issues. Active participation will help students discover the knowledge necessary to collaborate in AAC assessment and intervention. Examination of recent research will prepare students to choose an appropriate assessment and treatment approach for a variety of clients.
FORMAT:

HUCD 6612 Dysphagia
CREDIT HOURS: 3
This course provides an overview of normal and disordered swallowing, the elements of clinical examination and instrumental assessments, and the fundamental principles of swallowing rehabilitation. It covers both pediatric and adult populations.

HUCD 6630 Cochlear Implants and Other Implantable Technologies
CREDIT HOURS: 3
This course is designed to address services and technology offered by cochlear implants (CI) and other implantable devices such as auditory-brainstem implants (ABI), bone-anchored hearing aids (BAHA), and middle-ear implants in terms of design, engineering, patient candidacy, surgical procedures, outcomes, and potential complications as well as their impact on the deaf and hard-of-hearing community.

HUCD 6640 Advanced Audiologic Rehabilitation
CREDIT HOURS: 3
This course is a follow-up from HUCD 6360 and HUCD 6560. It is designed to increase students' knowledge and clinical skills in communication needs assessment, applications of hearing aid technology and wireless accessories to reduce communication difficulties, rehabilitation approaches post hearing aid fitting, and outcome measures in amplification and audiological rehabilitation.
FORMAT:
PREREQUISITE: HUCD 6360, HUCD 6560

HUCD 6700 Independent Study
CREDIT HOURS: 3

HUCD 6980 Research Design
CREDIT HOURS: 3
This course addresses both the evaluation and implementation of research methods in speech, language and hearing disorders. It focuses on the importance of research to the clinical setting and on the development of skills to evaluate the quality of research findings. It also aims to develop the skills to design and implement theoretical and applied research: searching the literature, focusing it upon a research problem, reflecting upon models or theories and applying hypotheses, constructing internally valid methodology, analyzing and interpreting results, and drawing accurate and useful conclusions.

HUCD 7001 Project
CREDIT HOURS: 3
The student is expected to choose an area of interest to engage in a research project or activity under the direction of a faculty member. Research projects and activities will be assigned to students by a School committee, matching student interest with faculty offerings. A focus of the research experience will be development of critical thinking and writing skills. Products may include a research proposal, research paper, series of critiques of journal articles, as well as other options.
NOTE: Course Details listed here also apply to HUCD 7002.

HUCD 7002 Project
CREDIT HOURS: 3
See HUCD 7001.

HUCD 7061 Practicum Internship
CREDIT HOURS: 3
Students are assigned supervised practicum placements on a full-time basis for a 12-week period. Placements are in facilities throughout the Atlantic Provinces.

HUCD 7062 Practicum Externship
CREDIT HOURS: 3
Students are assigned supervised practicum placements on a full-time basis for a 12-week period. Placements can occur in sites across Canada. Placements outside Canada will be considered if appropriate supervision is available.

HUCD 9000 Thesis
CREDIT HOURS: 0
The student is expected to formulate an original question related to human communication disorders or sciences, and with guidance from a faculty supervisor and two other members of a supervisory committee, implement a plan to answer the question.

Industrial Engineering

Location:
Building/Room: Morroy Academic Building
Street Address 1: 5269 Morris Street
Street Address 2: Room 208
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3281
Fax: (902) 420-7858
Website: www.dal.ca/faculty/engineering/industrial.html
Email Address: industrial.engineering@dal.ca

Program Description

See Engineering section for Masters's and Doctoral program details.

Students who do not have an Industrial Engineering background are required to take IENG 6900: Industrial Engineering Methodologies and IENG 6912: Introduction to Operations Research.

Staff

Department Head

MacDonald, C., BEng (TUNS), PhD (Dalhousie), PEng. Work design, production systems

Professor Emeritus

Das, B., BScEng (Banaras), MSc, PhD (North Carolina State), FIIE, FHFES, FIEE, CEng, PEng. Industrial ergonomics, workstation design, human strength measurement, anthropometric modelling, equipment and hand tool design
Gunn, E. A., BS (Mt. A), MA (Dalhousie), PhD (Toronto), PEng. Operations research, inventory and production control, natural resources

Professors

Barzilai, J., BSc, MSc, DSc, (Technion). Measurement theory, decision analysis, optimization
Gunn, E. A., BS (Mt. A), MA (Dalhousie), PhD (Toronto), PEng. Operations research, inventory and production control, natural resources
Pelot, R. P., BASc (Ottawa), MASc (Alberta), PhD (Waterloo), PEng. Risk analysis, maritime applications, safety and security, environmental modelling

Associate Professors

Blake, J., BASc, PhD (Toronto), PEng. Industrial Engineering, operational research, health application simulation
Cyrus, J. P., BSc (ENG) (UWI), MASc, PhD (TUNS), PEng. Vehicle routing and scheduling, production scheduling, employee scheduling, scheduling interfaces
Diallo, C., BEng, MSc, PhD (Laval), PEng. Reliability, Maintenance, Green logistics, Life-cycle engineering. Undergraduate Coordinator
Johnston, C. R., BSc, MSc (Alberta), PhD (Calgary). Cardiovascular fluid mechanics, design engineering, sports engineering. Cross appointed with Mechanical Engineering
MacDonald, C., BEng (TUNS), PhD (Dalhousie), PEng. Work design, production systems
Venkatadri, U., BTech (IT-BHU), MS (Clemson), PhD (Purdue), PEng. Supply chain management, inventory and production planning, facility planning and design

Assistant Professors

Ghasemi, A., BSc, MSc, PhD (Montreal), PEng. Reliability, condition based maintenance, asset management, planning and scheduling, dynamic programming and stochastic optimization, simulation. Graduate Coordinator
Vanberkel, P., BEng, MASc (Dalhousie), PhD (Twente), PEng. Operation research, healthcare, simulation stochastic models

Cross-Listed

Nguyen-Quang, T., BSc, MSc (National Polytechnic Institute of Grenoble), PhD (Univ of Montreal and Mechanical Institute of Marseille), Transport Phenomenon, Natural patterns and Complex systems, Biological systems Modelling (cross-listed with Agriculture)
Zaman, Q., BSc, MSc (Univ of Agriculture Faisalabad), PhD (Univ of Newcastle upon Tyne). Precision agriculture, GPS, GIS, Sensors, remote sensing, VPT (cross-listed with Agriculture)

Adjunct (FGS)

Black, N., BASc (Waterloo), MASc (TUNS), PhD (UNB), PEng. (Univ of Moncton). Ergonomics, musculoskeletal injury prevention, human biomechanical modelling, design for physical disabilities, work study
Eiselt, H. A., Dr. rer. pol (Goettingen, Germany), location models, municipal solid waste, decision analysis, mathematical methods in counter terrorism.
Richards, E., BEng, MSc (UNB), PhD (TUNS). Systems Engineering, optimization, Tabu Search, LP, DSS
Sandblom, C. L., Fil.Kand., Fil.Mag. (Lund), PhD (Birm), Modelling and optimization of linear, nonlinear and stochastic systems
Tajbakhsh, M., BSc, MSc (Amir Kabir), PhD (Toronto). Supply chain, inventory and production management, scheduling and OR

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

IENG 6900 Industrial Engineering Methodologies

CREDIT HOURS: 3
This course gives an overview of industrial engineering methodologies with particular reference to classical industrial engineering and ergonomics. The subject areas covered include: work methods and measurement, engineering economics, plant layout and material handling and industrial ergonomics. Due emphasis will be given to the application of the methodologies in an industrial environment.
PREREQUISITE: This course is not intended for graduates of an Industrial Engineering undergraduate programme.
RESTRICTIONS: Restricted to Industrial Engineering students. Students in other programs must contact the instructor for permission to register.

IENG 6904 Industrial Work Systems Design

CREDIT HOURS: 3
This course deals with the improvement of work productivity and quality of industrial working life through optimum design of the job, workplace, work organization and work environment. Due emphasis will be given to integrate the essentials of classical industrial engineering, ergonomic, safety and socio-psychophysiological factors in developing such systems.

IENG 6906 Occupational Ergonomics

CREDIT HOURS: 3
Consideration is given to human's anatomical, physiological and psychological capabilities and limitations for systematic analysis, identification and evaluation of human-machine-environment systems to design consumer products, equipment, tools, and the workstation. Due emphasis will be given to the application of ergonomics principles and data at the human-machine interface in industrial and other occupational settings.

IENG 6908 Advanced Facilities Planning

CREDIT HOURS: 3
This class covers advanced topics in facilities planning and design. Models for the planning and design of production and distribution facilities will be presented in the following areas: plant and distribution centre location, layout, and material handling systems design.

IENG 6909 Supply Chain Management

CREDIT HOURS: 3
This class covers advanced topics in Logistics and Supply Chain Management. Models for designing, planning, and operating supply chain logistic networks will be presented. Topics covered include supply chain network design, planning and managing inventories, transportation planning, and the role of information technology.

IENG 6912 Introduction to Operations Research

CREDIT HOURS: 3

This course is a graduate level introduction to the fundamental ideas of operations research. The course focuses on mathematical modelling in deterministic and non-deterministic settings. The course covers topics in the theory and application of mathematical optimization, network analysis, decision theory, inventory theory, and stochastic processes including queuing processes. The course requires background in probability theory and linear algebra as well as some skill in computer programming.
PREREQUISITE: This course is not intended for graduates of an Industrial Engineering undergraduate programme.

IENG 6916 Stochastic Processes

CREDIT HOURS: 3
This course is an introduction to the fundamentals of stochastic processes. Emphasis is placed on the analysis of the probability structure of stochastic models. Topics discussed include renewal processes, counting processes, Markov chains, Markov decision processes, birth and death processes. Stationary processes and their spectral analysis may also be discussed. Applications of stochastic processes in operations research, quality and reliability engineering are presented.

IENG 6917 Simulation of Industrial Systems

CREDIT HOURS: 3
Computer simulation of industrial systems, the design of discrete simulation models, and the generation of random variables are all covered by this course. Also included is the design of simulation languages. Applications of simulation models in decision making situations arising in production, distribution and economic systems are studied.

IENG 6918 Decision Analysis

CREDIT HOURS: 3
We will study the foundations of decision and risk theory and construct a correct theory and practical methodology - Preference Function Modelling (PFM) - for decision making including group decision making.

IENG 6920 Advanced Topics in Linear and Integer Programming

CREDIT HOURS: 3
The following topics comprise this course: linear programming, decomposition methods, integer programs, Gomory's algorithms, implicit enumeration, branch and bound, sequencing problem. Graphs and algorithms: Extensions of shortest path problems, their algebra. General flow problems including flows with gain and loss and multicommodity flow. Eulerian paths and Hamiltonian cycles. The Chinese Postman problem. Covering problems.
PREREQUISITE: IENG 4304.03 or equivalent.

IENG 6921 Nonlinear Optimization

CREDIT HOURS: 3
Key issues in engineering design are the optimization of the design parameters and optimization of overall system performance. The objective of this course is to expose the student to modern techniques in finite dimensional optimization. Topics in unconstrained optimization will include steepest descent, conjugate gradient and quasi-Newton methods. In the field of constrained optimization, topics will include Kuhn-Tucker theory and algorithmic methods such as reduced gradients, gradient projection, penalty and barrier methods. The use of constructive dual methods may also be included. Throughout the course, students will be encouraged to apply the theory to engineering decision problems.

IENG 6923 Distribution Management

CREDIT HOURS: 3
The course will explore the mathematical models in distribution management, and the relationship between theoretical advances and useful applications. The following topics will be covered: location problems, vehicle routing and scheduling with multiple constraints, dynamic routing & scheduling, implementation strategies. Students will be required to undertake a project in solving a distribution management problem.

IENG 6924 Capital Investment and Capacity Expansion Planning

CREDIT HOURS: 3
This course involves the use of appropriate decision models to examine problems of capital investment and capacity expansion planning. Single projects under various deterministic criteria, multiple projects with budgetary and non-budgeting constraints, and project selection under uncertainty are all considered. Various aspects of capacity expansion with growing markets and with economics of scale with be examined. Attention will be paid to the role of system operating cost models in making the capacity expansion decision.

IENG 6925 Queueing Theory and Its Applications

CREDIT HOURS: 3
This course deals with basic issues in queueing theory. The emphasis is on classical and modern queueing techniques as well as their applications. Besides elementary queueing systems, it also covers special queueing models that are widely applied in areas such as telecommunication networks, flexible manufacturing systems, computer performance evaluation and stochastic service systems. These models include priority queues, retrial queues, assembly line queues, and queueing networks.
PREREQUISITE: IENG 6916.03 or equivalent

IENG 6947 Dynamic Programming and Stochastic Control

CREDIT HOURS: 3
Dynamic programming is a methodology for modelling and optimally solving multistage decision problems. The methodology has broad applications in a variety of engineering and other fields. The course emphasizes both dynamic programming as a way of modelling and the numerical solution of the resulting dynamic programming models. The focus of the course is on discrete state, discrete time problems but continuous time and continuous state problems are also encountered. The course deals with both finite horizon and infinite horizon problems. In both cases, deterministic problems and various types of stochastic problems are examined.

IENG 6962 Advanced Topics in Maintenance Engineering and Management

CREDIT HOURS: 3
This class deals with graduate level topics in design, modelling and optimization of reliability and maintainability, and design of maintenance systems. Topics may include; general repair models with partial repari and imperfect maintenance, CBM methods, and the use of mathematical models int he development of a mintenance information system.
PREREQUISITE: ENGM 2032.03, ENGM 2022.03, and one of MECH 4900.03, IENG 4548.03, ECED 3600.032 or equivalent or instructor permission

IENG 6990 Directed Studies in Industrial Engineering I

CREDIT HOURS: 3

This course is offered to students enrolled in a Masters program in Industrial Engineering who wish to gain knowledge in a specific area for which no appropriate graduate level courses are offered. Each student taking this course will be assigned a suitable course advisor. The student will be required to present the work of one term (not less than 90 hours in the form of directed research, and individual study) in an organized publication format and may, at the discretion of the advisor, be required to take a formal examination.

IENG 7990 Directed Studies in Industrial Engineering II

CREDIT HOURS: 3

This course is offered to students enrolled in a PhD program in Industrial Engineering who wish to gain knowledge in a specific area for which no appropriate graduate level courses are offered. Each student taking this course will be assigned a suitable course advisor. The student will be required to present the work of one term (not less than 90 hours in the form of directed research, and individual study) in an organized publication format and may, at the discretion of the advisor, be required to take a formal examination.

IENG 8500 Meng Project

CREDIT HOURS: 0

A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

IENG 8891 Co-op Work-Term I

CREDIT HOURS: 0

IENG 8892 Co-op Work-Term II

CREDIT HOURS: 0

IENG 8893 Co-op Work-Term III

CREDIT HOURS: 0

IENG 8894 Co-op Work-Term IV

CREDIT HOURS: 0

IENG 9000 Master’s Thesis/Project

CREDIT HOURS: 0

IENG 9530 PhD Thesis

CREDIT HOURS: 0

Information Management

Location:
Building/Room: Kenneth C. Rowe Management Building
Street Address 1: 6100 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3656
Fax: (902) 494-2451
Website: dal.ca/SIM
dal.ca/MIM
dal.ca/MLIS
Email Address: sim@dal.ca

Introduction

The goal of the Master of Library and Information Studies Program is to provide qualified candidates with graduate education which equips them for careers as leaders in the information professions.

The student is introduced to the development and significance of information management wherever it is practiced, to the underlying principles of the profession, and to the techniques of information organization, analysis, retrieval, and use. Each student is challenged to explore and question through a curriculum which attempts to balance professional studies with supervised practical experience and advanced academic study or individual research.

Staff

Director of School

Toze, S.

Administrative Staff

Humes, K., BPR (MSVU), Administrative Assistant
Watson, J., MSLIS (Long Island Univ), MLIS Program Coordinator

Professor Emeritus

Dykstra Lynch, M., BA (Calvin), MLS (Dalhousie), PhD (Sheffield)

Professors

Black, F. A., BEd (Aberdeen), MLIS (Dalhousie), PhD (Loughborough). Print culture, GIS applications for historical research, professional development for information professionals
MacDonald, B. H., BSc (Acadia), MA, MLS, PhD (UWO). Diffusion and use of information by scientists/engineers, history of print culture, research methodology, bibliography of scientific/technical information

Associate Professors

Howard, V., BA, MA (UBC), MLIS (Dalhousie), PhD (Wales-Aberystwyth). Literature for children, literature for young adults, information behavior
Spiteri, L., BA, MA (York), BEd (Toronto), MLIS (UWO), PhD (Toronto). Thesaurus construction, classification, indexing, metadata, social tagging

Assistant Professors

Lawson, K., BA (Toronto), MA (York), PhD (Toronto)
McCay-Peet, L., BA, MLIS, IDPhD (Dalhousie), PDF (UWO)
Smit, M., BCSc, MCSc (Dalhousie), PhD (Alberta), PDF (York)
Toze, S., BA (Queen's), MLS (Toronto), PhD (Dalhousie). Information use in corporate settings, professional competencies for special librarians

Lecturer

Bannister, P., BA, BEd, MA (Memorial)
Barrett, C., BMus (Acadia), MLIS (Dalhousie)
Boxall, J., BA, BEd (St. Mary's), MA, MLIS (Dalhousie)
Grek Martin, J., BA, MSc (Wisconsin), MLIS (Dalhousie). Geospatial information, visualization and mental imagery, multimedia representation or information and cognition
Makani, J., BA (Zimbabwe), MLIS, MBA, PhD (Dalhousie)
Mosquera, G., AALA (Ecuador), BIT (Clayton State Univ), MEC, PhD candidate (Dalhousie)

Adjunct (FGS)

Gruzd, A., BS, MS (Ukraine), MSLIS (Syracuse), PhD (Illinois)
MacDonald, J., BSc (MSVU), MLIS (Dalhousie), PhD (Sheffield)
McKenna, P., BA (Toronto), BEd (ON Institute of Studies in Ed), MA, MLS (Toronto)
Wells, P., BSc (McGill), MSc (Toronto), PhD (Guelph)

Students seeking further information or help in planning courses of study in the School of Information Management should contact:

MLIS Program Coordinator
School of Information Management
Room 4010

MIM Admissions Officer
Centre for Advanced Management Education
Room 3100
Faculty of Management
Dalhousie University
Kenneth C. Rowe Management Building
6100 University Avenue
PO Box 15000
Halifax, NS B3H 4R2

Admission Requirements/Deadlines

The School functions within the Faculty of Graduate Studies and its entrance requirements meet the standards of this Faculty. Candidates for the MLIS must hold a four-year Bachelor's Degree with at least a second class standing (B average, 3.0 GPA) from a university recognized by the Senate of Dalhousie University. An academic level of a high B+ (3.3 GPA) or better is generally held by successful applicants.

Although our application deadline is April 1, SIM accepts applications throughout the year. Early applications are strongly recommended.

The MLIS Program is designed for fall admission. In special circumstances, the School may admit, in January, applicants who transfer from another Library and Information Studies (LIS) program, or applicants with considerable experience in the field.

Candidates whose mother tongue is NOT English are required to demonstrate a working and a reading knowledge of English. A TOEFL score of 600, 250 for computerized testing, or a score of 100 on the TOEFL Internet-based Test (TOEFL IBT) and 5.5 for the TWE, a MELAB score of 95, an IELTS score of 8.0, a CAEL score of 70, or the General Certificate in Education in the English Language at the Ordinary or Advanced Level are acceptable.

The language competency test may be waived if the applicant has completed a degree at a recognized university where the language of instruction is English; claims for this waiver must be verified by the Registrar's Office of Dalhousie University.

Application Deadlines

September Admissions

- January 1: Deadline for International applications
- March 1: Deadline for scholarship consideration
- April 1: Deadline for all Canadian applications

(All applicants are strongly advised to apply earlier)

For Master of Information Management admission deadline dates, please refer to section II part E.

Master of Library and Information Studies (MLIS)

The degree of Master of Library and Information Studies is awarded upon satisfactory completion of:

1. 48 credit hours -- 24 credit hours of required courses and 24 credit hours of electives (three credit hours of which must be an advanced technology course)
2. INFO 0590: Practicum (e.g. work placement of 100 hours)
3. In addition, students are strongly encouraged to attend the array of professional, research and networking opportunities provided by the School and the broader Faculty of Management.

Two-Year Program

Full-time attendance during the Fall and Winter terms for two years.

Part-Time Program

The degree is to be completed within seven years. Each calendar year, a part-time student may take no more than 15 credit hours offered by Dalhousie University. In the first year a focus on required courses is beneficial.

Master of Library and Information Studies/Juris Doctor (MLIS/JD)

A four-year course of study leading to the combined degrees Master of Library and Information Studies (MLIS) and Juris Doctor (JD). A total of 36 credit hours of MLIS courses and 79 to 83 JD credit hours are needed to complete the MLIS/JD program.

Students who apply for the combined MLIS/JD program must meet the admission standards for both the Schulich School of Law and the School of Information Management.

For further information about this program contact the MLIS Program Coordinator, School of Information Management, and/or the Director, Admissions and Career Development, Schulich School of Law.

Master of Library and Information Studies/Master of Public Administration (MLIS/MPA)

A three-year full-time course of study leading to the degrees Master of Library and Information Studies and Master of Public Administration. A total of 81 credit hours (36 MLIS and 45 MPA) are needed to complete the MLIS/MPA program.

Applicants must gain separate and independent admissions to both Schools. For further information contact the MLIS Program Coordinator or the MPA Graduate Coordinator.

Master of Library and Information Studies/Master of Resource and Environmental Studies (MLIS/MREM)

A 28 month course of study leading to the combined degrees Master of Library and Information Studies and Master of Resource and Environmental Management (MLIS/MREM). A total of 66 credit hours (27 MLIS, 18 MREM plus 21 credit hours of electives) are needed to complete the MLIS/MREM Program.

Applicants must gain separate and independent admission to both Schools. For further information contact the MLIS Program Coordinator or the MREM Program Coordinator.

Master of Information Management (MIM)

The Master of Information Management (MIM) is a part-time program designed for mid-career professionals "with at least five years' experience" in the private, public or NGO sectors. It is a part-time program offered primarily by distance complemented with face-to-face intensives.

Students earn a Certificate in IM after successfully completing 12 credit hours (equivalent to three full part I and part II courses), and a Graduate Diploma in IM after successfully completing 24 credit hours (equivalent to six full part I and part II courses).

The Master of Information Management (MIM) degree requires 36 credit hours for completion (nine courses of four credit hours each: three for online component and one for intensive component). Eight required and one elective. Students must complete the program requirements in seven years from date of admission.

MIM application deadline

Fall: June 1
Winter: October 31
Spring: February 28

For further information about this program contact the Centre for Advanced Management Education at Cfame@dal.ca

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

MLIS (INFO Courses)

Required courses are numbered INFO 0590, MGMT 5000, INFO 5500 - INFO 5570, INFO 5590 and INFO 6540; all other 6000 courses are electives. All courses with the '0' prefix are non-credit. Not all 6000 level courses are offered each year. The curriculum has been organized with sufficient flexibility to allow students to pursue an individual research project, or to develop a subject specialty through reading courses or the thesis option.

SIM students are encouraged to take graduate-level courses offered outside SIM, and may take a maximum of 12 credit hours outside the School. Advance approval must be obtained from the course instructor and the MLIS Program Coordinator or the Director of SIM.

Course Descriptions-INFO

INFO 0590 Practicum

CREDIT HOURS: 0

Enables the student to test and evaluate class theory, to contribute by actual participation, and to explore areas of particular interest for course specialization and future employment. Placements are arranged in consultation with the MLIS Program Coordinator. (100 hours, Non-credit). Full details are provided in the Practicum Guide. (http://www.dal.ca/faculty/management/school-of-information-management/current-students-site/practicum-guide.html)

INFO 5500 Information in Society

CREDIT HOURS: 3

Provides an introduction to the economic, political, and social dimensions of an information-rich environment. Includes consideration of the historical development of library and information studies, knowledge production, issues of control versus free flow of information, the social organization of knowledge, and the ethical and legal aspects of information services.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 5515 Organization of Information

CREDIT HOURS: 3

Introduces the theory and applications of information organization. Primary topics include: describing and representing information in various media; subject classification theory and techniques; authority control; controlled vocabulary; indexing fundamentals; and relation of organization to information retrieval systems. Traditional, library-oriented and more recent computer-based techniques, tools, and theories are examined.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 5520 Research Methods

CREDIT HOURS: 3

Information professionals require knowledge of formal research processes in order to support the goals of their organization by contributing to evidence-based decision-making. This course introduces fundamental concepts of research, the nature and uses of research, tools and methods (both quantitative and qualitative), handling of evidence, analysis and interpretation of findings, reporting of results, evaluation of published reports, and the practice and management of research.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA/, MLIS/MREM

INFO 5530 Information Sources, Services & Retrieval

CREDIT HOURS: 3

Offers both a theoretical and a practical introduction to information services. Discusses users and their information-seeking behaviours, major categories of reference resources and how best to match appropriate resources to the user via effective reference interviews. Explores evaluation techniques and uses of reference resources in various formats. Includes strategies of online searching both in specialized databases and the Web.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 5570 Organizational Management & Strategy

CREDIT HOURS: 3

Introduces management theories and practices for organizational functions occurring in any type of information setting. Examines all elements involved in effective strategic planning, implementation and management including personnel, budgeting, and change management. Discusses evaluation methods for all information centre functions. Introduces techniques relevant for training and development issues, policy and procedure writing, requests for proposals (RFPs), etc.

PREREQUISITE: INFO 5530.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 5590 Information Management Systems

CREDIT HOURS: 3

In Information Management Systems we will investigate a wide range of current issues in information technology, information systems, and web-based applications with a particular emphasis on mobile and social media applications and services. We will also explore the principles of user interface design, systems analysis, information needs analysis, information systems requirements and project planning. Finally, we will examine how modern information and communication technologies (ICTs) have been and are changing the way we communicate, collaborate, share information, innovate, perform, socialize and work, and how these technological changes are affecting the role and functions of information managers in the public and private sectors.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6070 Reading and Reading Practices

CREDIT HOURS: 3

This seminar course will examine theories of reading from social, psychological and literary perspectives. The course will discuss literary practices and the evolution of the concept of literacy in an era of cultural and technological change.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6100 Information in Public Policy and Decision Making

CREDIT HOURS: 3

This course addresses the role(s) of information in policy and decision-making at local, national, and international levels. Evidence-based policy making is relatively new and challenging. This course examines the research-policy interface, especially enablers and barriers to use of information of several domains, and uses case studies to illustrate concepts.

FORMAT:

CROSS-LISTING: PUAD 6150.03, ENVI 6100.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6150 History of the Book

CREDIT HOURS: 3

Explores the history of the book from its early beginnings to its present manifestations. While greatest emphasis will be placed upon the history of the book from the mid-15th century to the present, the course will also discuss the history of important precursors of mechanical printing, and literacy, books, and manuscripts in the ancient and medieval periods.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6250 Services and Resources for Young Adults

CREDIT HOURS: 3
Introduces the social, intellectual and psychological nature of adolescence, with respect to reading, listening and viewing interests.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6300 Government Information Resources

CREDIT HOURS: 3
Examines the structures of governments and the ways in which they produce information for their own use and for the general public. Emphasis is placed on the nature and scope of Canadian, American, and British government information as well as information of intergovernmental agencies such as that of the United Nations. Acquisition, organization, access, use and evaluation of government information are considered.
CROSS-LISTING: MGMT 4300.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6310 Resources for Business Intelligence

CREDIT HOURS: 3
Examines the value of information in a competitive environment from the perspectives of various types of business information, cost and management of information, developments on the Internet, and the role of governments. In addition, discerning client needs and packaging of information for client use are considered.
PREREQUISITE: INFO 5530.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6320 Legal Literature and Librarianship

CREDIT HOURS: 3
An introduction to the major sources of Canadian legal information, and the fundamental principles, issues, and practices in law librarianship.
PREREQUISITE: INFO 5530.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6330 Cataloguing and Classification I

CREDIT HOURS: 3
This course focuses on theoretical and practical considerations involved in metadata records creation for published monographs. Major descriptive codes such as the Anglo-American Cataloguing Rules, the International Standard for Bibliographic Description, Library of Congress Subject Headings, Dewey Decimal Classification, and the Library of Congress classification will be examined.
PREREQUISITE: INFO 5515.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6340 Cataloguing and Classification II

CREDIT HOURS: 3
Course focuses on theoretical and practical considerations regarding metadata records creation for published non-book media. Major descriptive codes (Anglo American Cataloguing Rules, International Standard for Bibliographic Description, Dewey Decimal Classification, Library of Congress Classification, Functional requirements for Bibliographic Resources, and Resource Description and Access) will be examined.
PREREQUISITE: INFO 5515.03, INFO 6330.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6350 Indexing and Abstracting

CREDIT HOURS: 3
Presents the principles of subject analysis and development of thesauri, as well as indexing and abstracting systems. Provides practice in the principles and methodologies used in thesaurus construction, periodical indexing, back-of-the-book indexing, Web indexing, abstracting, and automatic indexing and abstracting.
PREREQUISITE: INFO 5515.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6370 Records Management [Online]

CREDIT HOURS: 3
A comprehensive introduction to the field of records and information management. Topics covered include: records creation, evaluation, maintenance and control; issues relating to the maintenance, storage and disposition of records; and electronic records management.
PREREQUISITE: INFO 5515.03 or MGMT 5502.03
CROSS-LISTING: MGMT 5012.03, MGMT 4370.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6400 Knowledge Management

CREDIT HOURS: 3
Surveys the latest knowledge Management theories and practices from information science, management, cognitive/educational psychology and computer science. Focuses on the nature of knowledge construction by examining the identification, capture, application and sharing of organizational knowledge, cognitive techniques and the technological systems that facilitate these processes.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6450 Services and Resources for Children

CREDIT HOURS: 3
Examines the reading and viewing interests of children. Topics covered include a brief overview of developmental psychology, the history of children's literature, developing successful library programmes for children and their caregivers, building the children's library collection, and enhancing children's visual literacy.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6500 Users and Services

CREDIT HOURS: 3

Explores both sides of the users and services equation, focusing on profiling specific user groups, exploring the methods and tools used in community analysis and service evaluation, and determining the manner in which a proper fit or match may be achieved.

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6513 Business Analytics and Data Visualization

CREDIT HOURS: 3

This course provides an introduction to Business Analytics and Data Visualization. It covers the processes, methodologies and practices used to transform the large amounts of business and public data into useful information to support business decision-making. Students will learn how to extract and manipulate data from these systems. They will also acquire basic knowledge of data mining and statistical analysis, with a focus on data visualization. The students will also learn to build and use management dashboards and balanced scorecards using a variety of data design and visualization tools. The course will be made up of a combination of conceptual and applied topics with classes being held in a computer lab. Technologies to be used will be focused on end-user analytics and data visualization and will include state of the art tools for self-serve business analytics

CROSS-LISTING: BUSI 6513

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6540 Data Management

CREDIT HOURS: 3

Introduces the theory and practice of managing data, covering technology-driven solutions to the challenges of storing, curating, and retrieving unstructured, semi-structured, and structured data. Topics include tabular data, assessing data management requirements, data models and schemas, relational database management systems, SQL, post-relational DBMSs, Big Data, and visualization.

PREREQUISITE: IT Competencies listed in Admissions Requirements

CROSS-LISTING: MGMT 4540.03, BUSI 6516.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6560 Information Resources Management

CREDIT HOURS: 3

Examines information resources management (IRM) theories and methods, including exploration of issues associated with the information marketplace, resource evaluation and acquisition, policies, budget allocation, and vendor and user relations.

RESTRICTIONS: MLIS, MLIS/JD. MLIS/MPA, MLIS/MREM

INFO 6610 Information Policy

CREDIT HOURS: 3

Explores, in a graduate seminar setting, a range of issues currently facing information professionals and the effect of these issues on policy development. Discusses the roles of all levels of government, the private and not-for-profit sectors, and key individuals in developing policies which affect information creation, control, access, and use. Focuses on Canadian issues, and includes international affairs as appropriate to the information society.

CROSS-LISTING: MGMT 4611.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6620 Web Design and Architecture

CREDIT HOURS: 3

Examines the theories, techniques and processes used to create, structure, and deliver electronic text. Topics include writing and design for the web, information architecture, and document analysis for digitization. Focuses on practical experience with HTML and CSS, TEI standards, XML, and XSLT.

CROSS-LISTING: MGMT 4620.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6630 Designing Interaction with Information Systems

CREDIT HOURS: 3

Explores how technology affects human use, and examines the process from conception of an idea to design and evaluation, with a particular emphasis on Web-based activities.

CROSS-LISTING: BUSI 6525.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6640 Expert Searching for Clients

CREDIT HOURS: 3

Explores the principles and methods involved in the retrieval of information from online databases. Topics discussed include the organization and structure of online databases, the formulation of search strategies, the evaluation of the content and search interfaces of online databases, and the management of online search services.

PREREQUISITE: INFO 5515.03, INFO 5530.03

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6650 Academic Classes

CREDIT HOURS: 3

Available by arrangement with the Director.

NOTE: Course Details listed here also apply to INFO 6680.

INFO 6681 Geospatial Information Management

CREDIT HOURS: 3

Spatial Information is the air and water that makes mapping and spatial analysis possible. Mobile applications using maps are some of the most popular and often used web-based applications; they are also cloud based which added another layer of management issues. Maps, GIS and the use of spatial information have never been more popular or public. This course addresses the effective management of spatial information. The course covers principles and practices associated with metadata, GIS, licensing, spatial information databases, map libraries and archives, spatial data infrastructures and web-based delivery of products and services, as well as distributed

systems such as geolibraries, ‘digital earth’ and the development of the 'spatial cloud'. This course is geared towards the manager who seeks to deploy services associated with spatial information and effectively develop an enterprise approach to managing spatial information. The course will also provide hands-on experience in using GIS and related technologies so as to be able to better understand how to deploy services, especially over the web.
PREREQUISITE: INFO 5515.03
CROSS-LISTING: MGMT 4681.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6682 Human Information Interaction

CREDIT HOURS: 3
This course will examine information seeking behaviour in a variety of settings (healthcare, private and public organizations, academic institutions, etc.), individuals and groups information seeking and use in these contexts, and the theories and models of information seeking behaviour that explore and explain information behaviour.
PREREQUISITE: INFO 5520.03 and INFO 5530.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6700 Reading Course

CREDIT HOURS: 3
Provide students with the opportunity to develop a specific interest in the library/information studies field by studying an aspect of a topic in greater detail than is possible within an existing course, studying an area not currently covered by the curriculum, or conducting a research study or special project. Available by arrangement with the Director.
PREREQUISITE: MLIS or combine MLIS degree students, who have completed at least four three-credit graduate-level courses, with a grade point average of 3.3 (B+) or higher, are qualified to consider a reading course. Interested students must make an appointment with the SIM Director prior to embarking on a reading course.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6710 Reading Class

CREDIT HOURS: 3
See INFO 6700.

INFO 6750 Health Sciences Literature & Information Sources

CREDIT HOURS: 3
Introduces students to the concepts and practice of health science librarianship with particular emphasis on the various print and electronic reference sources in the health sciences.
PREREQUISITE: INFO 5530.03
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6800 Archives

CREDIT HOURS: 3
Provides an overview of the issues and practices of archival science, with emphasis on Canadian approaches. Considers principles of acquisition, arrangement, description, reference and use of archival records, along with the management of archives and the relationship between archival work and other divisions of the information professions.
PREREQUISITE: INFO 5515
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6810 Managing Information Literacy Instruction

CREDIT HOURS: 3
This course introduces selected theories and methods for managing processes designed to educate students, patrons, and clients in information research skills. Concepts covered relate to the design, implementation, evaluation, and management of instructional programs for a wide array of clients/patrons. Lectures and discussions include relevant theories of learning and a consideration of how these approaches may be effectively managed for client instruction.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6840 Content Management Systems

CREDIT HOURS: 3
Introduces the requirements and technologies of networked library systems. Follows the evolution of the digital library and its impact on information dissemination. Examines issues and trends influencing the development and structure of digital libraries.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 6850 Special Topics in Information Management

CREDIT HOURS: 3
Builds on topics introduced in required courses, particularly those dealing with applications of information technology in information management. This course will take a more in-depth look at the major topics in the field. The content will change rapidly as the field progresses. Current topics include: information ethics, design of usable information systems, digital media, network design, electronic communication, software lifecycle management, and design of an information-based organization.

INFO 9000 Thesis

CREDIT HOURS: 6
Available by arrangement with the Director. The Thesis option replaces four of the School’s electives.
RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

INFO 9003 Thesis Continuing

CREDIT HOURS: 0

RESTRICTIONS: MLIS, MLIS/JD, MLIS/MPA, MLIS/MREM

MGMT 5000X/Y Management Without Borders: A Foundation Course for Masters Students in Management

CREDIT HOURS: 3

This course places management in its broadest context and helps students from diverse disciplines 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, responsible leadership, sustainable economic development, stakeholder theory, risk management and knowledge management. A significant portion of the course is devoted to interdisciplinary / inter-professional group work. Students from different programs are brought together to work with a Nova Scotia organization that has identified a relevant and timely project topic for the group. The project provide students with the opportunity to hone important skills in team dynamics, inter personal communication, project management, managing scope and ambiguity, information gathering, research and writing professional reports. The course is team taught by leading faculty from across the Faculty of Management as well as guest speakers. Learning opportunities are delivered in a mix of formats, including lectures, tutorials, readings, multidisciplinary cases and group discussions.

FORMAT: Lecture| Tutorial

Course Descriptions-MGMT

MGMT 4611 Information Policy

CREDIT HOURS: 3

Explores, in a graduate seminar setting, a range of issues currently facing information professionals and the effect of these issues on policy development. Discusses the roles of all levels of government, the private and not-for-profit sectors, and key individuals in developing policies which affect information creation, control, access, and use. Focuses on Canadian issues, and includes international affairs as appropriate to the information society.

MGMT 5000X/Y Management Without Borders: A Foundation Course for Masters Students in Management

CREDIT HOURS: 3

This course places management in its broadest context and helps students from diverse disciplines 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, responsible leadership, sustainable economic development, stakeholder theory, risk management and knowledge management. A significant portion of the course is devoted to interdisciplinary / inter-professional group work. Students from different programs are brought together to work with a Nova Scotia organization that has identified a relevant and timely project topic for the group. The project provide students with the opportunity to hone important skills in team dynamics, inter personal communication, project management, managing scope and ambiguity, information gathering, research and writing professional reports. The course is team taught by leading faculty from across the Faculty of Management as well as guest speakers. Learning opportunities are delivered in a mix of formats, including lectures, tutorials, readings, multidisciplinary cases and group discussions.

FORMAT: Lecture| Tutorial

MGMT 5001 Information, People and Society. Part 1

CREDIT HOURS: 3

This course provides an introduction to the economic, political, and social dimensions of an information-rich environment. Includes consideration of the historical development of information and knowledge production, issues of control versus free flow of information management in support of situational understanding and decision-making, the organization of knowledge, and the ethical and legal aspects of information management.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5002 Organization of Information, Part 1

CREDIT HOURS: 3

Information management is the management of organizational processes and systems that acquire, create, organize, distribute, and use information. This course examines the various means by which information can be organized to facilitate its retrieval, management and use, and provides an overview of the principles and theories of metadata development and implementation in the digital environment. Emphasis will be placed on metadata interoperability, vocabulary control, standardization, quality control and evaluation. Contextually-relevant information is essential to support decision making and strategic planning by individuals, groups and organizations. An introduction to the principles of IA is included, as they interconnect with best practices in the Organization of Information.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5003 Information Systems & Technologies, Part 1

CREDIT HOURS: 3

This course makes clear the relationship between IT and IM, often misconstrued in organizations. The course includes theories of databases and integrated systems design, allied with practical applications of a wide range of information technologies to support organizational goals. These include traditional intranet and extranet applications along with emerging Web 2.0 technologies. Concepts of information architecture (IA) are introduced relating to the design of shared information environments which are often web-based, including intranets, databases and online communities. The practices of IA are examined through analyses of real organizations and how the information environment can best serve their mission, goals, processes, clients, suppliers and other stakeholders.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5004 User Experience, Part 1

CREDIT HOURS: 3

Understanding of theories and practices of human computer interaction is a key determinant of organizational success. This course explores how technology affects human use, and examines the process from conception of an idea to design and evaluation, with a particular emphasis on Web-based activities. The course discusses individuals' and groups' information seeking behaviours in public and private contexts, and the theories and models of information seeking behaviour that contribute to a nuanced understanding of the user experience.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5005 Information Policy, Part 1

CREDIT HOURS: 3

This course explores a range of critical information issues facing organizations and the effects of policies and legislation on information management and organizational effectiveness. Topics include access to information, freedom of information, protection of privacy, preservation of information, etc. Professional ethics guiding information professionals are discussed alongside compliance. By law(s) in Canada, all government and corporate entities are required to appoint an individual responsible for privacy within the organization, and all government and selected other agencies are required to delegate staff responsible for information access and privacy. Discusses the roles of all levels of government, the private and not-for-profit sectors, and key individuals, in developing policies which affect information

creation, control, access and use. Focuses on Canadian issues, while including international perspectives.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5006 Program Evaluation, Part 1

CREDIT HOURS: 3
Introduces the concepts and components of evaluation as part of the increasing demand for accountability and as an integral part of program management. The course uses evaluation theory and program theory as the basis for all evaluation activity. Connection will be made with current evaluation issues and debates in the public and non-profit sectors.

MGMT 5007 Research Methods, Part 1

CREDIT HOURS: 3
Introduces concepts, methods (both quantitative and qualitative), and the practices of research that support evidence-based information management practice. Addresses the nature and uses of research, tools for research, handling of evidence, analysis and interpretation of findings, reporting of results, evaluation of published reports, and the management of research.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5008 Knowledge Management, Part 1

CREDIT HOURS: 3
Knowledge management (KM) encompasses a range of theories and practices relating to the creation, identification, accumulation and application of knowledge to meet organizational goals. This course discusses theories of KM, intellectual capital and learning organizations, and practices for efficient and effective harnessing of organizational knowledge. An integrative approach is adopted, based on the key KM theories and concepts developed in the past decade and applying them across a wide range of organizational settings.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5009 Collaboration, Part 1 (Elective)

CREDIT HOURS: 3
Geographically dispersed workplace teams who cross time, space and organizational boundaries are increasingly common. Information managers increasingly contribute expertise to ensure that such teams have effective decision-making processes and contribute to organizational strategic goals. Virtual collaboration can take place through many modes including audio or teleconferencing, online communities and others. Team members have a common purpose and interdependent organizational and performance goals. This course introduces theories and concepts relating to the rationale for, benefits and challenges of virtual workplace teams, steps for developing effective virtual teams and examples of technology that supports such teams.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5010 Project Management, Part 1 (Elective)

CREDIT HOURS: 3
This course introduces theories and practices of project management (PM) related to project objectives, development stages and control variables such as time, cost and scope. PM stages include initiation, development, execution and maintenance and the course explores these through workplace case studies related to students' professional experience. Adaptive as well as pre-planned methods and approaches are explored, including process based systems, critical path and event chain.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5012 Records Management, Part 1 (Elective)

CREDIT HOURS: 3
How organizations engage in document or records management has a direct bearing on their efficiency and effectiveness, including legal and ethical compliance. The course offers a comprehensive introduction to the field of records and information management in all formats including, but not limited to, paper and digital. Topic covered include: records creation, evaluation, maintenance and control; records classification system; records retention; records disposition; and vital records and continuity planning.
FORMAT: Lecture| Discussion| Online Delivery
PREREQUISITE: MGMT 5002.03
CROSS-LISTING: INFO 6370.03

MGMT 5015 Information Policy, Part 2

CREDIT HOURS: 1
Course complements MGMT 5005.03 Part 1 and is a face-to-face, two day intensive period. Course will allow students to bring together and apply the concepts and materials from MGMT 5005, consider the international context within which information policy issues in Canada are situate, and to provide students with the opportunity for sufficient grounding in relevant areas of law.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5005.03

MGMT 5020 Capstone Course, Part 1

CREDIT HOURS: 3
Based on individual learning objectives, students may choose either a case study or a research project as the final assessed item for the Program Structure. They will have been advised, in light of their interests, to take either MGMT 5006 or MGMT 5007 as preparation for the Capstone. Students work with an advisor, under the general supervision of the course instructor, to complete a case or a project of special relevance to their workplace. Cases and projects are assessed on the extent to which they demonstrate application of the theories and techniques explored throughout the program.
FORMAT: Lecture| Discussion| Online Delivery
PREREQUISITE: MGMT 5006.03 or MGMT 5007.03

MGMT 5101 Information, People and Society, Part 2

CREDIT HOURS: 1
Course complements MGMT 5001: Part 1 and is a face-to-face, two day intensive period. Course will outline and emphasize options and strategies to address information management issues arising in the context of topics considered in MGMT 5001 and developed from IM case studies. [A take home exam will be completed following the onsite intensive.]
FORMAT: Lecture| Discussion

COREQUISITE: MGMT 5001.03

MGMT 5102 Organizational of Information, Part 2

CREDIT HOURS: 1
Course complements MGMT 5002: Part 1 and is a face-to-face, two and a half day intensive period. Course will focus on practical applications of theories learned in MGMT 5002, notably metadata standards and document content management systems. [A take home test will be completed as part of this intensive.]
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5002.03

MGMT 5103 Information Systems and Technology, Part 2

CREDIT HOURS: 1
This course complements MGMT 5003 and is a face-to-face, two and a half day intensive period. Course will focus on the practical applications of theories learned in MGMT 5003, notably working in an "always on" information environment, business intelligence, influences of the "mash-up" and social networking.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5003.03

MGMT 5104 User Experience, Part 2

CREDIT HOURS: 1
Course complements MGMT 5004 and is a face-to-face, two day intensive period. Course will build on knowledge gained during the online course MGMT 5004. Students will learn and practice effective ways to present plans and findings from usability studies, and work as a team during a mock UCD process.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5004.03

MGMT 5105 Government Structure and Organization

CREDIT HOURS: 3
This course focuses on the Canadian system of government and addresses basic organizational theory and design as well as fundamental issues of public management.
FORMAT: Online Delivery

MGMT 5106 Program Evaluation, Part 2

CREDIT HOURS: 1
Course complements MGMT 5006 and is a face-to-face, two day intensive period. Course will build on knowledge gained during the online course MGMT 5004. Students will learn and practice effective ways to present plans and findings from usability studies, and work as a team during a mock UCD process.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5006.03

MGMT 5107 Research Methods, Part 2

CREDIT HOURS: 1
Complements MGMT 5007 which introduces concepts, methods (quantitative and qualitative), and the practices of research that support evidence-based information management practice. Addresses the nature and uses of research, tools for research, handling of evidence, analysis and interpretation of findings, reporting of results, evaluation of published reports, and the management of research.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5007.03

MGMT 5108 Knowledge Management, Part 2

CREDIT HOURS: 1
This two day intensive compliments the online course MGMT 5008-Knowledge Management, Part 1, that defines the theoretical & practical applications of knowledge management as it applies to organizational growth and development. The course elaborates on the identification, creation, accumulation and application of information as it is transformed to intellectual capital for learning organizations.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5008.03

MGMT 5109 Collaboration, Part 2 (Elective)

CREDIT HOURS: 1
Course complements MGMT 5009: Part 1 and is a face-to-face, two day intensive period. Course will help students apply the theories and concepts learned in MGMT 5009 through the examination of case studies of collaboration. Students will be LED through the process of choosing an appropriate technology and devising an implementation plan within their own organization.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5009.03

MGMT 5110 Strategic Management in the Public Sector

CREDIT HOURS: 3
This course explores the concepts, potential and dynamics of strategic management in modern public administration. A wide variety of management instruments and techniques are analyzed.
FORMAT: Online Delivery

MGMT 5112 Records Management, Part 2 (Elective)

CREDIT HOURS: 1
How organizations engage in document or records management has a direct bearing on their efficiency and effectiveness including legal and ethical compliance. This course offers a comprehensive introduction to the field of records and information management in all formats including, but not limited to, paper and digital. Topics covered include: records creation, evaluation, maintenance and control; issues related to the maintenance, storage and disposition of records.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5012.03

MGMT 5120 Capstone Course, Part 2

CREDIT HOURS: 1
This two-day intensive session will include an in-class critical evaluation exercise relating to the MIM program's learning objectives and students' perceived learning outcomes. The remainder of the intensive will involve student presentations of their projects followed by question and answer sessions.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5020.03

MGMT 5125 Policy Formulation & Analysis

CREDIT HOURS: 3
This course covers the techniques, theory and contextual underpinnings central to effective policy management. The course explores strategic approaches to policy design and the role of the policy analyst in modern government.
FORMAT: Online Delivery

MGMT 5135 Managerial Economics

CREDIT HOURS: 3
This course elucidates basic microeconomic theories and principles and applies these to economic decision making. The course increases understanding of the relationship between economic theory and economic policy.
FORMAT: Online Delivery

MGMT 5140 Public Economics

CREDIT HOURS: 3
Introduces the basic principles of public finance and macroeconomics. The role of risk analysis in public sector decision-making is also explored. The course places a special emphasis on the role of government in the economy and on the application of economic theory in public policy analysis within the framework of the Canadian federation.
FORMAT: Online Delivery
CROSS-LISTING: PUAD 5140.03

MGMT 5146 Research Methods

CREDIT HOURS: 3
This course provides a practical setting for understanding the purchase, management and evaluation of research products. Applied research methods, research services and best practices are discussed in depth.
FORMAT: Online Delivery

MGMT 5155 Financial and Managerial Accounting

CREDIT HOURS: 3
This course reviews each of the forms of accounting and financial data that public sector managers will be faced with now – and in the future. The essential concepts of financial and managerial accounting are comprehensively reviewed.
FORMAT: Online Delivery

MGMT 5160 Modern Comptrollership

CREDIT HOURS: 3
This course focuses on the public policy and management issues of governance. It emphasizes development of the skills necessary to assess financial management approaches, develop business plans and implement performance measurement.
FORMAT: Online Delivery

MGMT 5210 Project Management, Part 2

CREDIT HOURS: 1
This onsite intensive complements the distance portion of this course (MGMT 5010), the description and goals for which are provided separately.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5010.03

MGMT 6400 Municipal Government

CREDIT HOURS: 3
The course looks at local government's position in the broader public governance structure, its powers and responsibilities, structure and resources interaction with the public, and advocacy role. The course emphasizes the municipal manager's perspective which is to both understand an issue and develop and promote workable solutions for the municipality.
FORMAT: Other (explain in comments)

MGMT 6501 Business and Government

CREDIT HOURS: 3
This course presents the relationship between government and business in North America. It offers a practical approach to understanding the differences in how government and business operate, highlighting the techniques used by each side to influence the other.
FORMAT: Online Delivery

MGMT 6525 Program Evaluation

CREDIT HOURS: 3
This course examines the theory, methods and issues of this growing field. The course emphasizes the skills necessary to assess feasibility of a programme evaluation and to design it. Topics also include underlying values, alternative approaches, and implementation and utilization.
FORMAT: Online Delivery

MGMT 6555 Managing the Information Resource

CREDIT HOURS: 3
This course examines the complex technological changes affecting public administrators. It provides broad-based information about the technological advances underway in Canada and fosters understanding of the opportunities and problems these changes present.
FORMAT: Online Delivery

MGMT 6610 Conflict and Negotiation Management: Personal Practice Foundations

CREDIT HOURS: 3
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.
FORMAT: Lecture| Discussion
CROSS-LISTING: MGMT 4610

MGMT 6650 Human Resource Management

CREDIT HOURS: 3
This course explores the evolving practices and challenges faced by organizations seeking to excel in human resources – an essential determinant of organizational success.
FORMAT: Online Delivery

MGMT 6700 Managing People in Diverse Organizations

CREDIT HOURS: 3
This course explores how managers can deal effectively with human problems in their organizations. Topics include motivation, leadership, communications perception and group dynamics.
FORMAT: Online Delivery

MGMT 6701 Directed Readings

CREDIT HOURS: 1
Provided students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, orconducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6702 Directed Readings

CREDIT HOURS: 1
Provides students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, or conducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6703 Directed Readings

CREDIT HOURS: 1
Provides students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, orconducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6705 Analytical Methods

CREDIT HOURS: 3
This course, an advanced graduate course, investigates public-sector organization, research methods and management practices. It reviews strategies and methods guiding organizational change, renewal and re-engineering.

MGMT 6755 Intergovernmental Relations in Canada

CREDIT HOURS: 3
This course focuses on a wide array of policy areas and uses case studies to demonstrate how intergovernmental issues - such as fiscal federalism and coordination of service delivery - are successfully resolved.
FORMAT: Online Delivery

Interdisciplinary PhD Program

Location:
Building/Room: Henry Hicks Academic Administration Building
Street Address 1: 6299 South Street
Street Address 2: Room 314
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-8078
Fax: (902) 494-8797
Website: idphd.grad.dal.ca
Email Address: idphd@dal.ca

Staff

Director and Graduate Coordinator

Barker, W.

Graduate Secretary

Dorward, M.

Information for Prospective Students

The Interdisciplinary PhD Program is a full-time research-based program designed to meet the needs of an increasing number of mature, experienced students for research opportunities which cut across disciplinary boundaries. Interdisciplinary research integrates the insights of two or more disciplines to advance knowledge and solutions beyond the scope of a single discipline. Within the program's framework, the program of study is customizable to the needs of the student and their research direction. Students take graduate courses across Faculties at Dalhousie and work with faculty members in existing PhD-granting disciplines and other areas. They then complete a set of comprehensive examinations, defend a PhD thesis proposal, and then complete and defend an original research program leading to the doctoral thesis.

Applicants for the program must have demonstrated prior academic excellence. Before applying, prospective students must consult with faculty members in the disciplines relevant to their proposed research program. Particular attention should be paid to the following features of the Interdisciplinary PhD program:

1. Entering students must hold a thesis-based Master's degree or equivalent independent research experience as demonstrated through first-authored publications etc. The cumulative GPA must be 3.7 or greater.
2. The responsibility largely lies with students to organize a unique, genuinely interdisciplinary program of studies with identified supervisor(s) and supervisory committee. The supervisory committee must be fully identified by the second stage of the program’s admissions process.
3. Doctoral programs are designed to produce graduates who are capable of acting as independent investigators. Within that model of increasing independence, the supervisory committee is responsible for defining and supervising the student's overall program of study, including advice on funding, setting and scheduling of comprehensive examinations, the development of a thesis proposal, the research program, thesis-writing and defence.
4. Students should plan their program of study in the context of an overall career goal to ensure that, as far as possible, an appropriate qualification is developed for desired employment upon graduation.

The admissions process for the Interdisciplinary PhD is a three-stage process consisting of: (i) evaluation of academic credentials, (ii) evaluation of interdisciplinary research interests, supervision, and planning, and (iii) applicant interviews. Anyone wishing to pursue admission to the program should plan it within the framework of the following admission process.

1. The student should develop, in consultation with at least one faculty member, a tentative program of proposed study, making sure that it: (a) is truly interdisciplinary, and (b) cannot be completed within the framework of a single discipline.
2. The student, in consultation with the potential supervisor, should prepare a Statement of Interdisciplinary Research Interest.
3. The student should discuss the proposed program with appropriate faculty members and obtain written support from a supervisor and two committee members.
4. The application process is described in detail on the Web at: http://idphd.grad.dal.ca/. Please see that website for details on the documents required for a full application, including: transcripts, Statement of Interdisciplinary Research Interest, program proposal, three letters of reference, letters of support from proposed supervisor and committee members, and other supporting documentation. Please also see the program website

www.idphd.grad.dal.ca for application deadlines.

Because the application process is a lengthy one, prospective students are advised to plan well in advance. Application for external funding by all eligible applicants is strongly advised. Limited university funding may be available.

Admission Deadlines

Deadlines are February 1 for September start, or October 1 for a January or May start.

Program Requirements

Preliminary course work will generally consist of 12 to 18 credit hours chosen from the graduate offerings of the Faculty and may include up to two directed reading courses. During the second year, comprehensive examinations are written in fields appropriate to the topic of research. The number (no more than three) and nature (written, oral, combination of written and oral, or project-based) are decided by the supervisory committee. Soon after comprehensives are passed the student submits a written thesis proposal to the supervisory committee. After successfully defending the written proposal the student works exclusively on the research program leading to the thesis. The finished thesis is presented and orally defended in compliance with the Faculty of Graduate Studies procedures.

For more information contact:
Faculty of Graduate Studies, Dalhousie University
PO Box 15000
Halifax, NS Canada B3H 4R2
Telephone (902) 494-8078
Fax: (902) 494-8797
Email:idphd@Dal.Ca
Website: idphd.grad.dal.ca

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

INTE 7000 Interdisciplinary Directed Studies

CREDIT HOURS: 3

INTE 7005 Research Directed Studies

CREDIT HOURS: 3

The purpose of this course is to provide all Interdisciplinary PhD students with an opportunity within their programs to concentrate on the development of a research proposal. Normally, the student would read broadly, prepare a bibliography of related work, prepare critical analyses of current work, and meet with the supervisor on a weekly basis. Each instance of this course would, however, be designed by the student and his or her supervisor to reflect the interdisciplinary nature of the individual program. The goal of this directed study course is for the student to formulate research questions that may be developed into the formal research proposal. The course would entail both written and oral contributions by the student.

INTE 9530 Doctoral Thesis

CREDIT HOURS: 0

International Development Studies

Location:
Building/Room: Marion McCain Building
Street Address 1: 6135 University Avenue
Street Address 2: Room 3038
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3814
Fax: (902) 494-2105
Website: www.dal.ca/ids
Email Address: idsgrad@.dal.ca

Staff

Chair of Department

Mannathukkaren, N., BA (Bangalor Univ), MA, MPhil (Jawaharlal Nehru Univ), PhD (Queen's)

Graduate Coordinator

Ulicki, T., BA (McGill), MA (St. Mary's), PhD (Sussex)

IDS Faculty

Cameron, J.
Huish, R.
Mannathukkaren, N.
Schnurr, M.
Ulicki, T.

Professor Emeritus

Parpart, J. L. (International Development Studies/History)

Cross-Appointed Faculty

Arthur, P. (Political Science)
Black, D. (Political Science, International Development Studies)
Chircop, A. (Law/Marine Affairs)
Corke, S. -J. (History)
DuBois, L. (Sociology and Social Anthropology)
Fierlbeck, K. (Political Science)
Finbow, R. G. (Political Science)
Fitting, E. (Sociology and Social Anthropology)
Gahagan, J. (School of Health and Human Performance)
Gardiner Barber, P. (Sociology and Social Anthropology)
Harvey, F. (Political Science)
Jackson, L. (School of Health and Human Performance)
Karabanow, J. (Maritime School of Social Work)
Kirk, J. (Spanish)
Kynoch, G. (History)
Lane, P. (Biology)
Mopoho, R. (French)
Murphy, C. (Sociology and Social Anthropology)
Noble, B. (Sociology and Social Anthropology)
Oakley, R. (Sociology and Social Anthropology)
Palermo, F. (Planning)
Tirone, S. (Health and Human Performance)
VanderZwaag, D. (Law)
Willis, O. (International Development Studies)
Wright, T. (Environmental Programs)
Zachernuk, P. (History)

Adjunct (FGS)

Akram-Lodhi, A. H.
Artz, L.
Charles, A.
Darnell, S.
Ervine, K.
Fridell, G.
Kamra, O. P.
Khasnabish, A.
Langdon, J.
Martin, M.
McAllister, R. I.
Mitchell, L.
Musoke, S.
O'Malley, A.
Summerlee, A. J. S.
Tastoglou, E.
Tiessen, R.
Tomlinson, B.
Wilson, J.

Master of Arts (MA)

An interdisciplinary masters degree by course work and thesis which focuses on problems of and prospects for development in the countries and communities of the global South.

The program brings together Dalhousie's considerable resources in development studies - individual, institutional and informational. We offer an innovative degree program based on established graduate courses. In addition to core courses and faculty in International Development Studies, the degree draws heavily, though not exclusively on courses and supervisors in Economics, History, Political Science and Sociology and Social Anthropology. It is offered by the Faculty of Graduate Studies through the International Development Studies Department and has limited enrollment per annum.

This degree exists as an interdisciplinary offering with the following requirements:

1. three credit hours in theory
2. three credit hours in methods
3. Out of the 15 credit hours at least three credit hours should be taken in different discipline
4. The masters thesis counts as 15 credit hours;

5. Thesis committee members can be drawn from IDS core faculty, cross-appointees, adjunct professors or other Dalhousie faculty members. One of the three committee members may come from outside of Dalhousie.

The thesis degree is available on a full and part-time basis. Saint Mary's University offers a similar MA, permitting students from both campuses to take a broader range of offerings and participate in a wider range of events.

Application and Admission

Candidates for admission to the masters degree in International Development Studies should hold an honours degree or equivalent, from a university of recognized standing, in either International Development Studies or a relevant discipline (including, for example, business, economics, environmental studies, history, law, political science, public administration, or sociology and social anthropology) or have completed at least four senior undergraduate courses in one of these disciplines. All candidates for admission must meet the requirements of the Faculty of Graduate Studies.

Some candidates may complete the requirements in a 12-month period of full-time study. In most cases, however, completion of the degree will take more than the 12 month period and will involve payment of continuing fees for any additional academic terms of registration.

Application forms, available online or from the IDS Department, should be returned along with supporting documents, including an example of written work, a statement of educational and professional goals and a CV, by April 1 for overseas applicants and June 1 for North American applicants at the very latest. Early application is especially recommended for foreign candidates who will need to arrange student visas; e.g. by January 31. Students wishing to be considered for scholarship support are strongly encouraged to submit completed applications before January 15.

Candidates from outside Canada whose native language is other than English must demonstrate their capacity to pursue a masters program in English. They should submit the results of a TOEFL or other standard English competency test at the time of application. The minimum TOEFL score required is 580 (internet-based TOEFL score required is 92).

Program Requirements

Candidates for the Master's Degree in International Development Studies are expected to complete a course of study at the graduate level worth at least 30 credit hours; normally 15 credit hours by course work and 15 credit hours by thesis. Part-time students may complete the requirements over a three-year period. The thesis will conform to graduate studies regulations and will normally be presented and examined orally in public.

IDS Approved Courses From Other Departments

NOTE: Some of these courses may require prerequisites: see departmental rules. Not all courses are offered every year. Please consult individual department/school entries for course descriptions.

Biology

BIOL 5060.03: Environmental Ecology
BIOL 5065.03: Sustainability and Global Change
BIOL 5160.03: Political Ecology

Business Administration

BUSI 6255.03: Global Markets and Institutions

Economics

ECON 5252.03: From Disaster Relief to Development
ECON 5516.03: Resource Economics I
ECON 5517.03: Environmental Economics II
ECON 5522.03: Labor Economics I

English

ENGL 5651.03: Indigenizing Modernism
ENGL 5700.03: South African Literature in a Century of Struggle
ENGL 5919.03: Postcolonial Studies in the New Millennium

Environmental Studies

ENVI 5031.03: Economics for Resource and Environmental Management
ENVI 5035.03: Research Design and Methods
ENVI 5041.03: Environmental Education
ENVI 5204.03: Coastal Zone Management
ENVI 5500.03: Socio-political Dimensions of Resource and Environmental Management
ENVI 5504.03: Management of Resources and the Environment

Gender and Women's Studies

GWST 6010.03: Theories of Feminism
GWST 6020.03: Feminist Methodologies

History

HIST 5400.03: Topics in African History
HIST 5430.03: The Making of Colonial Africa (1850-1930)
HIST 5435.03: Rise and Fall of African Slavery
HIST 5452.03: South Africa Since 1860
HIST 5401.03: State Violence, Communal Conflict and Criminality in Modern Africa
HIST 5404.03: Crime and Punishment in Modtern Africa
HIST 5431.03: Struggle in the city: Labour, Migration and Urban Life in Colonial Africa
HIST 5510.03: Topics in Islam and Middle East History
HIST 5545.03: Scriputre and State Craift: The History of Islamic Political Throught (7th - 21st centuries)
HIST 5470.03: Wars & Revolutions in 19th Century Africa
HIST 5471.03: Wars & Revolutions in 20th Century Africa
HIST 5475.03: African Intellectuals and the Modern Experience

Law

LAWS 5022.03: Law of the Sea
LAWS 5051.03: International Environmental Law
LAWS 5056.03: International Trade Law
LAWS 5068.03: Ocean Law and Policy: International Fisheries
LAWS 5200.03: Environmental Law

Marine Affairs

MARA 5001.06: Contemporary Issues in Ocean Management and Development
MARA 5003.03: Marine Science and Technology
MARA 5008.03: Integrated Maritime Enforcement
MARA 5009.03: Coastal Zone Management
MARA 5021.03: Fisheries Management
MARA 5589.03: Politics of the Sea

Nursing

NURS 5110.03: Qualitative Research: Learning Grounded Theory

Political Science

POLI 5302.03: Comparative Development Administration
POLI 5303.03: Human Rights and Politics
POLI 5315.03: African Politics
POLI 5340.03: Approaches to Development
POLI 5345.03: Politics of Southern Africa
POLI 5350.03: Governance and Globalization
POLI 5360.03: Politics of Latin America
POLI 5475.03: Democratic Theory
POLI 5531.03: UN in World Politics
POLI 5535.03: New International Division of Labor
POLI 5537.06: Management and Conservation of Marine Resources (Summer Only)
POLI 5540.03: Foreign Policies in the Third World
POLI 5560.03: Human Development/Security at the Start of the Twenty-first Century
POLI 5581.03: Diplomacy and Negotiation
POLI 5585.03: Politics of the Environment

Public Administration

PUAD 6500.03: Business and Government
PUAD 6520.03: Program Evaluation Seminar
PUAD 6521.03: Program Evaluation Practicum
PUAD 6550.03: Design and Use of Projects
PUAD 6555.03: The Impact of Technology and Public Administration
PUAD 6620.03: Women, Men and Management

Social Work

SLWK 6333.03: Practice Research
SLWK 6365.03: Community Socio-Economic Development
SLWK 6385.03: Community and Social Change Analysis
SLWK 6390.09: The Theory and Practice of Community Work

Sociology and Social Anthropology

SOSA 5001.03: Survey Methods
SOSA 5002.03: Social Statistics
SOSA 5003.03: Contemporary Perspectives in Ethnography
SOSA 5004.03: Advanced Issues in Work, Industry, and Development
SOSA 5005.03: Advanced Issues in Social Injustice and Social Inequality
SOSA 5006.03: Advanced Issues in Health and Illness

Urban and Rural Planning

PLAN 5101.03: History and Theory of Planning
PLAN 5102.03: Planning Practice
PLAN 5103.03: Qualitative Methods
PLAN 6101.03: Urban Design
PLAN 6102.03: Urban Economics
PLAN 6103.03: Urban Ecology
PLAN 6104.03: Comparative Urbanization
PLAN 6106.03: Transportation Planning
PLAN 6107.03: Regional Planning
PLAN 6110.03: Environmental Impact Assessment in Social and Environmental Policy

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

INTD 5000X/Y Advanced Topics in International Development Studies

CREDIT HOURS: 3
A course on a particular aspect of international development taught only by special arrangements between individual IDS students and individual instructors associated with the program. The course is available in Summer as well as in the regular academic sessions
FORMAT: Tutorial

INTD 5001 Readings in International Development Studies

CREDIT HOURS: 3
A reading course on a particular aspect of international development taught only by special arrangements between individual IDS students and individual instructors associated with the program. The course is available in Summer as well as in the regular academic sessions.
FORMAT: Tutorial

INTD 5002X/Y Graduate Seminar in Research Design for Development Studies

CREDIT HOURS: 3
This course is designed to help the student to learn from a variety of research case experiences - drawing upon readings, case studies, meetings with experienced researchers and, as the year progresses, sharing their research interests and findings. It is designed to support the student in the preparation of their thesis proposals.
FORMAT: Seminar

INTD 5003 Special Topics in INTD I

CREDIT HOURS: 3
A course on a particular aspect of international development taught only by special arrangements between individual IDS students and individual instructors associated with the program. The course is available in Summer as well as in the regular academic sessions.
FORMAT: Tutorial

INTD 5004 Special Topics in International Development Studies II

CREDIT HOURS: 3
A class on a particular aspect of international development taught by special arrangement between individual IDS Graduate Student(s) and individual instructors associated with the International Development Studies Department. The course is available in Summer as well as in the regular academic sessions.
FORMAT: Lecture
PREREQUISITE: Undergraduate degree

INTD 5006 Development and the Philosophy of Social Science

CREDIT HOURS: 3
This course is intended to serve as an initial step in undertaking research in development studies. Development cannot be studied without understanding how we construct knowledge about social phenomena. Therefore, development, in particular, and the social science, in general, are intrinsically connected to philosophy. While we have come across a wide variety of theories about development, it is imperative that we step back and analyze the philosophical and theoretical assumptions about knowledge that inform these theories. Similarly, research is not only about devising the correct methodologies, but also about uncovering the epistemology (ways of knowledge) behind the different methodologies. Once we have a sense of these assumptions, it becomes easier to choose our own frameworks and methodologies in studying development, whether in the archives, or in the field.

INTD 5007 Environment and Development

CREDIT HOURS: 3
This seminar investigates the intersections between environmental science and development science. Our primary focus will be to understand how the non-human environment impacts and constrains development interventions, both in the past and the present. Topics to be covered include agriculture and pastoralism, biodiversity and conservation, agricultural biotechnology, climate change, and environmental security.
FORMAT: Seminar

INTD 5600 Gender and Development

CREDIT HOURS: 3
The primary aim of this seminar course is to provide a broad foundation to some of the theoretical perspectives which have informed and shaped current thinking in gender and development. The course introduces students to key concepts in the analysis of social relations between women and men in different cultural, economic and political contexts.

INTD 9000 Master's Thesis

CREDIT HOURS: 0

Internetworking

Location:
Building/Room:
Street Address 1: 1360 Barrington Street
Street Address 2: Room A208, 2nd floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: 902) 494-1114
Fax:
Website: internetworking.engineering.dal.ca
Email Address: internet.eng@dal.ca

Introduction

Internetworking is an area of growing significance and importance in today's world. It is a multidisciplinary area which requires knowledge and skills in the related areas of engineering, communications, mathematics and modeling, computer and network architectures, and computer software. It is an industry that draws on interdisciplinary knowledge, requires practical ability, and capitalizes on individual strengths.

The Master of Engineering in Internetworking was introduced in 1997 as the first graduate program in the world dedicated to Internetworking. The Internetworking Program is a specialized course-based graduate degree program which prepares students to enter industry in the field of Internetworking. Students receive a solid theoretical education that delivers the underlying theory of the Internet, how it works, how to design LAN's, WAN's, and inter and intra nets. It also covers security, management, and protocols that are used on the Internet. Practical skill development is a key component of this program and is achieved through the intensive laboratory requirements.

The program is designed to allow students to apply their knowledge and develop hands-on experience in a unique environment where they can analyze, test and integrate their knowledge, concepts and ideas through interactive learning. Through collaborative group work in the Internetworking laboratories, students have the opportunity to develop the team skills which are highly valued in industry.

Program Courses

The courses are continually under review and are shown here as they were at the time of going to press. The order of presentation is updated regularly on the Program Web page. Students are required to take courses in the pre-requisite order given on the Program Web page. A project is not mandatory and registration requires departmental approval.

Any new proposed courses will be posted on the program Website once approved by the university. In addition to courses, all students are required to research and present a seminar on an Internetworking topic. Registration is required for the seminar.

NOTE: Completion of any or all engineering courses offered by the Department does not qualify persons to hold the designation "Professional Engineer" as defined by various Provincial Acts governing the Engineering Profession.

Staff

Program Director

Robertson, W., BSc (Eng Hons), MSc (Aberdeen), PhD (TUNS), PEng

Instructors

Fenton, G. A., BEng, MEng (Carleton), MA, PhD (Princeton), PEng
Ilow, J., BSc (Poland), MASc, PhD (Toronto)
Phillips, W. J., BSc (Eng), MSc (Queen's), PhD (UBC)
Srinivas, S., BEng (Bangalore), PhD (Inst. of Science, Bangalore)

Adjunct (FGS)

Aslam, N., BSc (Eng) (ET Lahore), MEng, PhD (Dalhousie)
Sivakumar, S., BEng (Bangalore), MASc, PhD (Dalhousie)

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

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Course Descriptions

INWK 6000 Program Continuance

CREDIT HOURS: 0

INWK 6111 Introduction to Computer Networks

CREDIT HOURS: 5

This course offers a general introduction to computer networks. It explores the structure, goals, services and problems of computer networks. The structure of computer communications is examined using the Open Systems Interconnection (OSI) seven layer protocol model. The purpose of each layer is discussed from both conceptual and practical aspects, and data communication standards are examined in terms of their layered structures. The distinction between circuit and packet switching is highlighted, and client server distance applications are discussed.

EXCLUSIONS: EINE 5101.03, INWK 5101.03, 6101.03

INWK 6112 Physical and Datalink Standards and Protocols

CREDIT HOURS: 5

This course covers issues relating to the physical and datalink layers of data communications networks. A review of basic digital communication theory is given, including modulation and demodulation techniques and their performance in noise and under bandwidth constraints. Physical layer standards of several wireline-based protocols are examined, and optical and wireless channels are also considered. Media access control techniques, framing structures, and error control procedures of several protocols are investigated.

EXCLUSIONS: EINE 5102.03, INWK 5102.03, 6102.03

INWK 6113 Telecommunication and Wide-Area Networks

CREDIT HOURS: 5

This course presents an overview of the technologies used in present telecommunications systems and wide area networks. Standard telecommunication transport and signalling standards are introduced. The Integrated Services Digital Network and broadband access alternatives are discussed. Wireless standards for cellular and satellite systems are considered, and emerging personal communication services are introduced.

EXCLUSIONS: EINE 5103.03, INWK 6103.03

INWK 6114 Internet Communication Protocols

CREDIT HOURS: 5

This course provides an in-depth coverage of the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol stakc suite, including IP and protocols for address resolution, internet control, routing, broadcasting and multicasting. End-to-end communication issues associated with TCP will be discussed. Network management and domain name systems will be covered. Applications including telnet, file transfer, and simple mail transfer protocols will be covered in detail.

EXCLUSIONS: EINE 5104.03, INWK 5104.03, 6104.03

INWK 6115 Network Architecture

CREDIT HOURS: 5

This course covers the design of network architecture protocols the placement of servers and monitors, and firewalls. Internetworking, bridging, routing, and encapsulation are covered. Algorithms for bridging and routing are examined.

EXCLUSIONS: EINE 5105.03, INWK 5105.03, 6105.03

INWK 6117 Emerging Internetworking Technologies

CREDIT HOURS: 5

The primary focus of this course is to provide a comprehensive coverage of the major developments that lay the foundation for the next generation high performance networks. The student will study, the emerging technologies, design alternatives, and the underlying theory and practice required for the Internet to grow beyond a best effort data delivery service to become a reliable and multi-service environment.

EXCLUSIONS: INWK 5107.03, 6107.03

INWK 6119 Network Security

CREDIT HOURS: 5

The primary objective of this course is to provide a comprehensive coverage of the theory, concepts, design principles and technologies for network security. The course focuses on the design principles and techniques of two major aspects of network security: (a) how to secure a network; and (b) how to secure data transactions.

INWK 6211 Mathematics for Internetworking

CREDIT HOURS: 5

This course includes a review of Probability and Statistics, data collection and distribution fitting. Markov chains, reliability, Markov Chains, stochastic processes and queuing systems, random number generators, sampling from various probability distributions, Monte Carlo simulation.

EXCLUSIONS: EINE 5201.03, INWK 5201.03, 6210.03

INWK 6312 Programming for INWK

CREDIT HOURS: 5

Topics covered include objects, stacks, queues, simple land multiple linked lists, searching and sorting algorithms, and their implementation in the C++ programming language. The students implement signal analysis and message passing applications related to internetworking, while learning to design structured programs.

INWK 6411 Real Time Programming for Internetworking

CREDIT HOURS: 5

The objective of this course is teach the student the fundamentals of real time programming for internetworking. Topics covered include message queuing, resource sharing, priority assignments, event flags, interrupts, device handling, and protocol stack techniques.

EXCLUSIONS: EINE 5401.03, INWK 5401.03, 6401.03

INWK 6800 Internetworking Seminar Topic

CREDIT HOURS: 0

Students are required to research and present a seminar on an Internetworking topic.

FORMAT: Seminar

INWK 6801 Internetworking Seminar Continuance

CREDIT HOURS: 0

Students are required to research and present a seminar on an Internetworking topic.

FORMAT: Seminar

INWK 6900 Project Continuance

CREDIT HOURS: 0

EXCLUSIONS: INWK 5900.00

INWK 6911 Project

CREDIT HOURS: 5

The student will be required to analyze the performance of a network and either design a new network or an upgrade to an existing network. The project should preferably be undertaken with an industrial company.

EXCLUSIONS: EINE 5901.03, INWK 5901.03, 6901.03

INWK 6912 Network Design

CREDIT HOURS: 5

The objective of this course is to provide a solid foundation for the design principles for the design of networks at all levels. The course focuses on the design principles and techniques for total network design from initial planning to management issues.

Interprofessional Health Education

Location:
Building/Room: Burbidge Building
Street Address 1: 5968 College Street
Street Address 2: 3rd floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3327
Fax: (902) 494-1966
Website: www.dal.ca/faculty/healthprofessions.html
Email Address: fhp@dal.ca

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Courses

Open to all Dalhousie students:

IPHE 5100: A Multidisciplinary Course in Addiction Studies

Required for students in the schools below:

IPHE 5900: Interprofessional Health Education Portfolio

Students must ensure they are registered in the correct section with their school/college.

Health Administration	5900.00 - section 1
Human Communication Disorders	5900.00 - section 2
Occupational Therapy	5900.00 - section 3
Physiotherapy	5900.00 - section 4
Clinical Vision Science	5900.00 - section 5

Course Descriptions

IPHE 5100 A Multidisciplinary Course in Addiction Studies

CREDIT HOURS: 3
This is a multidisciplinary graduate-level course for students and professionals interested in addictions. The field of addictions is by nature multi-disciplinary and touches on aspects of health, sociology, psychology, psychiatry, social work, pharmacology, toxicology, international policy, and other disciplines. This course will provide students with core knowledge and understanding of different behavioural, biological, historical, medical, and socio cultural aspects of addictions. It will also provide information about the aetiology of addictions and contemporary approaches to prevention and treatment.
FORMAT: Lecture| Seminar| Discussion
RESTRICTIONS: None. Open to all Dalhousie University graduate students.

IPHE 5900 Interprofessional Health Education Portfolio

CREDIT HOURS: 0

This course is intended to prepare students to work in collaborative and patient/client/community/family-centered work environments. Students in entry-to-practice graduate 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 years of study in 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 that follow an approved structured format). The experiences will include interactions with undergraduate and/or graduate students from a total of at least four 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) that 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.

RESTRICTIONS: Faculty of Health Professions students only

Journalism

Location:
Building/Room: University of King's College
Street Address 1: Administration Building, 3rd floor
Street Address 2: 6350 Coburg Road
P.O. Box:
Halifax, NS B3H 2A1
Telephone: (902) 422-1271 ext. 159
Fax: (902) 423-3357
Website: www.ukings.ca/journalism
Email Address: jour@dal.ca

Staff

Director

Currie, T., BA (Queen's), BJ (King's), MAC (Alta)

Executive Director

Sedgwick, D., MFA

Administrative Secretary

Porter, K.

Professors

Kierans, K., Vice President and Professor of Journalism
Kimber, S., Creative Nonfiction

Associate Professors

Jobb, D., Print
Toughill, K., Business Models
Vallance-Jones, F., Investigative

Assistant Professors

Currie, T., Online Journalism
Newhook, S., Television
Swick, D., Creative Nonfiction
Tailleur, T., Digital

Adjunct (FGS)

McKie, D., Instructor, Records Research
Sedgwick, D., Instructor, Creative Nonfiction

Admission Requirements
Master of Journalism

Admission will be restricted to those who have obtained a Bachelor of Journalism degree or equivalent program, with an average grade of B or better. International students must meet the same criteria as Canadian students. A prior learning assessment process will be available for the few applicants who do not have a Bachelor of Journalism degree, but who have a degree in another discipline and deep experience in the field. It is expected that fewer than five percent of admitted students will enter through prior learning assessment.

Students who do not hold an undergraduate degree in journalism, but who hold a four-year undergraduate degree in another discipline and meet all the other MJ pre-requisites, may be provisionally admitted to a two-part MJ program. In the first year, students in the program first enroll in the one-year post-baccalaureate bachelor of journalism degree. Students who complete the BJ with a minimum of GPA of B can proceed directly to the MJ program.

Candidates for the combined Juris Doctor/Master of Journalism program must be satisfy the admissions requirements of both the JD and MJ programs. For information about admission to the JD program, contact Rose Godfrey, Director of Admissions and Outreach, Schulich School of Law, law.admissions@dal.ca. For information about admission to the MJ New Ventures program, contact Tim Currie, Director of the School of Journalism at tim.currie@ukings.ca.

Master of Fine Arts in Creative Nonfiction

Applicants must have obtained an undergraduate degree-normally an honours degree-in any discipline with an average grade of B or better, and must submit a portfolio of nonfiction writing with their application. While it is not a requirement for admission, prospective students are encouraged to include with their submission a description of the idea or ideas they want to pursue as their major creative nonfiction project.

A prior learning assessment process will be available for the few otherwise outstanding applicants who do not have an undergraduate degree or whose degree is more than 10 years old and whose average grade in that degree was not B or better.

Master of Journalism (MJ)

The Master of Journalism prepares leaders for the rapidly evolving news industry. The professional degree focuses on new methods of journalism research, new multimedia and multiplatform story forms and emerging business models. The degree has two streams: Data and Investigative Reporting and New Ventures in Journalism. Students who graduate from the Data and Investigative stream will be skilled in traditional and emerging techniques of investigative reporting. Students who graduate from the New Ventures stream will have the skills to develop a new journalism enterprise. All students will be skilled in delivering multimedia content through websites, social media and mobile devices.

The Master of Journalism (New Ventures) may be coupled with the Juris Doctor at Schulich School of Law as part of a combined three-year program that leads to degrees in both Journalism and Law. Students who do not have a Bachelor of Journalism or deep experience in the field will be required to complete a preparatory year before entering the MJ program. This is the same requirement that applies to the existing program.

This full-time 10-month program begins in June each year. Both the Investigative and New Ventures streams conclude with a professional project and both are built around a core of courses in the craft and economics of digital journalism. Students are resident on campus until December. The program concludes with a professional project that may be completed through distance learning in the final term.

This one-year program assumes a strong base in foundation skills: critical thinking, journalism research and storytelling across print, broadcast and online platforms. It is designed for students who have obtained traditional skills either in a Bachelor of Journalism program or in the workplace. The program has 30 credit hours, divided as follows:

Investigative Stream	New Ventures Stream
Summer: 12 hours	Summer: 12 hours
Fall: 9 hours	Fall: 9 hours
Winter: 9 hours	Winter: 9 hours

Students in the combined JD/MJ program complete 24 credit hours in Journalism instead of the regular 30 hours, foregoing JOUR 6903.03: New Venture Creation, and JOUR 7002.03: Exemplars of Contemporary Journalism. The Journalism curriculum is spread over three years instead of 12 months in the combined degree program, typically beginning in the summer before the first year of Law. Students who begin the combined program but do not complete the Law degree must complete the full 30 hours in Journalism to obtain the Master of Journalism degree.

The New Ventures stream utilizes existing courses offered by the Faculty of Management. Journalism students will have a dedicated teaching assistant who will tailor the Faculty of Management content to the media industry.

Each student will complete an independent professional project in the winter term (JOUR 7701: Professional Project in Investigative Reporting or JOUR 7901: New Ventures in Journalism), working under the supervision of an expert in the field and a member of faculty. Students in the Data and Investigative stream will complete an investigative project. Students in the New Ventures Stream will complete a business plan or business case and prototype for a new journalism enterprise. The project is worth one credit. Students may have the opportunity to do projects in partnership with existing media organizations.

The professional project is a significant component of the degree requirement and the centerpiece of the student's portfolio. A faculty member will supervise the

students and their mentors using the preceptor model. Preceptors will be working professionals recruited and supervised by the University of King's College. Many of them will be outside Nova Scotia. Preceptors will work one-on-one with students. Most preceptors will work with only one student at a time.

Visit the Faculty of Graduate Studies website at dalgrad.dal.ca and/or the School of Journalism website at www.ukings.ca/journalism for the most up to date information.

Master of Fine Arts (MFA) in Creative Nonfiction

The Master of Fine Arts in Creative Nonfiction provides students with the opportunity to understand the history, craft, art and issues involved in creative nonfiction writing; explore new and evolving publishing models; and work one-to-one with faculty and professional nonfiction writer-mentors to develop polished book proposals and manuscripts. Students will graduate with a professional book proposal and a substantial portion of a book-length creative nonfiction manuscript.

The two-year limited residency program is delivered over 24 months.

The program begins with an intense two-week on-site summer residency at King's where students will attend lectures, seminars, workshops and readings, and choose the subject of their master's writing project as well as begin working with their first mentors.

During the fall semester, students will work one-to-one with their assigned mentors. Students are expected to complete their book proposals by the end of the fall semester. They will also undertake readings and assignments, and participate in online discussions as part of Writing Craft I.

In January, students will convene for a one-week residency in Toronto or New York (alternating years), where they will meet with professional publishers, editors, agents and experts in publishing and related fields.

One-to-one work on their book proposals and manuscripts will continue with assigned mentors in the spring semester.

During their second year, students will once again convene in Halifax for another two-week summer residency where they will attend lectures, seminars, workshops and readings, work with their third- and fourth-semester mentors and then continue their writing and online studies throughout the fall.

During their fourth and final semester, students will - in addition to participating in their winter residency - complete their manuscript requirement with the guidance and assistance of their mentor and faculty supervisor.

Visit the Faculty of Graduate Studies website at http://www.dalgrad.dal.ca and/or the School of Journalism website at www.ukings.ca/journalism for the most up to date information.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

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Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Master of Journalism

JOUR 6001.03: Digital Journalism 1
JOUR 6002.03: Audience & Content Strategies
JOUR 6003.03: Digital Journalism 2
JOUR 6700.03: Public Records
JOUR 6701.06: Methods of Investigative Journalism
JOUR 6900.03: Business Fundamentals for Journalists
JOUR 6903.03: New Venture Creation
JOUR 7001.03: Emerging Business Models in Journalism
JOUR 7002.03: Exemplars in Contemporary Journalism
JOUR 7003.03: Mobile Reporting
JOUR 7701.06: Professional Project in Investigative Reporting

JOUR 7901.06: Professional Project: New Ventures in Journalism

Master of Fine Arts in Creative Non-Fiction

JOUR 6100.03: Writing Craft I
JOUR 6101.06: Mentorship I
JOUR 6102.03: Publishing I (Toronto)
JOUR 6103.06: Mentorship II
JOUR 6200.03: Writing Craft II
JOUR 6201.06: Mentorship III
JOUR 6202.03: Publishing II (New York)
JOUR 6203.06: Mentorship IV

Course Descriptions

JOUR 5153 Reporting Fundamentals

CREDIT HOURS: 3
Students will learn, in the classroom and in the field, the fundamentals of text-based reporting, from identifying a story idea through to research and writing. Beginning with a demonstrated awareness of the news, skills such as finding and pitching an original story idea, conducting an interview, applying the principles of clear writing and delivering a story with a narrative colour will be honed in this class.
FORMAT: Lab
RESTRICTIONS: Must be enrolled in Bachelor of Journalism (one year)

JOUR 5701 Journalism & Society

CREDIT HOURS: 3
This course gives students the background knowledge they need as journalists within the framework of civics and ethics. Studies will focus on the essentials of journalism, thinking critically and independently and understanding the role of courts, the police and legislative bodies. Students will discuss the importance of fairness and transparency and how to work professionally with sources across cultural and gender lines.
FORMAT: Lecture
RESTRICTIONS: Students in BJ (one year)

JOUR 6001 Digital Journalism 1

CREDIT HOURS: 3
This course offers basic instruction in the key skills of digital journalism, from creating multimedia and interactive content to integrating social media and writing search-optimized headlines.
FORMAT: Lab| Seminar

JOUR 6002 Audience and Content Strategies

CREDIT HOURS: 3
This course examines the nature of community and audience in various formats with an emphasis on social networks and emerging platforms and systems. Students will identify and research a specific underserved audience and draft a proposal to serve that community in a unique way with an interactive and multimedia approach.
FORMAT: Seminar

JOUR 6003 Digital Journalism 2

CREDIT HOURS: 3
This course builds on Digital Journalism 1 to perfect digital journalism skills. Students will develop a specific beat that forms the foundation of their online journalism portfolios.
PREREQUISITE: JOUR 6001.03

JOUR 6100 Writing Craft I

CREDIT HOURS: 3
Students will attend lectures, panels and seminars, meet in small groups and one-to-one with their first mentors to finalize the subject of their book proposal and draw up a 'contract of deliverables.' During the fall semester, students will read and report on assigned creative nonfiction readings and participate in online group discussions.
FORMAT: Lecture| Seminar

JOUR 6101 Mentorship I

CREDIT HOURS: 6
Students will work one-to-one with their mentor to research and develop their individual book proposals as well as begin researching and writing their manuscript projects.
FORMAT: Tutorial

JOUR 6102 Publishing I

CREDIT HOURS: 3
During this one-week residency in Toronto or New York (alternating years), students will attend lectures and seminars with publishers, editors, agents and established

authors, learning about current and future trends in the publishing industry. They will discuss their book proposals-in-progress with agents and editors.

JOUR 6103 Mentorship II

CREDIT HOURS: 6
Working with their mentor, students will finalize and polish their book proposals, finish their research plans and continue work on their manuscripts, as per their contract of deliverables.
FORMAT: Tutorial
PREREQUISITE: JOUR 6101.06

JOUR 6200 Writing Craft II

CREDIT HOURS: 3
Students will attend lectures, panels and seminars. Students will do public readings from their works-in-progress. Students will also meet daily in small groups with their Mentorship III mentors to further discuss craft and ethical issues and finalize plans for their manuscript writing project and draw up a 'contract of deliverables for Mentorship III.
FORMAT: Lecture| Seminar
PREREQUISITE: JOUR 6100 (with a grade of B- or higher)

JOUR 6201 Mentorship III

CREDIT HOURS: 6
Students will work one-to-one and in small groups with a mentor to research, write and edit their individual manuscript projects.
FORMAT: Tutorial
PREREQUISITE: JOUR 6103.06

JOUR 6202 Publishing II

CREDIT HOURS: 3
During this one-week residency in New York or Toronto (alternating years), students will attend lectures and seminars with publishers, editors, agents and established authors, learning about current and future trends in the publishing industry as well as the use of new publishing technologies and platforms. They will discuss their manuscripts-in-progress with agents and editors.
FORMAT: Lecture| Discussion
PREREQUISITE: JOUR 6200.03 (with a grade of B- or higher)

JOUR 6203 Mentorship IV

CREDIT HOURS: 6
working with their mentor, students will complete and edit their final manuscript, and complete and report on an agreed upon list of readings as well as participate in online discussions on writing issues.
FORMAT: Tutorial
PREREQUISITE: JOUR 6201.06 (with a grade of B- or higher)

JOUR 6700 Public Records Research

CREDIT HOURS: 3
Public records are the foundation of investigative journalism. This course reveals how journalists locate, obtain and read records that were created for other purposes, and how they probe connections and patterns of information that are not apparent reading any one record alone.
FORMAT: Seminar

JOUR 6701 Methods of Investigative Journalism

CREDIT HOURS: 6
This course covers basic methods and explores how data analysis techniques borrowed from the social sciences provide journalists with ways to investigate complex systems. Students will learn how to acquire and analyze large datasets, how to conduct spatial investigations using mapping software and how to turn data into compelling stories.
FORMAT: Lab| Seminar
PREREQUISITE: JOUR 6700.03

JOUR 6900 Business Fundamentals for Journalists

CREDIT HOURS: 3
This course introduces journalists to business disciplines and frameworks used to launch and manage a new enterprise, with particular emphasis on tools and concepts specific to journalism and journalism organizations. The course also offers an overview of legal and regulatory structures relevant to the news industry.
FORMAT: Seminar

JOUR 6907 New Venture Creation

CREDIT HOURS: 3
This course exposes students to the issues, problems and challenges of creating new ventures and provides students with the opportunity to explore and develop venture ideas they have been considering or wish to investigate.
FORMAT: Lecture
PREREQUISITE: JOUR 6900.03
CROSS-LISTING: MGMT 3907.03

JOUR 7001 Emerging Business Models in Journalism

CREDIT HOURS: 3
This course explores how the business model of a media organization influences the content, form and quality of the journalism produced by the organization. Students will understand the strengths and weaknesses of new models as they arise, and be able to predict which models best support the type of journalism they want to practice.
FORMAT: Lecture| Discussion
PREREQUISITE: JOUR 6900.03

JOUR 7002 Exemplars of Contemporary Journalism

CREDIT HOURS: 3

This lecture course features leading figures in contemporary journalism. Each lecture will focus on a different aspect of journalism innovation. Particular emphasis will be placed on leading figures in investigative journalism and new venture journalism. This course is delivered through distance learning.

FORMAT: Lecture| Seminar

PREREQUISITE: JOUR 6001.03, JOUR 6002.03

JOUR 7003 Mobile Reporting

CREDIT HOURS: 3

Mobile reporting is a hallmark of contemporary journalism. Students will learn best practices in live reporting, editing and posting through lectures, laboratories and field experience. Students must have a department-approved smart phone and related equipment.

FORMAT: Lecture| Lab

JOUR 7701 Professional Project in Investigative Reporting

CREDIT HOURS: 6

Students will plan, organize and execute a major investigative project using tools learned in the Investigative Methods and Public Records Research classes. Students will work with industry mentors on the project. Students may choose to work in teams, with prior permission. The project does not have to be completed on campus, and may be national or international in scope and location.

FORMAT: Tutorial

PREREQUISITE: JOUR 6003.03, JOUR 6701.06

JOUR 7901 Professional Project: New Ventures in Journalism

CREDIT HOURS: 6

Students will work under the supervision of a mentor to develop a detailed business plan and prototype for a new venture in journalism. Students may choose to work in teams, with prior permission. Some students may have the opportunity to partner with a media organization for the project. The project may be completed off campus and may be national or international in scope and location.

FORMAT: Tutorial

PREREQUISITE: JOUR 6003.03, JOUR 6903.03, JOUR 7001.03

Law

Location:
Building/Room: Schulich School of Law
Street Address 1: Weldon Law Building
Street Address 2: 6061 University Avenue
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3495
Fax: (902) 494-1316
Website: law.dal.ca/Prospective_Students/
Email Address: gclaw@dal.ca

Staff

Schulich School of Law

Dean

Cameron, C., BA (St. Mary's), LLB (UNB), LLM (Cambridge)

Associate Dean, Academic

Deturbide, M., BSc (Dalhousie), BJ (King's), LLB, LLM (Dalhousie). Corporate Law, Commercial Law, Media Issues, Entertainment Law, Environment and Business

Associate Dean, Graduate Studies

Downie, J. G., BA, MA (Queen's), MLitt (Cambridge), LLB (Toronto), LLM, S.J.D. (Mich). Health Law Policy, and Ethics; Legal Ethics

Professors Emeriti

Pothier, D., BA (Dalhousie), MA (Carleton), LLB (Dalhousie). Constitutional, labor, Human Rights, Equality and Disability Issues

Professors

Archibald, B. P., BA (King's), MA, LLB (Dalhousie), LLM (Col). Criminal Law and Procedure, Evidence, Comparative Law, Prosecutions Policy, labor Relations Law
Black, V., BA, MA (Carleton), LLB, (Toronto), LLM (Calif, Berkeley). Private International Law, Torts, Commercial Law
Brooks, K., BA (Toronto), LLB (UBC), LLM (Osgoode)
Chircop, A. E., BA, LLD, LLM (Malta), JSD (Dalhousie). Marine and Environmental Law and Policy, Coastal and marine Management, Education and Training
Coughlan, S. G., BA (Ottawa), MA (Toronto), LLB (Dalhousie), PhD (Toronto). Criminal Law and Procedure
Devlin, R. F., LLB (Queen's, Ireland), LLM (Queen's, ON). Jurisprudence, Legal Ethics, Judicial Education, Contracts
Ginn, D., BA (Mt. A), LLB (Queen's), LLM (Osgoode). Property Law, Administrative Law, Gender, Health Law
Kaiser, H. A., BA, LLB (Dalhousie), LLM (LSE). Criminal Law and Procedure, Mental Disability Law
Llewellyn, J., BA (McMaster), MA (Queen's), LLB (Toronto), LLM (Harvard). Restorative Justice, Legal Theory, Constitutional Law
MacKay, A. W., BA (Mt. A), MA (Florida), BEd (Mt. A), LLB (Dalhousie). Human Rights, Administrative Law, Constitutional Law, Civil Liberties
Thompson, D. A., BA (McGill), LLB (Dalhousie). Family Law, Evidence, Children and the Law, Clinical Law
Thornhill, E. M. A., BA, Dip Ed (McGill), LLB (UQAM), Dip Int'l and Comp Law (San Diego), MA (Montreal), LLD (CUNY), LLD (Concordia). Critical race theory, human rights, international law, black history, black women's studies, anti-racist pedagogy
VanderZwaag, D., BA (Calvin), MDiv (Princeton), JD (Arkansas), LLM (Dalhousie), PhD (University of Wales). Environmental Law, Ocean Law and Policy
Woodman, F. L., BA (Dalhousie), LLB (Queen's). Tax and Social Policy, especially regarding Women and Children, Estates and Trusts

Associate Professors

Bradley, S., BSc (Toronto), LLB (Queen's), LLM (Harvard)
Currie, R., BA (St. FX), MA (Careleton), LLB (Dalhousie), LLM (Univ of Edinburgh)
Doelle, M., BSc, LLB (Dalhousie), LLM (Osgoode), JSD (Dalhousie). Environmental Law, Climate Change
Gibson, E., LLB (Saskatchewan), LLM (Toronto). Family Law, Tort Law, Health Law
Lahey, W., BA (Mt. A), BA (Juris, Oxford), LLM (Toronto). Administrative Law, Health Law
MacIntosh, C., BA (Concordia), MA (Alberta), LLB (Osgoode). Aboriginal Law, Immigration Law
Murphy, R. A., BA (UPEI), LLB (Dalhousie), LLM (Toronto), SJD (Harvard). Constitutional Law, Evidence, Legal Theory
Saunders, P. M., BA, MA, LLB (Dalhousie). Environmental Law, Law of the Sea, International
Wildeman, S., BA (Toronto), MA (Columbia), LLB (Dalhousie). Mental Health Law, Administrative Law, Legal Theory

Assistant Professors

Hadskis, M., BSc, LLB (Dalhousie), LLM (York)
Loomer, G., BSc (U Vic), LLB (UBC), BCL, DPhil (Oxford)

Adjunct (FGS)

Dobrowolsky, A., BA (Toronto), MA (Dalhousie), PhD (Carleton)
McConnell, M. L., BA (Victoria), LLB (Dalhousie), PhD (Sydney). Business and Environment, Feminist theory, International and Environmental Law
Winham, G., BA (Bowdoin), Dip Int Law (Manchester), PhD (N. Carolina)

Master of Laws (LLM)

An intensive graduate program in law leading to the Master of Laws degree is offered to well-qualified candidates by the Schulich School of Law of the University. The program is primarily intended for professional specialists and prospective law teachers. The program may consist of either a combination of course work, the graduate seminar and a thesis, or a combination of course work involving substantial written papers and the graduate seminar. In either case the program can be taken on a full-time basis over one full academic year, or on a part-time basis over two full academic years. Applicants who plan to take the degree on the basis of course work, seminars and a thesis are required to submit an outline of their proposed thesis topic at the time of the application. Thesis topics may concentrate on any area of law in which faculty supervisors and library resources will support original work. In recent years, thesis supervision has been provided in the following fields, among others: international law, administrative law, labour law, human rights, public law, jurisprudence, constitutional law, commercial law, tax law, tort law, criminal law and restorative justice, family law, health law, law of the sea, maritime law, and environmental law.

Admission Requirements/Deadline

Applicants for admission to the LLM program should hold a first degree in law equivalent to the Dalhousie JD, passed with at least a "B" average (or Upper Second Class Honours). The ability to conduct independent research and facility with the English language are prerequisites for admission. Candidates from outside Canada whose native language is other than English will be required to pass one of the an English language proficiency tests listed here and obtain at least the minimum acceptable score (**Internet-based TOEFL** 92; **Written TOEFL** 580; **MELAB** 85; **IELTS** 7; **CanTest** 4.5 (with no band score lower than 4.0); **CAEL 70** (with no band score lower than 60); **Dalhousie College of Continuing Education** (CCE) A-. **Applicants should ensure that their completed application is received by January 1st** along with all original documents.

Residency Requirements

The degree may be taken on the basis of either one academic year (September 1 to August 31) of full-time residence at Dalhousie, or two academic years of part-time residence at Dalhousie. It should be noted that the two-year residence requirement for part-time candidates differs from that required for programs outside the law school explained elsewhere in the calendar of the Faculty of Graduate Studies.

Course Requirements

The degree may be taken on the basis of either course work, the graduate seminar and a thesis, or course work and graduate seminar only. Applicants are required to indicate at the time of formal application on which basis they would prefer to take the degree, but the Graduate Studies Committee of the Schulich School of Law, at the time an offer of a place is made, will decide on which of the two alternative bases a place is offered. The availability of places for the thesis alternative is governed by the availability of adequate faculty supervision and library resources. All course work for the degree, whichever of the two alternative bases is decided upon, must be completed with no grade below B-. Graduate students taking courses that are normally evaluated by an examination are required to complete a research paper or other written assignment, as agreed with the instructor, in place of the examination.

All candidates for the degree are required to take the graduate seminar especially designed for our graduate students in law. This seminar is given in the fall term (and early part of the spring term) and requires from the student a comprehensive class presentation based on a substantial written paper. Some students who have not had

previous exposure to Jurisprudence may be required to take a graduate jurisprudence course.

If the degree is taken by course work, graduate seminar and thesis, a candidate is required to (a) in addition to the graduate seminar, complete at least two additional one-term courses from the course offerings of the Schulich School of Law (the choice of courses to be approved by the Law School's Graduate Studies Committee), and (b) present a well-researched substantial thesis of scholarly quality produced under the continuous supervision of a member or members of the law faculty.

Such a thesis would normally be 125-150 typescript pages in length (double-spaced). Six copies of the thesis must be submitted to the supervisor on or before the dates given in the Law School's "Guidelines for Supervision and Evaluation of Graduate Students" (normally August 10 to meet deadlines for fall convocation). The thesis requirements and regulations of the Faculty of Graduate Studies must be met. Theses are usually supervised by a two person committee comprised of a supervisor and a reader or, in certain circumstances, two co-supervisors. Theses are examined by an examination committee comprised of the supervisory committee, an "arm's length" examiner and a chairperson, who is normally the Chair of the Graduate Studies Committee/Graduate Co-ordinator. A thesis may be graded as falling within one of the following categories: approved as submitted; approved upon specified corrections being made; failed, but with permission to submit a revised thesis; or failed outright.

If the degree is taken by course work and seminars without thesis, in addition to the graduate seminar, candidates are required to take at least five one-term courses from the advanced course work and seminar offerings of the Law Faculty considered to be suitable as graduate courses and seminars by the Law Graduate Studies Committee. Of those five courses, at least three must be designated as "major paper courses" by the Schulich School of Law, or be approved by the Graduate Studies Committee as having a substantial written component. Graduate students taking courses that are evaluated by a "major paper" must submit a paper of appropriate scholarly quality which will normally be between 40 and 50 pages in length (including text, and endnotes or footnotes). In the remaining courses, the student will be evaluated by means of a substantial research-based written assignment, normally 25-30 pages, or equivalent assignment(s).

At the discretion of the Graduate Studies Committee of the Schulich School of Law, a candidate may be required to submit to an oral examination by the Committee or its nominees in the field of the thesis or that of any written paper presented by the candidate. The Graduate Studies Committee of the Schulich School of Law may recommend the substitution of not more than two seminars or graduate level courses in a discipline other than law, which may be highly relevant to the candidate's thesis topic or area of specialization, provided that any such substituted course or seminar has, in the opinion of the Committee and the Associate Dean, Graduate Studies, equivalence to the law courses being substituted.

Before deciding on the course work and seminars, or course work, seminars and thesis option, candidates who are contemplating future doctoral studies should note that some doctoral programs may require the completion of a Master of Laws degree which includes a thesis.

General

The Graduate Studies Committee of the Schulich School of Law may at any time require any candidate for the degree to show cause, in such manner as it may determine, why such candidate should be permitted to continue his or her candidacy.

It should be noted that candidates taking the degree on a part-time basis are not eligible for graduate scholarships.

A student is required to comply with the directions of the supervisor and the decisions of the Graduate Studies Committee of the Schulich School of Law, as well as the rules and regulations of the Faculty of Graduate Studies.

A full description of programs available in the Law School which may be of relevance to graduate students can be found in the general Law School Calendar and in its course selection materials.

Doctor of Philosophy (PhD) in Law

An advanced graduate program in law leading to the PhD degree is offered to a very limited number of highly qualified candidates by the Schulich School of Law of the University. Applicants who meet the admission requirements are invited to submit a detailed outline of their proposed thesis and a detailed description of their research plans with their application forms. Such topics will have to be limited to those areas of law for which faculty and library resources will support original work. It is expected that such resources will normally be available in marine law, environmental law, international law, comparative law, health law, law and technology, and public law/jurisprudence.

Admission Requirements/Deadline

Applicants for admission to the PhD program must have demonstrated superior academic ability during their previous legal education. Normally it will be necessary to have (i) attained at least the equivalent of a Dalhousie A- average grade at the JD level and (ii) completed successfully a Master's degree in law. Preference will be given to applicants with established credentials in published scholarship of a professional calibre. The ability to conduct independent research and work easily in the English language is a prerequisite for admission. Foreign candidates are required to pass one of the English language proficiency tests listed here and obtain at least the minimum acceptable score (**Internet-based TOEFL** 92; **Written TOEFL** 580; **MELAB** 85; **IELTS** 7; **CanTest** 4.5 (with no band score lower than 4.0); **CAEL 70** (with no band score lower than 60); **Dalhousie College of Continuing Education** (CCE) A- to the satisfaction of the Graduate Studies Committee of the Schulich School of Law prior to admission. **Applicants should ensure that their completed applications are received by the University no later than January 1st of the year in which they intend to commence their studies.**

Residency Requirements

Applicants must be prepared to spend at least one full academic year (12 months) in continuous residence at Dalhousie after registration for the PhD program. The Graduate Studies Committee of the Law School reserves the right in certain cases to require the completion of a second year of residency. It is to be noted, however, that consistent with other doctoral programs at Dalhousie University, PhD candidates must pay fees at the full-time rate for two years regardless of whether they have been
required to spend a second year in residence at Dalhousie.

Course Requirements

In addition to the period in residence, candidates must complete the following:

1. fully supervised research work leading to a substantial and significant dissertation
2. one directed reading course
3. one area exam
4. thesis proposal defence
5. course work and other examinations as required by the Graduate Studies Committee

Special Skill Examination Requirements

A candidate may, at the discretion of the thesis committee, be required to pass a special examination designed to demonstrate the examinee's proficiency in a foreign language, statistical method, computer analysis, or other skill deemed to be important for successful completion of the candidate's thesis in the chosen area.

Thesis Requirements

The primary requirement for the PhD degree is the completion of a substantial thesis which should not only display original scholarship of high standard, but also represent a significant and professional contribution to the literature of the chosen subject. In applying for admission, an applicant is required to satisfy the Graduate Studies Committee of the Schulich School of Law that the suggested topic is suitable for development as a doctoral thesis. Normally, a PhD thesis should be between 350 and 500 typescript pages in length (double-spaced). After an applicant has been accepted, a thesis committee consisting of a supervisor and two advisors will be appointed by the Graduate Studies Committee of the Schulich School of Law. All candidates are required to comply with the decisions of their thesis committees. In normal circumstances, the completed PhD thesis must be submitted to the Graduate Studies Committee of the Schulich School of Law within five years of the date of original registration in the program. Submission of the thesis must follow the rules and regulations laid down by the Faculty of Graduate Studies.

Thesis Defence Requirements

Each PhD candidate is required to defend the completed thesis in an oral examination. This defence shall be conducted in accordance with the Faculty of Graduate Studies Regulations for Oral Examination of a Doctoral Candidate.

Courses

For a description of courses offered in Law, see the Dentistry, Law, Medicine calendar.

For more information, please visit our website www.dal.ca/law

Management

Location:
Building/Room: Kenneth C. Rowe Management Building
Street Address 1: 6100 University Avenue
Street Address 2: 3rd Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2582
Fax: (902) 494-1195
Website: management.dal.ca
Email Address:

Management courses are included in the graduate programs offered by the following schools: Business Adminstration, Information Management, Public Administration, and Resource and Environmental Studies.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MGMT 4611 Information Policy

CREDIT HOURS: 3
Explores, in a graduate seminar setting, a range of issues currently facing information professionals and the effect of these issues on policy development. Discusses the roles of all levels of government, the private and not-for-profit sectors, and key individuals in developing policies which affect information creation, control, access, and use. Focuses on Canadian issues, and includes international affairs as appropriate to the information society.

MGMT 5000X/Y Management Without Borders: A Foundation Course for Masters Students in Management

CREDIT HOURS: 3
This course places management in its broadest context and helps students from diverse disciplines 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, responsible leadership, sustainable economic development, stakeholder theory, risk management and knowledge management. A significant portion of the course is devoted to interdisciplinary / inter-professional group work. Students from different programs are brought together to work with a Nova Scotia organization that has identified a relevant and timely project topic for the group. The project provide students with the opportunity to hone important skills in team dynamics, inter personal communication, project management, managing scope and ambiguity, information gathering, research and writing professional reports. The course is team taught by leading faculty from across the Faculty of Management as well as guest speakers. Learning opportunities are delivered in a mix of formats, including lectures, tutorials, readings, multidisciplinary cases and group discussions.
FORMAT: Lecture| Tutorial

MGMT 5001 Information, People and Society. Part 1

CREDIT HOURS: 3
This course provides an introduction to the economic, political, and social dimensions of an information-rich environment. Includes consideration of the historical development of information and knowledge production, issues of control versus free flow of information management in support of situational understanding and decision-making, the organization of knowledge, and the ethical and legal aspects of information management.
FORMAT: Lecture| Discussion| Online Delivery

MGMT 5002 Organization of Information, Part 1

CREDIT HOURS: 3
Information management is the management of organizational processes and systems that acquire, create, organize, distribute, and use information. This course examines the various means by which information can be organized to facilitate its retrieval, management and use, and provides an overview of the principles and theories of metadata development and implementation in the digital environment. Emphasis will be placed on metadata interoperability, vocabulary control, standardization, quality control and evaluation. Contextually-relevant information is essential to support decision making and strategic planning by individuals, groups and organizations. An introduction to the principles of IA is included, as they interconnect with best practices in the Organization of Information.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5003 Information Systems & Technologies, Part 1

CREDIT HOURS: 3

This course makes clear the relationship between IT and IM, often misconstrued in organizations. The course includes theories of databases and integrated systems design, allied with practical applications of a wide range of information technologies to support organizational goals. These include traditional intranet and extranet applications along with emerging Web 2.0 technologies. Concepts of information architecture (IA) are introduced relating to the design of shared information environments which are often web-based, including intranets, databases and online communities. The practices of IA are examined through analyses of real organizations and how the information environment can best serve their mission, goals, processes, clients, suppliers and other stakeholders.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5004 User Experience, Part 1

CREDIT HOURS: 3

Understanding of theories and practices of human computer interaction is a key determinant of organizational success. This course explores how technology affects human use, and examines the process from conception of an idea to design and evaluation, with a particular emphasis on Web-based activities. The course discusses individuals' and groups' information seeking behaviours in public and private contexts, and the theories and models of information seeking behaviour that contribute to a nuanced understanding of the user experience.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5005 Information Policy, Part 1

CREDIT HOURS: 3

This course explores a range of critical information issues facing organizations and the effects of policies and legislation on information management and organizational effectiveness. Topics include access to information, freedom of information, protection of privacy, preservation of information, etc. Professional ethics guiding information professionals are discussed alongside compliance. By law(s) in Canada, all government and corporate entities are required to appoint an individual responsible for privacy within the organization, and all government and selected other agencies are required to delegate staff responsible for information access and privacy. Discusses the roles of all levels of government, the private and not-for-profit sectors, and key individuals, in developing policies which affect information creation, control, access and use. Focuses on Canadian issues, while including international perspectives.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5006 Program Evaluation, Part 1

CREDIT HOURS: 3

Introduces the concepts and components of evaluation as part of the increasing demand for accountability and as an integral part of program management. The course uses evaluation theory and program theory as the basis for all evaluation activity. Connection will be made with current evaluation issues and debates in the public and non-profit sectors.

MGMT 5007 Research Methods, Part 1

CREDIT HOURS: 3

Introduces concepts, methods (both quantitative and qualitative), and the practices of research that support evidence-based information management practice. Addresses the nature and uses of research, tools for research, handling of evidence, analysis and interpretation of findings, reporting of results, evaluation of published reports, and the management of research.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5008 Knowledge Management, Part 1

CREDIT HOURS: 3

Knowledge management (KM) encompasses a range of theories and practices relating to the creation, identification, accumulation and application of knowledge to meet organizational goals. This course discusses theories of KM, intellectual capital and learning organizations, and practices for efficient and effective harnessing of organizational knowledge. An integrative approach is adopted, based on the key KM theories and concepts developed in the past decade and applying them across a wide range of organizational settings.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5009 Collaboration, Part 1 (Elective)

CREDIT HOURS: 3

Geographically dispersed workplace teams who cross time, space and organizational boundaries are increasingly common. Information managers increasingly contribute expertise to ensure that such teams have effective decision-making processes and contribute to organizational strategic goals. Virtual collaboration can take place through many modes including audio or teleconferencing, online communities and others. Team members have a common purpose and interdependent organizational and performance goals. This course introduces theories and concepts relating to the rationale for, benefits and challenges of virtual workplace teams, steps for developing effective virtual teams and examples of technology that supports such teams.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5010 Project Management, Part 1 (Elective)

CREDIT HOURS: 3

This course introduces theories and practices of project management (PM) related to project objectives, development stages and control variables such as time, cost and scope. PM stages include initiation, development, execution and maintenance and the course explores these through workplace case studies related to students' professional experience. Adaptive as well as pre-planned methods and approaches are explored, including process based systems, critical path and event chain.

FORMAT: Lecture| Discussion| Online Delivery

MGMT 5012 Records Management, Part 1 (Elective)

CREDIT HOURS: 3

How organizations engage in document or records management has a direct bearing on their efficiency and effectiveness, including legal and ethical compliance. The course offers a comprehensive introduction to the field of records and information management in all formats including, but not limited to, paper and digital. Topic covered include: records creation, evaluation, maintenance and control; records classification system; records retention; records disposition; and vital records and continuity planning.

FORMAT: Lecture| Discussion| Online Delivery

PREREQUISITE: MGMT 5002.03
CROSS-LISTING: INFO 6370.03

MGMT 5015 Information Policy, Part 2

CREDIT HOURS: 1
Course complements MGMT 5005.03 Part 1 and is a face-to-face, two day intensive period. Course will allow students to bring together and apply the concepts and materials from MGMT 5005, consider the international context within which information policy issues in Canada are situate, and to provide students with the opportunity for sufficient grounding in relevant areas of law.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5005.03

MGMT 5020 Capstone Course, Part 1

CREDIT HOURS: 3
Based on individual learning objectives, students may choose either a case study or a research project as the final assessed item for the Program Structure. They will have been advised, in light of their interests, to take either MGMT 5006 or MGMT 5007 as preparation for the Capstone. Students work with an advisor, under the general supervision of the course instructor, to complete a case or a project of special relevance to their workplace. Cases and projects are assessed on the extent to which they demonstrate application of the theories and techniques explored throughout the program.
FORMAT: Lecture| Discussion| Online Delivery
PREREQUISITE: MGMT 5006.03 or MGMT 5007.03

MGMT 5101 Information, People and Society, Part 2

CREDIT HOURS: 1
Course complements MGMT 5001: Part 1 and is a face-to-face, two day intensive period. Course will outline and emphasize options and strategies to address information management issues arising in the context of topics considered in MGMT 5001 and developed from IM case studies. [A take home exam will be completed following the onsite intensive.]
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5001.03

MGMT 5102 Organizational of Information, Part 2

CREDIT HOURS: 1
Course complements MGMT 5002: Part 1 and is a face-to-face, two and a half day intensive period. Course will focus on practical applications of theories learned in MGMT 5002, notably metadata standards and document content management systems. [A take home test will be completed as part of this intensive.]
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5002.03

MGMT 5103 Information Systems and Technology, Part 2

CREDIT HOURS: 1
This course complements MGMT 5003 and is a face-to-face, two and a half day intensive period. Course will focus on the practical applications of theories learned in MGMT 5003, notably working in an "always on" information environment, business intelligence, influences of the "mash-up" and social networking.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5003.03

MGMT 5104 User Experience, Part 2

CREDIT HOURS: 1
Course complements MGMT 5004 and is a face-to-face, two day intensive period. Course will build on knowledge gained during the online course MGMT 5004. Students will learn and practice effective ways to present plans and findings from usability studies, and work as a team during a mock UCD process.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5004.03

MGMT 5105 Government Structure and Organization

CREDIT HOURS: 3
This course focuses on the Canadian system of government and addresses basic organizational theory and design as well as fundamental issues of public management.
FORMAT: Online Delivery

MGMT 5106 Program Evaluation, Part 2

CREDIT HOURS: 1
Course complements MGMT 5006 and is a face-to-face, two day intensive period. Course will build on knowledge gained during the online course MGMT 5004. Students will learn and practice effective ways to present plans and findings from usability studies, and work as a team during a mock UCD process.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5006.03

MGMT 5107 Research Methods, Part 2

CREDIT HOURS: 1
Complements MGMT 5007 which introduces concepts, methods (quantitative and qualitative), and the practices of research that support evidence-based information management practice. Addresses the nature and uses of research, tools for research, handling of evidence, analysis and interpretation of findings, reporting of results, evaluation of published reports, and the management of research.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5007.03

MGMT 5108 Knowledge Management, Part 2

CREDIT HOURS: 1
This two day intensive compliments the online course MGMT 5008-Knowledge Management, Part 1, that defines the theoretical & practical applications of knowledge

management as it applies to organizational growth and development. The course elaborates on the identification, creation, accumulation and application of information as it is transformed to intellectual capital for learning organizations.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5008.03

MGMT 5109 Collaboration, Part 2 (Elective)

CREDIT HOURS: 1
Course complements MGMT 5009: Part 1 and is a face-to-face, two day intensive period. Course will help students apply the theories and concepts learned in MGMT 5009 through the examination of case studies of collaboration. Students will be LED through the process of choosing an appropriate technology and devising an implementation plan within their own organization.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5009.03

MGMT 5110 Strategic Management in the Public Sector

CREDIT HOURS: 3
This course explores the concepts, potential and dynamics of strategic management in modern public administration. A wide variety of management instruments and techniques are analyzed.
FORMAT: Online Delivery

MGMT 5112 Records Management, Part 2 (Elective)

CREDIT HOURS: 1
How organizations engage in document or records management has a direct bearing on their efficiency and effectiveness including legal and ethical compliance. This course offers a comprehensive introduction to the field of records and information management in all formats including, but not limited to, paper and digital. Topics covered include: records creation, evaluation, maintenance and control; issues related to the maintenance, storage and disposition of records.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5012.03

MGMT 5120 Capstone Course, Part 2

CREDIT HOURS: 1
This two-day intensive session will include an in-class critical evaluation exercise relating to the MIM program's learning objectives and students' perceived learning outcomes. The remainder of the intensive will involve student presentations of their projects followed by question and answer sessions.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5020.03

MGMT 5125 Policy Formulation & Analysis

CREDIT HOURS: 3
This course covers the techniques, theory and contextual underpinnings central to effective policy management. The course explores strategic approaches to policy design and the role of the policy analyst in modern government.
FORMAT: Online Delivery

MGMT 5135 Managerial Economics

CREDIT HOURS: 3
This course elucidates basic microeconomic theories and principles and applies these to economic decision making. The course increases understanding of the relationship between economic theory and economic policy.
FORMAT: Online Delivery

MGMT 5140 Public Economics

CREDIT HOURS: 3
Introduces the basic principles of public finance and macroeconomics. The role of risk analysis in public sector decision-making is also explored. The course places a special emphasis on the role of government in the economy and on the application of economic theory in public policy analysis within the framework of the Canadian federation.
FORMAT: Online Delivery
CROSS-LISTING: PUAD 5140.03

MGMT 5146 Research Methods

CREDIT HOURS: 3
This course provides a practical setting for understanding the purchase, management and evaluation of research products. Applied research methods, research services and best practices are discussed in depth.
FORMAT: Online Delivery

MGMT 5155 Financial and Managerial Accounting

CREDIT HOURS: 3
This course reviews each of the forms of accounting and financial data that public sector managers will be faced with now – and in the future. The essential concepts of financial and managerial accounting are comprehensively reviewed.
FORMAT: Online Delivery

MGMT 5160 Modern Comptrollership

CREDIT HOURS: 3
This course focuses on the public policy and management issues of governance. It emphasizes development of the skills necessary to assess financial management approaches, develop business plans and implement performance measurement.
FORMAT: Online Delivery

MGMT 5210 Project Management, Part 2

CREDIT HOURS: 1
This onsite intensive complements the distance portion of this course (MGMT 5010), the description and goals for which are provided separately.
FORMAT: Lecture| Discussion
COREQUISITE: MGMT 5010.03

MGMT 6400 Municipal Government

CREDIT HOURS: 3
The course looks at local government's position in the broader public governance structure, its powers and responsibilities, structure and resources interaction with the public, and advocacy role. The course emphasizes the municipal manager's perspective which is to both understand an issue and develop and promote workable solutions for the municipality.
FORMAT: Other (explain in comments)

MGMT 6501 Business and Government

CREDIT HOURS: 3
This course presents the relationship between government and business in North America. It offers a practical approach to understanding the differences in how government and business operate, highlighting the techniques used by each side to influence the other.
FORMAT: Online Delivery

MGMT 6525 Program Evaluation

CREDIT HOURS: 3
This course examines the theory, methods and issues of this growing field. The course emphasizes the skills necessary to assess feasibility of a programme evaluation and to design it. Topics also include underlying values, alternative approaches, and implementation and utilization.
FORMAT: Online Delivery

MGMT 6555 Managing the Information Resource

CREDIT HOURS: 3
This course examines the complex technological changes affecting public administrators. It provides broad-based information about the technological advances underway in Canada and fosters understanding of the opportunities and problems these changes present.
FORMAT: Online Delivery

MGMT 6610 Conflict and Negotiation Management: Personal Practice Foundations

CREDIT HOURS: 3
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.
FORMAT: Lecture| Discussion
CROSS-LISTING: MGMT 4610

MGMT 6650 Human Resource Management

CREDIT HOURS: 3
This course explores the evolving practices and challenges faced by organizations seeking to excel in human resources – an essential determinant of organizational success.
FORMAT: Online Delivery

MGMT 6700 Managing People in Diverse Organizations

CREDIT HOURS: 3
This course explores how managers can deal effectively with human problems in their organizations. Topics include motivation, leadership, communications perception and group dynamics.
FORMAT: Online Delivery

MGMT 6701 Directed Readings

CREDIT HOURS: 1
Provided students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, orconducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6702 Directed Readings

CREDIT HOURS: 1
Provides students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, or conducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6703 Directed Readings

CREDIT HOURS: 1
Provides students with an opportunity to develop a specific interest in the information management field by:studying an aspect of a topic in greater detail than is possible within an existing course,studying an area not currently covered by the curriculum, orconducting a research study or special project.Available by arrangement with the Director.
FORMAT: Online Delivery

MGMT 6705 Analytical Methods

CREDIT HOURS: 3

This course, an advanced graduate course, investigates public-sector organization, research methods and management practices. It reviews strategies and methods guiding organizational change, renewal and re-engineering.

MGMT 6755 Intergovernmental Relations in Canada

CREDIT HOURS: 3

This course focuses on a wide array of policy areas and uses case studies to demonstrate how intergovernmental issues - such as fiscal federalism and coordination of service delivery - are successfully resolved.

FORMAT: Online Delivery

Marine Affairs Program

Location:
Building/Room: Life Sciences Centre
Street Address 1: 1355 Oxford Street
Street Address 2: Room 807
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3555
Fax: (902) 494-1123
Website: www.marineaffairsprogram.dal.ca
Email Address: Marine.Affairs@dal.ca

Introduction

The main focus of the Marine Affairs Program is the Master of Marine Management (MMM), a professional degree program that seeks to develop outstanding marine management professionals through an interdisciplinary approach that includes natural and social sciences, humanities and professionals. Students pursue the MMM in one or more of five related areas (streams):

1. integrated coastal and ocean management;
2. marine environmental management;
3. marine law and policy;
4. fishery policy and management; and
5. maritime transport management.

Staff

Director

Aporta, C., BA, PhD (Alberta)

Faculty

Aporta, C., BA, PhD (Alberta), Marine Affairs Program
Bailey, M., BSc, MSc, PhD (UBC), Marine Affairs Program
Cavanagh, E., BSc, BArch, PhD (Lehigh), Architecture
Chircop, A., LLD, LLM, JSD (Dalhousie), Law and Marine Affairs Program
Fanning, L., BSc, MMM, PhD (Dalhousie)
Hill, P., AB (Dartmouth), MSc, PhD (Wash), Oceanography
Lane, P. A., MSc, PhD (SUNY Albany), Biology
Pelot, R. P., BSc, MSc, PhD (Waterloo), Industrial Engineering
Taggart, C., BSc, MSc, PhD (McGill), Oceanography and Marine Affairs Progam
VanderZwaag, D., BA, MDiv, JD, LLM (Dalhousie), PhD (Univ of Wales), Law

Adjunct (FGS)

Apostle, R., BA, MA, PhD (Calif, Berkeley), Sociology and Social Anthropology and Marine Affairs Program
Brooks, M., BOT, MBA, PhD (Wales), Business Administration
Butler, M., BSc, MSc (Memorial), International Ocean Institute
Carrera, G., BGeophys Eng, MSC Eng, PhD (Toronto), Marine Affairs Program
Charles, A., BScH, PhD (UBC), Finance and Management Science, St. Mary's University
Fournier, R., BSc, MSc, PhD (URI), Marine Affairs Program
Hildebrand, L., BScH, MES (Dalhousie), PhD (Cardiff), World Maritime University
Hodgson, J. R., BSc, MSc (London), FCILT, Marine Affairs Program
Kearney, J., BSc (Acadia), MES (Dalhousie), PhD (Laval), John F. Kearney & Associates
Mahon, R., BSc, MSc, PhD (Guelph), University of the West Indies
Matz-Luck, N., LLM, JD (Heidelberg Univ Law School), University of Kiel
McAllister, R. I., MA, MA (Cantab), Marine Affairs Program
McConnell, M. L., BA, LLB, PhD (Sydney), Law
McConney, P., BSc, MES, PhD (UBC), University of the West Indies
Milley, C., BSc, MSc, MMM (Dalhousie), Marine Affairs Program

Wells, P. G., BSc, MSc, PhD (Guelph), International Ocean Institute
Westhead, M., BSc, MSc (Acadia), Marine Affairs Program
Williamson, H., BSc, BEd, LLB, MBA (Dalhousie), Marine Affairs Program

Cross Listed Faculty

Boxall, J., BA, BEd, MA, MLIS (Dalhousie), Planning
Grant, J., BSc, PhD (South Carolina)

Master of Marine Management (MMM)

The Master of Marine Management (MMM) provides a theoretical and practical basis for understanding coastal and ocean development, planning, and regulatory issues affecting the maritime industries and the sustainable use of the seas' resources. The MMM degree is a professional, interdisciplinary, non-thesis program requiring core courses in the marine, social and management sciences as well as a choice of electives from areas such as marine science, policy and law.

Subject areas addressed in the program include but are not limited to coastal tourism, arctic environmental knowledge, climate change adaptation, coastal tourism, community based co-management, development of non-living resources, ecolabelling and seafood certification, ecosystem based management, fisheries management, indigenous knowledge systems, integrated coastal zone management, marine conservation, marine law and policy, marine protected areas, marine spatial planning, maritime enforcement, maritime transport, risk management and ocean governance. Students are required to complete a graduate project with an emphasis on management, and to undertake a training internship at an organization relevant to their expertise and interests. The overarching emphasis of the program is on the solution of marine management problems by trans-disciplinary synthesis. Teamwork in research and planning is the primary *modus operandi* of the Marine Affairs Program. The MMM degree's format attracts mid-career professionals from all over the world.

Admission Requirements/Deadlines

Applicants must satisfy general requirements for admission to the Faculty of Graduate Studies. These include a Bachelor's Degree from a university of recognized standing with honours or its equivalent with a minimum average of B (3.0 GPA, 73% or Second Class Honours, Upper Division). In some cases, additional university education may be required. Selection criteria include an essay demonstrating interdisciplinary, relevant work experience, and career objectives. Applicants from outside Canada whose first language is not English must demonstrate proficiency in English before admission or have completed a university degree in English. The standard test is TOEFL (Test of English as a Foreign Language). It is also recommended that potential students take the Test of Written English component of the TOEFL. Dalhousie sets a minimum acceptable TOEFL score of 580 for the paper-based test, 237 for the computer-based test and 92 for the internet-based test. Other tests that are accepted by Dalhousie are MELAB (minimum score of 90), IELTS (minimum score of 7) and CAEL (minimum score 60 overall, no band score lower then 50).

The MMM degree may be completed on a part-time basis. Applicants must meet the same requirements for admission as full time MMM students. A limited number of part-time MMM students can be enrolled in an academic year. Part-time MMM students will complete the MMM degree over a period no greater than five contiguous calendar years (e.g. 60 months). The MMM degree is a Program fee degree and part-time MMM students must meet the tuition fee requirements of the Registrar's Office.

The part-time MMM student must take MARA 5001.06: Contemporary Issues in Ocean Management and Development and MARA 5004.03: Marine Management Skills Development in the first year of their MMM degree program. Part-time MMM students will meet with the Academic Coordinator of MAP to prepare a course plan.

Deadline for applications is January 31 for scholarship consideration. All additional applications should be received by March 31.

Scholarships

Scholarships are available on a competitive basis.

All applicants are urged to apply for external scholarship funding from donor organizations, foundations and their home countries. Applicants should be mindful of the application deadline of potential scholarships in the event that they need assistance from MAP to contribute any supporting documentation for their scholarship application.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

All elective courses are open to graduate students in other programs by permission of the instructor.

To facilitate the success in the MMM interdisciplinary degree program, Marine Affairs requires students lacking a foundation in marine sciences or social sciences be exposed to introductory courses in oceanography (OCEA 2000 The Blue Planet) and/or in the social sciences (SOSA 1002 People and Culture). OCEA 2000 and SOSA 1002 are undergraduate courses that provide students with some exposure to the forces at play in the marine environment, and social science theories, methodologies and approaches. The MAP Director, in association with the MAP Admissions Committee, advises the student on which course(s) are required by the student to take as ancillary course(s) during the MMM program.

Course Descriptions

MARA 5001X/Y Contemporary Issues in Ocean Management and Development

CREDIT HOURS: 6
This course offers an introduction to the field of marine affairs and to the broad suite of contemporary issues confronting the ocean and coastal manager. As a foundation core course for MMM students, the course draws on examples from topical streams of the MMM degree program. Subject areas addressed include current governance approaches, negotiation and consensus building, managing and assessing risk to both the human and natural components of the ecosystem and protection and preservation of the coastal and marine environment and the communities that depend on them. The course employs interactive teaching techniques with a group work component.
NOTES: 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.

MARA 5002X/Y Graduate Project

CREDIT HOURS: 6
Students are required to apply the knowledge gained through course work to a specific planning and management problem or issue of interest to them. The project contains both a written and a practical component. The written portion is completed under the supervision of an appropriate academic advisor. Students are required to give a presentation on their graduate project. The practical component provides students an internship period with a local public or private sector agency of relevance to the project topic. The area of research must be approved by the MAP Director and Graduate Project Committee.

MARA 5003 Marine Science and Technology

CREDIT HOURS: 3
This course provides a survey of marine science and technology (basic marine-basin geography and geology, physical, chemical and biological oceanography). Various fields and topics are addressed from a scientific research and technology application perspective. Where possible, and relevant, the application of the scientific findings to issues of management, resource exploitation and policy formation are addressed. Course content and assignments should help marine managers use science and technology to: 1) recognize /formulate problems; 2) identify relevant information necessary to address problems; 3) find relevant and reliable information/assistance; 4) reliably interpret the information to make objective management decisions.

MARA 5004 Marine Management Skills Development

CREDIT HOURS: 3
This course will cover tools and techniques that are relevant for today's marine managers. Students will be introduced to and will practice risk assessment, applied GIS and the project cycle.
FORMAT: Seminar
PREREQUISITE: MMM students only

MARA 5005 Independent Readings

CREDIT HOURS: 3
This course is an option for MMM students who wish to pursue independent research into a specific topic not covered in another course. The topic and area of research must be approved by the MAP Director and the research supervisor.

MARA 5008 Integrated Maritime Enforcement

CREDIT HOURS: 3
The aim of this course is to sensitize students to the complexities of maritime enforcement within a coastal and ocean management framework by building an understanding of the roles of maritime enforcement in integrated planning and management. In doing so, students are introduced to concepts, tools, techniques and procedures of enforcement.
CROSS-LISTING: MGMT 4008.03

MARA 5009 Coastal Zone Management

CREDIT HOURS: 3
This course is designed to introduce students to the concepts, principles, approaches, and issues associated with integrated management of coastal zones worldwide. It uses a systems approach to understanding the global context of coastal zone management. Case studies and examples from developed and developing countries are used to present practical approaches to the management of multiple uses in the coastal zone, including community-based management models.
CROSS-LISTING: ENVI 5204.03, LAWS 2041.03

MARA 5012 Community-Based Co-Management

CREDIT HOURS: 3
This course will critically examine the extent to which community-based co-management provides a viable approach to marine resource management in terms of its

costs and benefits, opportunities for and barriers to its implementation, and conditions necessary for its long-term survival as a practical management tool.
CROSS-LISTING: SOSA 5540.03

MARA 5013 Marine Protected Areas

CREDIT HOURS: 3
The role of MPAs around the world is continually evolving. From fully no-take marine reserves to multiple use marine parks, the range of options available to marine managers is explored. This course will provide the latest information on MPAs with a focus on the Canadian context with exploration of international experiences and best practices.
CROSS-LISTING: BIOL 5013.03, MGMT 4013.03

MARA 5015 Marine Transportation Policy and Administration

CREDIT HOURS: 3
This course will provide a comprehensive overview of marine transportation and related activities. Special emphasis is placed on the role of government, including the formulation of marine transportation policy, supporting legislation/regulation, the development and delivery of regulatory programs, the provision of public marine support services, and associated governance considerations.
CROSS-LISTING: MGMT 4015.03

MARA 5021 Fisheries Management

CREDIT HOURS: 3
This interdisciplinary course focuses on the theory and practice of fishery management, with emphasis on Sustainable Fishery Systems. It will address the structure and dynamics of fisheries, and key themes in managing fisheries for sustainability and resilience, through seminars and class discussion, as well as attendance at related fisheries and coastal events.
CROSS-LISTING: ENVI 5021.03, MGMT 4021.03

MARA 5537 Ocean Governance

CREDIT HOURS: 6

MARA 5589 Politics of the Sea

CREDIT HOURS: 3
The 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 oceans policies and institutions.
FORMAT: Lecture| Seminar
CROSS-LISTING: POLI 4590.03, POLI 5589.03

Mathematics and Statistics

Location:
Building/Room: Chase Building
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P.O. Box: 15000
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Website: www.mathstat.dal.ca
Email Address: gradsect@mathstat.dal.ca

For information on specific programs and courses in Mathematics, Statistics, or Computer Science please refer to the Mathematics, Statistics, or Computer Science sections of this calendar.

Staff

Chairperson of the Department

Smith, B., MSc (Calgary), PhD (Berkley)

Professors Emeriti

Field, C. A., MSc, PhD (Northwestern)
Fillmore, P. A., MSc, PhD (Minn), FRSC
Grunenfelder, L., PhD (ETH Zurich)
Radjavi, H., MA, PhD (Minn)
Swaminathan, S., MA, MSc, PhD (Madras)
Thompson, A. C., PhD (Newcastle upon Tyne)
Paré, R., MSc, PhD (McGill)
Wood, R. J., MSc (McMaster), PhD (Dalhousie)

Professors

Brown, J., MSc, PhD (Toronto)
Coley, A. A., PhD (London), Killam Professor
Dilcher, K., PhD (Queen's)
Dowd, M., MBA, MES, PhD (Dalhousie)
Faridi, S., MA (Brandeis), PhD (Michigan)
Hamilton, D., MA, PhD (Queen's)
Iron, D., MSc, PhD (UBC), Graduate Advisor, Mathematics
Janssen, J. C., MSc (Eindhoven), PhD (Lehigh)
Johnson, K. P., MSc (Toronto), PhD (Brandeis)
Kolokolnikov, T., MSc, PhD (UBC)
Milson, R., MSc, PhD (McGill)
Nowakowski, R. J., MSc, PhD (Calgary), University Research Professor
Selinger, P., PhD (U Pennsylvania)
Smirnov, R., BSc (Kyiv), PhD (Queen's), Director of Mathematics
Smith, B., MA (Calgary), PhD (Berk)
Susko, E., PhD (Waterloo)
Taylor, K., BSc (St. FX), PhD (Alberta)
Thompson, K., PhD (Liverpool) (NSERC University Research Fellow), jointly with Oceanography
Zhao, Y., MSC (Western Kentucky), PhD (UBC), joint appointment with Management

Associate Professors

Beiko, R., PhD (Ottawa), joint appointment with Computer Science
Bielawski, J., MA, PhD (Texas A & M Univ), joint appointment with Biology
Fraser, A. J., MSc (Toronto), PhD (Princeton)

Gu, H., MSc (Peking), PhD (Hong Kong), Director of Statistics
Herbinger, C., MSc (Paris), PhD (Dalhousie), joint appointment with Biology
Mills-Flemming, J., MSc (TUNS), PhD (Dalhousie), Graduate Advisor, Statistics
Mitnitski, A., PhD (Leningrad), joint appointment with Medicine
Pronk, D., MSc, PhD (Utrecht)

Lecturers

Noble, R., MSc (UBC), PhD (Dalhousie)
Sarhan, A., PhD (Ghansk)
Stevens, P., MA, MAEd (UBC), MSc (Delft)
Surovell, A., MA (Univ Mass), AB (Boston)

Postdoctoral Fellows

Acberhard, W., PhD (Geneva, Switzerland)
Augre-Methe, M., PhD (Edmonton)
Duffy, C.
Gregoris, D.
Larrson, U., PhD (Goteburg, Sweden)
Rocha, I.

Adjunct (FGS)

Apaloo, J., PhD (Montana), St. Francis Xavier University
Beattie, M. A., PhD (Queen's), Mt. Allison University
Bonato, A., PhD (Ryerson), Ryerson University
Brunner, H., PhD (Zurich), Memorial University
Ciatti, P., PhD (Italy), University of Padova
Clarke, N., PhD (Dalhousie), Acadia University
Cruttwell, G., PhD (Dalhousie), Mt. Allison University
Curry, E., PhD (Rutgers), Acadia University
Dawson, R., PhD (Cambridge), St. Mary's University
Finbow, S., PhD (Victoria), St. Francis Xavier University
Grant McLoughlin, J., PhD (SUNY at Buffalo), University of New Brunswick
Gupta, R. P., PhD (Delhi), Dalhousie University
Hartnell, B., PhD (Waterloo), St. Mary's University
Haynes, R., PhD (Simon Fraser), Memorial University
Hervik, S., PhD (Cambridge), University of Stavanger
Hofmann, G., PhD (Tu Damstadt), Flagstone RE
Irving J., PhD (Waterloo), St. Mary's University
MacNeil, M. A., PhD (Newcastle), Austral. Inst. of Marine Science
Mastnak, M., PhD (Dalhousie), St. Mary's University
McLenaghan, R., PhD (Cambridge), University of Waterloo
McLoughlin, J. G., PhD (SUNY at Buffalo), University of New Brunswick
Messinger, M. E., PhD (Dalhousie), Mt. Allison University
Millar, M., MSc, PhD (Dalhousie), Mt. St. Vincent University
Milley, R., PhD (Dalhousie), Memorial University
Muir, P., PhD (Toronto), St. Mary's University
Ottaway, P., PhD (Dalhousie), Thompson River University
Piccinini, R., PhD (Wisconsin), Dalhousie University
Ranjan, P., PhD (SFU), Acadia University
Rodney, S., PhD (McMaster), Cape Breton University
Rosebrugh, R., PhD (Dalhousie), Mt. Allison University
Rumsey, J., PhD (Dalhousie), Dalhousie University
Sastri, C. C. A., PhD (NYU), Dalhousie University
Sneddon, G., PhD (Dalhousie), Mt. St. Vincent University
Stewart, C., PhD (Dalhousie), University of New Brunswick, Saint John
Sutherland, W. R. S., PhD (Brown), Dalhousie University
Traves, W., PhD (Toronto), US Naval Academy
Van den Hoogen, R., PhD (Dalhousie), St. Francis Xavier University
Wang, X., PhD (Waterloo), St. Francis Xavier University
Wolfe, D., PhD (Berkeley), SheepDogInc
Yung, W., PhD (Carleton), Statistics Canada

Research Associate

Piccinini, R., (Milan)

Statistical Consultant

Li, L., MSc (Dalhousie)

Mathematics

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The department offers programs leading to the degrees of MSc and PhD in the following areas: algebra, algebraic topology, applied mathematics, category theory, combinatorics, combinatorial game theory, commutative algebra, differential equations, differential geometry, functional analysis, general relativity and cosmology, graph theory, harmonic analysis, logic, number theory, wavelet theory.

Staff

Chair of Department

Smith, B., MSc (Calgary), PhD (Berkley)

Director of Division

Smirnov, R., PhD (Queen's)

Graduate Coordinator

Iron, D., PhD (UBC)

Admissions Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Candidates will normally be expected to hold a degree recognized by Dalhousie University as the equivalent of a Bachelor's degree with Honours in one of its own faculties. TOEFL scores or equivalent English Language Competency tests as listed in the graduate calendar are required for applicants whose native language is not English. Official scores from the appropriate organization must be presented.

To ensure consideration for scholarship funds, applications should be received by January 15.

Master of Science (MSc)

Requirements

1. At least 18 credit hours, not including seminar courses, at the graduate level to be chosen in consultation with a department adviser (i.e. a potential supervisor or the graduate coordinator). In addition, students whose preparation in a particular area of mathematics is deficient will be required to complete appropriate courses which will be designated by the adviser.
2. Attendance and participation in seminars.
3. A satisfactory thesis.
4. Students are required to give an oral presentation (defence) of their thesis and at that time to answer questions about the thesis. This presentation will be made after the thesis is in the hands of the student's committee and will be taken into account when the committee makes its decision.

Doctor of Philosophy (PhD)

Requirements

1. At least 12 credit hours
2. Comprehensive examinations which must be successfully completed within 16 months (nonspecialist) and 24 months (specialist) of registration in the program.
3. Attendance and participation in an appropriate seminar.
4. Preparation and defence of a satisfactory research thesis.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MATH 5001 AARMS Summer Course I

CREDIT HOURS: 3
This course is to be offered by and completed at an AARMS Summer School hosted at an Atlantic University. To register you must have permission from the Graduate Coordinator.
CROSS-LISTING: MATH 4001

MATH 5002 AARMS Summer Course II

CREDIT HOURS: 3
This course is to be offered by and completed at an AARMS Summer School hosted at an Atlantic University. To register you must have permission from the Graduate Coordinator.
CROSS-LISTING: MATH 4002

MATH 5010 Introduction to Measure Theory and Integration

CREDIT HOURS: 3
Lebesgue's theory of measure and integration. The topics include: sigma-algebras, measures, construction of measures, Lebesgue measure on the real line, measurable functions, the Lebesgue integral and convergence theorems, Lp spaces, signed and complex measures, decomposition of measures and the Lebesgue-Radon-Nikodym theorem, product measures and the Fubini-Tonelli theorem.
CROSS-LISTING: MATH 4010.03

MATH 5020 Analytic Function Theory

CREDIT HOURS: 3
Topics include: review of analytic complex functions including topological properties of the plane, Mobius mappings, exponential, logarithmic, trigonometric and related functions, integration and the Cauchy theorem. Cauchy's integral formula, residues, harmonic functions, analytic continuation, entire and meromorphic functions, some results of conformal mapping, including the Riemann mapping theorem.
CROSS-LISTING: MATH 4020.03

MATH 5025 Commutative Algebra

CREDIT HOURS: 3
This introduction to commutative algebra includes a selection of the following topics: prime and maximal ideals, primary decomposition, Noetherian rings, Hilbert's Basis Theorem and the Nullstellensatz.
CROSS-LISTING: MATH 4025.03

MATH 5035 Topics in Commutative Algebra

CREDIT HOURS: 3
This course covers special topics in Commutative Algebra.

MATH 5045 Advanced Algebra I

CREDIT HOURS: 3

Introduction to module theory: modules, submodules, quotient modules, module homomorphisms, generators for modules, direct sums, free modules, tensor products, exact sequences, projective modules, injective modules and flat modules. Modules over principal ideal domains. Additional topics may include homological algebra, Ext and Tor functors, symmetric and exterior algebras.

CROSS-LISTING: MATH 4045.03

MATH 5055 Advanced Algebra II

CREDIT HOURS: 3

Field theory, field extensions, Galois theory and applications.

CROSS-LISTING: MATH 4055.03

MATH 5065 Algebraic Geometry

CREDIT HOURS: 3

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 a selection from: local properties of plane curves, elliptic curves, Bezout's Theorem, Riemann-Roch Theorem.

CROSS-LISTING: MATH 4065.03

MATH 5066 Advanced Statistical Theory I

CREDIT HOURS: 3

This course, together with STAT 5067.03 provides a solid basis in the theory of statistical inference. After a review of some probability and distribution theory, the Bayesian and classical theories of estimation and testing are introduced.

NOTES: Please see course description for STAT 5066 for more details.

CROSS-LISTING: MATH 4066.03, STAT 4066.03/5066.03.

MATH 5070 Algebraic Number Theory

CREDIT HOURS: 3

An introduction to algebraic number theory, with special emphasis on quadratic and cyclotomic fields. A more general study of rings of integers of algebraic number fields focuses on divisibility properties. Other topics include Dedekind domains, ideals and their factorization into prime ideals, and class groups and class numbers.

CROSS-LISTING: MATH 4070.03

MATH 5135 Introduction to Category Theory

CREDIT HOURS: 3

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 explored in detail.

CROSS-LISTING: MATH 4135.03

MATH 5136 Topics in Category Theory

CREDIT HOURS: 3

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.

CROSS-LISTING: MATH 4136.03

MATH 5140 Introduction to Functional Analysis

CREDIT HOURS: 3

An introduction to the basic principles of functional analysis including the following topics: infinite dimensional vector spaces, normed spaces, inner-product spaces, Banach and Hilbert spaces, linear and continuous linear functionals, the Hahn-Banach Theorem, the principle of uniform boundedness, dual spaces, weak* topology, and the Alaoglu theorem, the open mapping and closed graph theorems, and consequences and applications.

CROSS-LISTING: MATH 4140.03

MATH 5165 Mathematical Methods in Physics

CREDIT HOURS: 3

Complex variables and applications including solutions to Laplace equation, ideal fluid flow and Joukowski airfoil. Fourier series and generalizations; separation of variables; completeness. Green's functions in one and two dimensions. Asymptotic evaluation of integrals and special functions. Plus some additional topics in mathematical physics.

CROSS-LISTING: MATH 4165.03, PHYS 4160.03/5160.03

MATH 5170 General Topology

CREDIT HOURS: 3

An introduction to topological spaces that includes the following topics: classification in terms of cardinality of bases, separation, etc., product spaces, Tychonoff theorem, compactness, compactifications, Tychonoff spaces, metrization.

CROSS-LISTING: MATH 4170.03

MATH 5180 Introduction to Algebraic Topology

CREDIT HOURS: 3

An introduction to algebraic topology including the following topics: the definitions, properties and methods of computation of the fundamental group of a topological space; simplicial, singular and cellular homology groups; basic properties and methods of computation of homology groups; a selection of application such as the classification of surfaces and fixed point theorems.

CROSS-LISTING: MATH 4180.03

MATH 5190 Ordinary Differential Equations

CREDIT HOURS: 3
A graduate-level introduction to ordinary differential equations. Topics covered include flows, existence and uniqueness theorems, continuity of solutions, coordinate transformations, symmetry methods and reductions, linearization of dynamical systems, and ODEs on manifolds.
CROSS-LISTING: MATH 4190.03

MATH 5200 Ordinary Differential Equations - Qualitative Theory

CREDIT HOURS: 3
Qualitative theory is concerned with determining the behaviour of solutions of differential equations without finding explicit solutions. Topics are selected from Liapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of plane singular points, structural stability and Hamiltonian systems. Other topics at the instructor's discretion.
CROSS-LISTING: MATH 4200.03

MATH 5220 Introduction to Partial Differential Equations

CREDIT HOURS: 3
This course is a basic introduction to the theory of partial differential equations. Topics covered include: modelling physical systems, method of characteristics, Laplace, wave and heat equations, separation of variables, eigenfunction expansions, integral transforms, maximum principles and Ritz Raleigh theory.
CROSS-LISTING: MATH 4220.03

MATH 5230 Partial Differential Equations

CREDIT HOURS: 3
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, numerical methods, applications to physical sciences, variational methods, Sobolev Theory.
CROSS-LISTING: MATH 4230.03

MATH 5250 Asymptotic Analysis

CREDIT HOURS: 3
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.
CROSS-LISTING: MATH 4250.03

MATH 5320 Combinatorial Optimization

CREDIT HOURS: 3
Various graph algorithms will be presented and analyzed. Specifically we will treat 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.
PREREQUISITE: Some knowledge of linear programming and the theory of algorithms is recommended.
CROSS-LISTING: MATH 4320.03

MATH 5330 Topics in Graph Theory

CREDIT HOURS: 3
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 methods in graph theory.
CROSS-LISTING: MATH 4330.03, CSCI 4115.03

MATH 5340 Discrete Random Structures

CREDIT HOURS: 3
This course will cover basics of probability and stochastic processes, and then focus on areas where probability and combinatorics interact. Topics include: probabilistic method, stochastic graph models for complex networks, probabilistic algorithms. Probabilistic techniques include: expectation and concentration of random variables, stochastic processes, conditional expectation, Markov chains, martingales, branching processes.
CROSS-LISTING: MATH 4340.03

MATH 5360 Combinatorial Modelling

CREDIT HOURS: 3
This course introduces a common framework for combinatorial structures (graphs, diagraphs, hypergraphs, posets, preorders, 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.
CROSS-LISTING: MATH 4360.03

MATH 5370 Combinatorics: Techniques and Structures

CREDIT HOURS: 3
We introduce counting techniques and combinatorial structures, and show their application 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
CROSS-LISTING: MATH 4370.03

MATH 5410 Cosmology

CREDIT HOURS: 3
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.

CROSS-LISTING: MATH 4410.03, PHYC 4660.03/5660.03

MATH 5500 Introduction to Harmonic Analysis

CREDIT HOURS: 3

This course will cover the basic elements of Lp-spaces, 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.

CROSS-LISTING: MATH 4500.03

MATH 5530 Differential Geometry

CREDIT HOURS: 3

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.

CROSS-LISTING: MATH 4530.03

MATH 5540 Applied Analysis

CREDIT HOURS: 3

This course is an introduction to the methods of modern applied analysis. Topics include: Fourier series, tensor calculus, and the calculus of variations. The course is suitable for advanced undergraduates and the graduate students specializing in applied mathematics, relativity, differential geometry, and differential equations.

CROSS-LISTING: MATH 4540.03

MATH 5650 General Relativity

CREDIT HOURS: 3

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 Schwarzchild solution, gravitational collapse, black holes, and cosmology.

CROSS-LISTING: MATH 4650.03, PHYC 4650.03/5650.03

MATH 5660 Theory of Computation

CREDIT HOURS: 3

This is a course on formal languages and computational models. Topics covered include finite automata, pushdown automata, Turing machines, undecidability and recursive and recursively enumerable functions. Some applications to computer science are also discussed such as compiler design and text processing.

CROSS-LISTING: MATH 4660.03, CSCI 4112.03

MATH 5680 Topics in Logic and Computation

CREDIT HOURS: 3

This course covers topics of current interest in logic and/or 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.

CROSS-LISTING: MATH 4680.03

MATH 5900 Combinatorial Game Theory

CREDIT HOURS: 3

This course looks at two-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 classes of hot, all-small and impartial games.

CROSS-LISTING: MATH 4900.03

MATH 9000 Master's Thesis

CREDIT HOURS: 0

MATH 9520 Comprehensive Examinations

CREDIT HOURS: 0

A passing grade in this course indicates that a PhD student has completed the comprehensive examinations requirement of the Mathematics PhD program. This course must be passed at most 16 months after the beginning of the student's program. To pass this course, a student must pass three comprehensive examinations following the procedures outlined by the department.

MATH 9530 Doctoral Thesis

CREDIT HOURS: 0

Mechanical Engineering

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Email Address: mech.admin@dal.ca

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; power generation, utilization and control; environmental control; and industrial management. In these areas, the Mechanical Engineer may become involved with design, construction, operation, development, research, planning, sales and management. The curriculum is designed to develop an understanding of the fundamental principles of Mechanical Engineering through lecture, tutorial, and laboratory activities. Modern well-instrumented laboratories in thermofluids, energy conversion, stress analysis, vibrations, and control systems provide experience in measurements and applications to ensure a thorough understanding and appreciation of the subject matter. Courses in mathematics, engineering management and various non-technical subjects are offered to broaden the student's outlook and understanding of this profession.

Postgraduate studies in the Department are concentrated in the areas of stress analysis, heat transfer, multi-phase flow, fluid and thermal power, dynamics of rotating machines, robotics, composite materials and smart structures, MEMS, computer aided design and manufacturing and naval architecture. Research and project master's degrees as well as the doctoral degree are offered.

Staff

Department Head

Doman, D. A., BASc, MASc (Waterloo), PhD (Dalhousie), PEng

Professors Emeriti

Cochkanoff, O., BASc (UBC), MASc (Toronto), PhD (Iowa State), FCASI, FEIC, FC, SME, PEng, CD
Russell, L. T., BEng (TUNS), MSc (Qu), PhD (Car), PEng

Professors

Allen, P. L., BSc (Mt. A), BEng (TUNS), MESc (UWO), PhD (TUNS), PEng. Solar thermal energy utilization, heat exchangers, heat transfer
Basu, P., BE (Cal), PhD (Burd), PhD (Aston), PEng. Biomass energy conversion, recycling, heat transfer, boiler design and fluidized bed combustion/gasification
Bauer, R. J., BSc (Waterloo), PhD (Toronto), PEng. Dynamics and control, grinding
Chuang, J. M., BSc (Nat. Taiwan Ocean), MEng (Memorial), PhD (TUNS), PEng (Naval Architecture). Numerical modelling of nonlinear free-surface flow, optimal hull form for a SWATH ship, low-cost Unix system for computational mechanics
Hubbard, T., BSc (Dalhousie), BEng (TUNS), PhD (CalTech), PEng. MEMS - Micro Electro Mechanical Systems. Undergraduate Coordinator
Kalamkarov, A. L., BSc, MASc, PhD (Moscow State), DSc (Acad Sci., USSR), PEng. FASME, FCSME, FJSPS. Stress and strength analysis, modeling, design and optimization of composite materials and smart structures
Kujath, M. R., MSc (Warsaw Univ of Techn), PhD (Polish Academy of Sciences), PEng. Mechanisms and machinery, MEMS, robotics, space mechanics. Graduate Seminar Coordinator
Militzer, J., BSc (EEM Brazil), MSc (USP Brazil); PhD (Wat), PEng. Energy, computational fluid dynamics
Pan, Y. J., BEng (Yanshan) MEng (Zhejiang), PhD (NUS, Singapore), PEng. Nonlinear systems and control, Network control systems, robotics. Graduate Coordinator
Ugursal, V. I., BSc (Bogazici), MEng, PhD (TUNS), PEng. Modeling of residential energy consumption, energy conversion and conservation. Recruitment Coordinator
Warkentin, A., BEngMgt, MEng (McMaster), PhD (Waterloo), PEng CAD/CAM grinding, 5-axis machining

Associate Professors

Doman, D. A., BASc, MASc (Waterloo), PhD (Dalhousie), PEng. Solid mechanics, powder metallurgy compaction, finite element modeling

Groulx, D., BSc, PhD (Sherbrooke), PEng. Phase change and applied heat transfer, energy storage, temperature control, tidal and fluid mechanics energy
Johnston, C. R., BSc, MSc (Alberta), PhD (Calgary), Associate Professor and NSERC Chair in Design Engineering
Swan, L., BSc (Cal Poly), MASc, PhD (Dalhousie), PEng. Energy storage, renewable energy, electric vehicles, energy demand analysis, building performance modeling and simulation, building controls. Co-op Coordinator

Adjunct (FGS)

Beausoleil-Morrison, I., BASc, MASc (Waterloo), PhD (U of Strathclyde)
Fung, A., BSc (Dalhousie), BEng, MASc (TUNS), PhD (Dalhousie), PEng
Irani, R. BASc, MASc, PhD (Dalhousie), PEng
Joseph, A., BSc (St. FX), MSc (NSAC), PhD (Dalhousie)
Molloy, S., BSc (Environmental) (Waterloo), BEng Mechanical Engineering (Concordia), MEng Ocean Engineering, PhD (Memorial)
Quinn, W., BSc (U ASc Hamburg), MSc (TU Berlin), MSc, PhD (QU)
Seto, M., BASc, MASc, PhD (UBC), PEng

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MECH 6010 Manufacturing Processes

CREDIT HOURS: 3
This course introduces the student to the fundamentals of manufacturing processes. Emphasis will be placed on metal cutting and grinding processes. Specific topics include: chip formation, cutting mechanics, tool material and geometry, temperature, heat transfer, tool wear, thermal damage, machine tool dynamics for grinding and single point machining.
FORMAT: Lecture

MECH 6100 Boundary Layer Theory

CREDIT HOURS: 3
The derivation of the Navier-Stokes equations and several exact solutions are considered. The boundary layer equations and some solutions for two dimensional axially symmetric flows are treated as well as non steady boundary layers.The integral method of solution of boundary layer equations is followed by boundary layer control.An introduction to the theory of turbulence is given.

MECH 6110 Turbulence in Real Fluids

CREDIT HOURS: 3
The first part of this course deals in some detail with the theory of measurements and the analysis of random data. Statistically based functions such as turbulence intensities, correlation functions, energy spectra, are examined in relation to fluid processes.The second phase of this course examines the present level of knowledge of turbulence of fluids in rigid and visco-elastic ducts, without and with superimposed pressure gradients. Properties of real fluids are stressed and considerable emphasis is laid upon experimental results, applying the methods of measurement and analysis outlined above. Two and three dimensional anemometry techniques are examined applied.

MECH 6120 Computational Fluid Dynamics and Heat Transfer

CREDIT HOURS: 3
The finite difference discretization method is applied to the solution of the partial differential equations arising from the mathematical modelling of fluid flow, heat transfer and combustion processes. Items like convergence, stability, consistency, numerical diffusion and turbulence modelling will also be presented.

MECH 6140 Fluidization Phenomena I

CREDIT HOURS: 3
The physical properties of the fluidized state, the behaviour of bubbles, the flow patterns of fluids and head and mass transfer in a bubbling fluidized bed boiler reactor. Design fluidized bed equipment.

MECH 6142 Steam Plant Engineering

CREDIT HOURS: 3
This course aims to provide basic fundamental and practical information to engineering students to design and operate thermal power plants. Topics covered are:

classification of steam generator; comparison of water-tube and fire-tube boilers; energy sources; fuels and combustion; thermal analysis of furnaces; superheaters, economizers, and air preheaters; boiler efficency calculations; burner, pulverizer, cyclones, fluidized beds; auxilliary equipment (fans, stacks); control system; cooling system design; environmental considerations.
FORMAT: Lecture| Tutorial
PREREQUISITE: ENGI 2800.03 or equivalent
CROSS-LISTING: MECH 4840.03

MECH 6145 Fluidization Phenomena II

CREDIT HOURS: 3
This course deals with industrial aspects of circulating fluidized bed and fluidized bed heat transfer. It will cover design of fluidized bed reactors, heat exchangers and boilers. Mechanical design of components such as distributor, solid-field system will be covered.

MECH 6200 Advanced Heat Transmission I

CREDIT HOURS: 3
This course deals with advanced topics in convection heat transfer. The governing equations for forced and natural convection are derived and solved by scaling analyses. Integral and similarity solutions are also obtained for the governing equations. The development of empirical correlations for evaluating the heat transfer from commonly encountered geometries is also covered.

MECH 6210 Advanced Heat Transmissions II

CREDIT HOURS: 3
An advanced study of the transmission of heat by radiation. Topics covered include: physical properties of radiation, thermal radiation laws, characteristics of real and ideal systems, geometric shape factors, grey and non-grey system analysis, energy transfer in absorbing media and luminous gases, solar radiation.

MECH 6250 Advanced Transport Phenomena

CREDIT HOURS: 3
This course deals with advanced mathematical and physical topics in transport phenomena. Both the macroscopic and microscopic conservation laws of mass, heat and momentum transport are built and solved for analytically. Diffusion and convection physics are presented, for multi-dimensional, transient and coupled phenomena. Multiphase processes are also introduced.
FORMAT: Lecture| Tutorial
PREREQUISITE: MECH 3305 & MECH 3705, or PEAS 3600, or equivalent, or instructor's permission.
CROSS-LISTING: PEAS 6250

MECH 6325 Micro-electro-mechanical Systems (MEMS)

CREDIT HOURS: 3
This course deals with micro-machining and MEMS (micro-electro-mechanical systems). The following topics will be covered: scaling issues, fabrication technologies and production methods, classification and analysis of MEMS devices (both sensors and actuators). The integration of multiple devices into systems will be addressed including issues of assembly and interfacing. Micro-machining will be compared and contrasted to both micro-electronics and traditional micro-machining. The development and use of MEMS simulation and design tools will be covered.
PREREQUISITE: Approval of instructor.

MECH 6340 Energy Management I

CREDIT HOURS: 3
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; energy saving opportunities in refrigeration and cooling systems; insulation; and electrical energy conservation. An inter-disciplinary approach will be employed in this course to provide a wider understanding of the subject.
CROSS-LISTING: MECH 4340.03
RESTRICTIONS: Graduate students in Mechanical Engineering. Other disciplines subject to instructor approval.

MECH 6341 Energy Management - II

CREDIT HOURS: 3
This course is a continuation of MECH 6340. The subjects that will be discussed in this course are computer technology for energy conservation; energy saving opportunities in fired heaters and boilers; cogeneration; waste heat recovery; and synthesis of heat and power networks. Although MECH6340 is not a prerequisite for this course, it is advisable that both courses are taken to have a complete coverage of the subject.
RESTRICTIONS: Graduate students in Mechanical Engineering. Other disciplines subject to instructor approval.

MECH 6346 Advanced Energy Storage

CREDIT HOURS: 3
Analysis, design, and use of advanced energy storage to provide temporary decoupling of energy resources (e.g. wind, solar, tidal, geothermal) from energy demand (e.g. heating, cooling, electricity). Technologies under investigation include: batteries, latent/sensible thermal, compressed air, pumped hydro, and hydrogen. Storage duration of seconds to seasons is considered.
FORMAT: Lecture
RESTRICTIONS: Graduate students in Mechanical Engineering. Other disciplines subject to instructor approval.

MECH 6350 Advanced Engineering Design

CREDIT HOURS: 3
An undergraduate education necessarily concentrates on analysis. This course focuses on synthesis. Creativity is the engine of design and analysis is the feedback governing design. Through the media of case studies, laboratory exercises, instruction, and practice, this course studies the process of design; the business of translating societal needs into real, manufacturable objects. Lecture topics will include: the hierarchical, iterative nature of design; aids to creativity; the appropriate use of analysis; the transformation from functional space to physical space; prototype design; consumer durable versus capital equipment design; and special lectures on microprocessors in machinery, optimization, and CAD/CAM.

MECH 6420 Advanced Fluid Mechanics

CREDIT HOURS: 3

A general review of principle concepts and methods in fluid dynamics will be conducted. Advanced treatment with mathematical techniques for solving specific classes of fluid-flow problems will be introduced, including: surveys of governing equations and basis theories; two- and three- dimensional potential flows; surface waves; boundary-layer theory; and, shock-wave phenomenon.

PREREQUISITE: ENGM 4343.03 and MECH 3420.03 or equivalent.

MECH 6440 Principles of Marine Craft Design

CREDIT HOURS: 3

An introduction to the basic principles of hydrostatics and hydrodynamics for surface ships, submarines, and other marine craft. Topics include: hydrostatics, stability, dimensional analysis and modelling; resistance estimation of low-speed and high speed craft, and propulsion. Students will use software tools.

FORMAT: Lecture| Lab| Tutorial

CROSS-LISTING: MECH 4440

MECH 6500 Mechanical Vibrations

CREDIT HOURS: 3

Free and forced vibrations of elastic bodies, such as beams, plates, and shells are examined. Response due to shock and random loading is introduced. Vibration measuring instrumentation is described and several laboratory experiments are carried out.Industrial applications are studied including vibration of machinery, ships, and the response of humans to whole body vibration.

MECH 6510 Advanced Mechanics of Solids

CREDIT HOURS: 3

The course provides an introduction to the general equations of the theory of elasticity of an anisotropic solid. Elastic equilibrium and boundary value problem formulations are considered. The theories of thermoelasticity, viscoelasticity and plasticity are introduced. The course also provides an introduction to modeling of inhomogeneous composite solids, the effective moduli theory, and the elasticity of composite laminates. The fundamentals of fracture mechanics and applications to mechanical design are considered.

PREREQUISITE: ENGI 2200.03, MECH 4300.03

MECH 6521 Applied Dynamics

CREDIT HOURS: 3

This course begins with a review of planar kinematics and kinetics of rigid bodies. These concepts are extended to kinematics and kinetics of rigid bodies undergoing general three dimensional motion. Euler's Equations are applied to a wide range of engineering problems including vehicular and gyroscopic dynamics. Energy methods for bodies undergoing three dimensional motion are applied to multi-degree-of-freedom systems. Single-degree-of-freedom systems subjected to random and shock inputs are analyzed.

FORMAT: Lecture| Lab| Tutorial

LECTURE HOURS PER WEEK: 2

CROSS-LISTING: MECH 4521.03

MECH 6530 Mechanics of Composites and Smart Structures

CREDIT HOURS: 3

The course introduces classification of composite materials, basic relations of anisotropic elasticity, and macro- and micromechanical scales of analysis. The elastic behaviour of fiber reinforced composites; effective moduli theory; elasticity and strength of composite laminates are considered. Asymptotic homegenization method and its applications to mechanical modeling of composites are introduced. Smart (adaptive) structures and their constituents are discussed and the mechanical behaviour of smart structures is considered.

FORMAT: Lecture| Lab

PREREQUISITE: ENGI 2200.03, MECH 4300.03

MECH 6540 Continuum Mechanics

CREDIT HOURS: 3

This course introduces the students to the fundamental principles of continuum and applied mechanics. The course will cover tensor algebra/calculus, strain and deformation measures (both Lagrandian and Eulerian approaches), stress, conservation laws in solid and fluid mechanics and constitutive laws in elastic materials, Newtonian fluids and viscoelastic solids.

FORMAT: Lecture| Tutorial| Seminar

PREREQUISITE: Stress Analysis (e.g. MECH 4300, CIVL 3700, MATL 3621), Fluid Mechanics (e.g., ENGI 2300), basic ordinaray differential equations (e.g., ENGM 2021), basic linear algera (e.g., ENGM 3361).

MECH 6560 Space Systems

CREDIT HOURS: 3

This course deals with the engineering design and analysis of space systems and their interrelationships. Topics include orbital mechanics, satellite pertubations, satellite actuator and sensor systems, communication facilities and networks, satellite access and coverage.

FORMAT: Lecture| Tutorial

LECTURE HOURS PER WEEK: 3

CROSS-LISTING: MECH 4560.03

MECH 6620 Identification of Systems

CREDIT HOURS: 3

The objective of this course is to introduce methods of dynamic system identification. System identification leads to development of optimal mathematical models of physical systems from experimentally collected digital data. Topics include: experiment design for identifiability, digital signal filtering, mathematical optimization, system parameter estimation, modal analysis of vibratory systems.

MECH 6640 Robot Mechanics

CREDIT HOURS: 3

This course provides a brief introduction to the field of Robotics, a brief review of selected topics from linear algebra, and an introduction to theoretical kinematics. The main part of the course includes such topics as: robot geometry, velocity Jacobians, derivation of equations of motion; force, manipulability, inertia and compliance analysis; position and force control, optimization of kinematic redundancy, multirobot coordination; robot calibration; performance testing and characterization. The course also provides an introduction to space robots, smart structures, and walking machines as well.
PREREQUISITE: MECH 4640.03 or equivalent

MECH 6660 Finite Element Method in Mechanical Design

CREDIT HOURS: 3
Class 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 the necessary relationships from linear elasticity, beam and plate theory. Various categories of structural elements are discussed in order of increasing complexity. Stresses in one- and two-dimensional trusses, beams, axisymmetric solids, and plates are considered. Finite element program is introduced and used in the class assignments.
FORMAT: Lecture| Lab| Tutorial
LECTURE HOURS PER WEEK: 2
CROSS-LISTING: MECH 4660.03

MECH 6710 Computational Hydrodynamics I

CREDIT HOURS: 3
This course deals with the computational methods for 2-D and 3-D potential flow in the infinite domain. The theories of boundary integral equation (BIE), Cauchy's formula and conformal mapping are introduced. The discretization techniques for numerical solution of hydrodynamics problems are emphasized. The alternative formulation of BIE for the thin body is discussed. The body-geometry approximation with Non-Uniform Rational B-Spline (NURBS) is also covered.
PREREQUISITE: MECH 3300.03, approval of the instructor

MECH 6905 Autonomous Robotics

CREDIT HOURS: 3
Introduction to autonomous robotics with a focus on the marine environment. Discussions to probalistic robotics, application to modern machine learning techniques, knowledge-based systems to robotic decision-making. an overview of the robotics environment, Bayesian filtering, simultaneous localization and mapping, and optimal control. Students will implement the theories on actual robots for the course project.
FORMAT: Lecture| Lab
PREREQUISITE: Undergraduate probability and statistics, some programming, and calculus
CROSS-LISTING: CSCI 6511.03

MECH 6910 Graduate Seminar I

CREDIT HOURS: 3
MENG and MASC. students in mechanical engineering will prepare and present seminars on research topics related to their thesis project. Master's students shall present a minimum of one seminar. Graduate students are required to attend all graduate seminars. Students will be evaluated on their preparation, presentation skills, ability to field questions and regular attendance. Graded pass/fail.

MECH 6950 Advanced Control Engineering

CREDIT HOURS: 3
The course continues to develop the students' capabilities in system simulation and feedforward/feedback control-system design and implementation. Topics include: system-parameter identification, control-system hardware, computer-based control systems, design techniques for multiple-input multiple-output systems, and adaptive control. The course is supported by computer-based simulation activities and design procedures, and by hands-on laboratory experience.
FORMAT: Lecture| Lab| Tutorial
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: MECH 4950.03

MECH 6951 Applied Nonlinear Control

CREDIT HOURS: 3
Advanced nonlinear control approaches are introduced to the students. Applications to highly nonlinear electro-mechanical systems are discussed. Topics include: characteristics of nonlinear systems, feedback linearization, gain scheduling, adaptive control, robust and optimal nonlinear control, sliding mode control, passivity based control, backstepping, describing function, anti-windup saturations and singular perturbations etc.
FORMAT: Lecture| Tutorial
PREREQUISITE: MECH 4900 or ECED 4600 or CHEE 3550

MECH 6960 Computational Methods in Engineering

CREDIT HOURS: 3
The course presents basic computer methods of application of mathematical tools to solve engineering problems. Numerical methods such as finite differences, series expansions, and numerical integration are introduced. Numerical solutions of ordinary and partial differential equations with applications to equilibrium, cigenvalue and propagation problems in engineering are considered. Application of mathematical libraries, X-window system and the software tools associated with the Unix system are included.
FORMAT: Lecture| Lab| Tutorial
LECTURE HOURS PER WEEK: 2
CROSS-LISTING: MECH 4960.03

MECH 6990 Directed Studies in Mechanical Engineering I

CREDIT HOURS: 3
This course is available to graduate students enrolled in a Master's Degree Program in Mechanical Engineering, who wish to gain knowledge in a specific area for which no graduate-level courses are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the course. Registration approval is required from the Head of the Department of Mechanical Engineering.

MECH 7910 Graduate Seminar II

CREDIT HOURS: 3

PhD students in mechanical engineering will prepare and present seminars on research topics related to their thesis project. PhD students shall present a minimum of two seminars (one of which may be the thesis proposal). Graduate students are required to attend all graduate seminars. Students will be evaluated on their preparation, presentation skills, ability to field questions, and regular attendance. Graded pass/fail.

MECH 7990 Directed Studies in Mechanical Engineering II

CREDIT HOURS: 3

This course is available to graduate students enrolled in PhD Program in Mechanical Engineering who wish to gain knowledge in a specific area for which no graduate-level courses are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the course. Registration approval is required from the Head of the Department of Mechanical Engineering.

MECH 8500 MEng Project

CREDIT HOURS: 0

A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

MECH 8891 Co-op Work-Term I

CREDIT HOURS: 0

MECH 8892 Co-op Work-Term II

CREDIT HOURS: 0

MECH 8893 Co-op Work-Term III

CREDIT HOURS: 0

MECH 8894 Co-op Work-Term IV

CREDIT HOURS: 0

MECH 9000 Master’s Thesis/Project

CREDIT HOURS: 0

MECH 9530 PhD Thesis

CREDIT HOURS: 0

Medical Neuroscience

Location:
Building/Room: Sir Charles Tupper Medical Building
Street Address 1: 5850 College Street
Street Address 2: Room 13-B1
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2051
Fax: (902) 494-1212
Website: www.medical-neuroscience.medicine.dal.ca
Email Address: pauline.fraser@dal.ca

The Department of Medical Neuroscience, we offer MSc and PhD programs in anatomy and neuroscience. These programs will provide you with a sound multidisciplinary background in neuroscience and developmental biology. Students are trained in the field of modern-cellular and molecular neuroscience as a foundation to stimulate curiosity-driven neuroscience research and to develop effective strategies to detect, treat and cure diseases of the nervous system.

Staff

D. G. J. Campbell Professor and Head of Department

Baldridge, W. H., BSc (Toronto), PhD (McMaster). Structure and function of the vertebrate retina

Professors

Baldridge, W. H., BSc (Toronto), PhD (McMaster). Structure and function of the vertebrate retina
Bance, M., BSc, MB, ChB (Manchester), MSc (Toronto), FRCS(C). Anatomy, function and rehabilitation of hearing and balance disorders
Clarke, D., BSc (Acadia), MDCM, PhD (McGill), FRCS(C), major appointment in Surgery (Neurosurgery). Neuronal survival and regeneration following injury in the central nervous system
Currie, R. W., BSA, MSc, PhD (Manitoba). Heat shock proteins and protection of heart and brain
Darvesh, S., MD (Dalhousie), PhD (UNB), FRCP (C), major appointment in Medicine (Neurology). Synthetic chemistry of neurogenerative disorders
Friedman, A., BSc, MD, PhD (Beer-Sheva). Role of vascular pathology in dysfunction of neuronal networks
Kablar, B., MD, PhD (Zagreb, Pisa). Developmental relationship between skeletal myogenesis, neurogenesis, and osteogenesis
Morris, S., BSc (Victoria), MD (Ottawa), MSc (Toronto), FRCS(C), major appointment in Surgery. Anatomy and physiology of surgical skin and muscle flaps
Neumann, P. E., BA, MD (Brown). Development neurogenetics, pattern formation and experimental neuropathology
Perrot, T. S., BSc, PhD (Western). Sex differences in stress responding (Psychology/Neuroscience)
Rafuse, V. F., BSc (Acadia), PhD (Alberta). Neuronal development and regeneration
Rutherford, J. G., BA (Cornell), MS (Syracuse), PhD (SUNY), post-retirement appointment. History of mental health care in Atlantic Canada
Schmidt, M., MSc, MD (Toronto), FRCP(C), major appointment in Diagnostic Radiology. Pediatric radiology
Semba, K., BEd, MA (Tokyo), PhD (Rutgers), Graduate Coordinator. Brain mechanisms of sleep and wakefulness

Associate Professors

Allen, G. V., BSc, PhD (Dalhousie). CNS responses to brain injury
Iulianella, A., BSc (McGill), PhD (Montreal). Neurogenesis and patterning of vertebrate nervous system
Sinha, G., MBBS (Banaras). Student Advisor to medical and graduate students, Faculty of Medicine
Smith, F. M., BSc, MSc, PhD (UBC). Autonomic control of the circulation

Assistant Professors

Akay, T., BEng (Egirdir-Turkey), Diploma (Bielefeld-Germany), PhD (Cologne-Germany). Neuronal control of locomotion
Zhang, Y., BSc (Beijing), PhD (Cornell). Development and function of locomotor neural networks

Adjunct (FGS)

Franz-Odendaal, T., BSc, MSc, PhD (Univ of Cape Town, South Africa). The patterning and induction of neural crest derived bones of the skull. Associate Professor, MSVU

Admission Requirements

All general requirements for admission to the Faculty of Graduate Studies must be fulfilled. In addition, applicants are expected to have received a sound training in biological science.

Honours Degree Holders in Biological Sciences

Applicants with an excellent background and an A- or better average may apply for direct admission to the PhD program. Others may apply for the MSc program, with option to transfer to the PhD program after one year, contingent upon the recommendation of the student's advisory committee.

Master's Degree Holders in Biological Sciences

May apply for direct admission to PhD program.

Medical Graduates

Individuals showing an aptitude for research may apply for admission to either the MSc or PhD program.

Master of Science (MSc)

Two years is required to complete all requirements for the MSc degree.

Students are required to take 12 credit hours at the graduate level; including an anatomy elective. Courses are decided through consultation with the student, research supervisor and the student's Advisory Committee at the beginning of the first year. For each candidate, courses will be selected from those listed below or, where appropriate, from those offered by other Departments. A written thesis reporting original research must be submitted and defended orally. All MSc candidates must participate in the departmental seminar program during training.

The acquisition of teaching skills is an integral part of the program. Therefore, all MSc candidates must assist in laboratory teaching or an equivalent (approximately 20-30 hours) after the first year.

Financial assistance may be available for qualified students for a period of up to two years.

Thesis Examination

MSc Thesis will be defended in accordance with the regulations of the Faculty of Graduate Studies.

Doctor of Philosophy (PhD)

Residency requirements for the PhD degree are summarized in the Faculty of Graduate Studies regulations.

The course requirements for each PhD candidate are decided through consultation with the student, the research supervisor and the student's Advisory Committee at the beginning of the first year. Students should maintain an A- average or higher. All PhD candidates must participate in the departmental seminar program during each full year of training. The acquisition of teaching skills is an integral part of the program. Therefore, the student is also required to assist in laboratory teaching (approximately 20-30 hours per year) and to deliver two to four hours of lectures during the course of his/her training.

A written thesis (ANAT 9530.00: PhD Thesis) based on original research of a high calibre must be submitted and defended orally.

Financial assistance may be available for qualified candidates for a period of up to four years.

Evaluation

Students must submit a research proposal to their Advisory Committee by the end of the first year.

All PhD candidates must pass a preliminary examination no later than one full year prior to the submission of a thesis. The examination will include material related to the general and specific areas of research. The examining committee will be selected by the student's Advisory Committee after consultation with the research supervisor and will conduct the examination in accordance with the regulations established by the Department of Medical Neuroscience.

Thesis Examination

PhD theses will be defended in accordance with the regulations of the Faculty of Graduate Studies.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ANAT 5030X/Y Human Histology

CREDIT HOURS: 6
The course consists of a series of lectures and laboratories describing the structure of the tissues and organs of the human body. The lecture and the laboratory work is supplemented with tutorials.
COORDINATOR: P. Neumann
NOTES: Students taking this course must register in both X and Y in consecutive terms; credit will only be given if both are completed consecutively.

ANAT 5063 Neurobiology of the Autonomic Nervous System

CREDIT HOURS: 3
Overview of classical concepts of peripheral autonomic functions, and their re-evaluation in light of recent research. Discussion of the roles of autonomic neurons in control of specific end-organs will be emphasized. Please note that permission of the instructor is required to register for this course, and that a minimum of five students must be enrolled for the course to be given.
COORDINATOR: F. Smith

ANAT 5070 Chemical Neurobiology

CREDIT HOURS: 3
The goal of this course is to acquaint the student with neurotransmitters and neuromodulators, including excitatory amino acids, acetylcholine, monoamines, neuropeptides. Anatomical, biochemical, physiological, pharmacological, behavioral, and clinical aspects of individual neurotransmitter systems will be discussed. Students are expected to write an examination and a review, and give a presentation. Lectures are given by the instructor and invited lectures.
COORDINATOR: K. Semba
CROSS-LISTING: NESC 5070.03, PHYL 5494.03, NESC 4070.03

ANAT 5100X/Y Human Neuroanatomy

CREDIT HOURS: 6
This course consists of two parts: lectures and labs in the Fall Term, and seminars in the Winter Term. Lectures and labs are designed to acquaint the student with the anatomy and organization of the human central nervous system. Lecture topics include: cellular morphology; gross and microscopic anatomy of the spinal cord, brain stem, diencephalon (thalamus and hypothalamus), and telencephalon (cerebral hemispheres); blood supply of the CNS, meninges, and cerebrospinal fluid. Laboratory exercises involve exposure to aspects of microscopic and ultrastructural morphology of the CNS, examination of selected cross sections of spinal cord, brain stem, and diecephalon and telencephalon, and dissection of the brain. Seminars in the Winter Term are organized to discuss selected topics in neuroanatomy. Readings selected by the instructor or by students form the basis for discussion. Some sessions are supplemented by lectures. Students take written and practical examinations (Fall Term), give presentations, and write a term paper on a topic agreed upon in consultation with the instructor (Winter Term).
COORDINATOR: K. Semba

ANAT 5130X/Y Topics in Mammalian Embryology and Molecular Developmental Biology

CREDIT HOURS: 3
The course will cover various topics in general embryology, histology and molecular developmental biology. Students will learn how and why genetically engineered mice are generated. They will become familiar with different phenotypic analyses of mice and mouse embryos that are used as models of human diseases.
COORDINATOR: B. Kablar
NOTES: 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| Lab| Tutorial
PREREQUISITE: ANAT 5162.03 or consent of the coordinator

ANAT 5162 Gross Anatomy of the Head and Neck

CREDIT HOURS: 3

A detailed study of the gross anatomy of the head and neck through lecture, lab and clinical cases. Hands on learning in the labs will focus on the dissection of a human cadaver emphasizing the gross anatomy of the head and neck. Students will have the opportunity to use anatomy videos as a learning tool which will assist in learning the topics covered in the lectures and the lab and will be used as an evaluating tool for students to assess their progress. The session will conclude with an clinical case presentation integrating all topics learnt in lecture and lab.

COORDINATOR: G. Sinha

FORMAT: Lecture| Lab| Tutorial

PREREQUISITE: Undergraduate Degree

EXCLUSIONS: ANAT 5160.09

ANAT 5170X/Y Special Topics

CREDIT HOURS: 3

This is a flexible course permitting a student to work closely with one or several faculty members; the content of the course is determined by the individual student in consultation with the faculty member involved and is intended to enable students to take advantage of specialized educational opportunities that fall outside the normal course offerings of the Department. A description and justification of course content must be prepared and approved by the student's advisory committee and the Department graduate studies committee.

COORDINATOR: Arranged according to research topic

ANAT 5201 Research Laboratory Techniques in Anatomy and Neurobiology I

CREDIT HOURS: 3

This course is designed to introduce graduate students of Anatomy and Neurobiology in an in depth understanding of the theory and practical application of selected techniques pertinent to research in anatomy and neurobiology. In addition, the student will also learn a variety of styles for written and oral communication and to analyze and prepare their results for the public presentation. Participation in this course is required of Anatomy and Neurobiology graduate students.

FORMAT: Lecture| Seminar

ANAT 5202 Research Laboratory Techniques in Anatomy and Neurobiology II

CREDIT HOURS: 3

This course is designed to provide graduate students of Anatomy and Neurobiology wit an in depth understanding and practical 'hands-on' application of selected research techniques. These research techniques will be learned and implemented in a host laboratory approved by the course administrator. The course is divided into three phases: 1) Theory and fundamentals of the technique, suitable controls, trouble shooting; 2) Application of the technique within an appropriate experimental design or pilot study; and 3) analysis and presentation of their data.

FORMAT: Lecture| Lab| Seminar

ANAT 5217 Functional Human Anatomy

CREDIT HOURS: 6

Functional Human Anatomy is a full-credit (six credit hours) course covering gross anatomy and peripheral neuroanatomy of the human body through the use of lectures, and laboratories using anatomical specimens and dissection. The primary objectives are to learn detailed functional anatomy and peripheral neuroanatomy of the upper and lower limbs and of the back. The course concludes with a survey of the major structures of the head and trunk, also from a functional point of view. The course includes histology, osteology, arthrology, myology, peripheral neurology and living anatomy. Consideration is given to several aspects of the human existence including, evolution, death, bipedalism, beauty, and sex. Students are encouraged to become self-directed learners in anatomy so that they can continue to expand their understanding of the human body throughout their professional careers. Discussion and hands-on learning are required. This course is designed for graduate students in the MSc (OT) and MSc (PT) programs.

FORMAT: Lecture| Lab| Seminar| Discussion

PREREQUISITE: ANAT 1010 or equivalent.

ANAT 9000 MSc Thesis

CREDIT HOURS: 0

ANAT 9530 PhD Thesis

CREDIT HOURS: 0

Medical Research

Location:
Building/Room: Clinical Research Centre
Street Address 1: 5849 University Avenue
Street Address 2: Room C-203
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3886
Fax: (902) 494-7119
Website: www.dal.ca/academics/graduate_programs/clinician-scientist.html
Email Address: mrdo@dal.ca

Staff

Graduate Coordinator

Berman, J.

Master of Science (MSc)/Doctor of Philosophy (PhD)

Major advances in biomedical research are now being made in an environment where basic scientists and research-trained clinicians are interacting. There is a critical need to increase the number of such trained physicians locally, regionally, and nationally. This program is designed for persons who will become clinicians, but who plan careers as clinician scientists. The program allows the MD, DDS or DVM (or equivalent) graduate to concentrate primarily on thesis research in Medical Research and bridge the gap between clinical practice and medical research. In addition, the program offers training in clinical research, which is not otherwise formally offered at this University.

Students considering this program must pay particular attention to the following requirements:

1. All students must have an MD, DDS or DVM (or equivalent) degree from an LCME accredited Medical School and all candidates must meet the admission requirements of the Faculty of Graduate Studies.
2. In most cases, candidates will already have an honours bachelor's degree in a basic science discipline, or a bachelor's degree in an appropriate discipline with some evidence of competence in a laboratory or research environment. However, it is recognized that there will be some excellent students whose preparation for their MD, DDS or DVM may not have followed this route. These candidates will be assessed by the Medical Research Program Committee on an individual basis based upon their past performance and suitability for graduate research in the medical sciences. Students who are judged acceptable but who have gaps in their knowledge base or relevant laboratory skills may be required to take additional coursework and should recognize that this may extend the time required to complete the program.
3. The Medical Research Graduate Program may also accept graduates from foreign medical schools who are not registered as residents. Such foreign graduates must provide evidence of proficiency in English by satisfactory TOEFL or IELTS score to the level required by the program. Graduates of foreign medical schools may have to undertake supplementary courses at the undergraduate level before acceptance in the graduate program. The foreign medical school in question must be an approved school (eligible for MCC examination).
4. Additional program specific admission requirements include three credit hours in the discipline most relevant to the research project, as well as, a graduate-level research methodologies course.
5. A letter from the Clinical Department Head or external funding agency confirming secure funding for the training period must accompany all applications.
6. The minimum stipend for non-residents to enter the MRGP will be equivalent to the amount awarded by CIHR as a Masters level scholarship

Supervision

The program is a research-intensive program. Normally, residents applying to the Medical Research Graduate Program will have made mutually acceptable arrangements with a faculty member(s) for the supervision of their research prior to applying for their program at Dalhousie. Within three months of initiation of the program, a supervisory committee of qualified faculty, including the supervisor(s), will be appointed. These faculty will aid in the planning of the thesis research and be available to the student throughout the program for advice. There will be at least two meetings of the Supervisory Committee each year with the student to discuss research progress and future directions. The standards of the program are very high and the thesis research needs to be of international quality. Publication of the thesis research in peer-reviewed journals is expected.

It should be noted that this program is separate from the Royal College Clinician Investigator Program (CIP), but that the Director of the CIP sits on the Graduate Committee of the Medical Research Graduate Program for effective communication between the two programs. Students in the Medical Research Graduate Program may also register for the CIP concurrently, but there is no requirement to do so.

Program Requirements

At the first meeting of the Supervisory Committee, relevant coursework for the student will be identified by the committee in agreement with the student and the supervisor. There is a minimum requirement of three credit hours in the discipline most relevant to the research project and a graduate level research methodologies course; however, the Committee may require that additional courses be taken to provide the knowledge base required for the thesis research. In addition, regular contributions to, and attendance at, a Journal Club and a Seminar series are a requirement to ensure a firm grounding in experimental methods.

Two degree programs are offered; but all students will initially enroll in the MSc program*, which would normally be for two years**. If, after one year of study, the student wishes to transfer to the PhD Program, and if his/her committee recommends such a transfer, a recommendation will be sent to the Medical Research Program Committee, and from it to the Faculty of Graduate Studies for consideration and approval. The PhD program would be expected to be completed within three years; a maximum of five years would be allowed. In addition, within 18 months of initiation of the Program, the student must complete a comprehensive examination, which will have an oral and a written component.

* Exceptions will be made for those Residents who already have a MSc degree in a relevant discipline. Decisions on which MSc degrees are acceptable for admission to the Medical Research PhD program are left up to the discretion of the Graduate Program Committee for Medical Research.
** flexibility for individuals with parental responsibilities will be considered.

For more information contact the Program Manager.
Telephone: (902) 494-3886
Fax: (902) 494-7119
Email: jesslyn.kinney@dal.ca

Microbiology and Immunology

Location:
Building/Room: Sir Charles Tupper Medical Building
Street Address 1: 5850 College Street
Street Address 2: 7th Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3587
Fax: (902) 494 5125
Website: www.dal.ca/academics/programs/graduate/microbiology-immunology.html
Email Address: micigrad@dal.ca

Disciplines Within Microbiology and Immunology

Graduate degrees can be pursued in the areas of Virology, Bacteriology, Microbial Pathogenesis, Microbial Genetics, Molecular Genetics, Cancer Biology, and Cellular and Molecular Immunology. Graduate students are expected to acquire a conceptual understanding of the disciplines in microbiology and immunology and an in depth knowledge of their particular area of specialization. Notwithstanding this, the existence of specified streams in Cellular and Molecular Immunology, Virology, Bacteriology, Microbial Pathogenesis and Molecular Genetics in the Department may allow well-qualified students, with at least minimal training in Microbiology and Immunology, but a strong background in the appropriate subject area, to concentrate their studies.

Staff

Head of Department

Makrigiannis, A. P., PhD (Dalhousie)

Professors

Anderson, R., PhD (Cologne), Viral Pathogenesis
Duncan, R., PhD (Guelph), Molecular Virology
Hoskin, D. W., PhD (McGill), Tumour Immunology; Cancer Biology; Apoptosis, Pathology
Issekutz, T. B., MD (Dalhousie), Pediatrics; Inflammation and Leukocyte Traffic
Johnston, G. C., PhD (York), Molecular Genetics: Regulation of Proliferation
Lee, P. W. K., PhD (Alberta), Molecular Virology; Cancer Biology
Lee, S. F., PhD (Guelph), Oral Microbiology
Lehmann, C., MD (Berlin), Anaestesiology
Lin, T. -J., PhD (China), Mechanisms of Host Defense Against Pathogen Infection
Liwski, R., PhD, MD (Dalhousie), Pathology
Marshall, J. S., PhD (Manchester), The role and regulation of mast cells in immune responses to bacteria, viruses and tumors. Regulation of cytokines in inflammatory bowel diseases and asthma
Richardson, C. D., PhD (UBC), Molecular Virology
Stadnyk, A. W., PhD (McMaster), Intestinal Inflammation; Cytokines

Associate Professors

Alwayn, I., MD, PhD (Leiden), Surgery
Barnes, C., PhD (Dalhousie), Molecular Genetics
Berman, J. N., MD (Toronto), Pediatrics
Davidson, R. J., PhD (Manitoba), Antimicrobial Mechanisms of Action and Resistance
Hatchette, T., MD (Memorial), Pathology
Johnston, B., PhD (Calgary), Inflammation and Immune Response; Graduate Studies Coordinator
LeBlanc, J., PhD, FCCM, (ABMM) (Dalhousie), Clinical and Molecular Microbiology
Legare, J. F., MD (McGill), Transplantation and Mechanism of Heart Failure
Li, Y. H., PhD (Manitoba), Bacteriology and Molecular Biology
McCormick, C., PhD (UBC), Viral Oncology
Rohde, J., PhD (UBC), Bacterial Pathologenesis and Ubiquitin
Thomas, N., PhD (Queen's), Molecular Bacterial Pathogenesis
Wang, J., PhD (McMaster), Host Defence Mechanisms against infection and Cancer and Vaccine Development

Assistant Professors

Barrett, L., MD, PhD (Memorial), Medicine
Corcoran, J., PhD (Dalhousie)
Easton, A. S., PhD (London), MBBS (London), Blood-brain barrier, Pathology
Marcato, P., PhD (Alberta), Pathology

Adjunct (FGS)

Bezuhly, M., MD (Toronto), Surgery
Garduno, R. A., PhD (Victoria), Intracellular Pathogens
Karkada, M., PhD (India)

Senior Instructor

Murray, L. E., PhD (Dalhousie), Molecular Genetics

Admission Requirements

In conjunction with the general requirements for admission, candidates must have received sound basic instruction in Biochemistry and Cell Biology and 24 credit hours in a relevant discipline or disciplines with a B+ average or better.

Master of Science (MSc)

*All graduate students are required to take MICI 5400.03: Host Pathogen Interactions and Human Disease in their first year. Students and supervisors may request a one year deferral under special circumstances, for example, students required to upgrade their academic background.

For minimum time required to complete this program, see the Faculty of Graduate Studies Regulation 1.3.1 in this calendar. Participation in seminars and advanced topic courses (journal clubs) is required. The course requirements for each MSc candidate are determined by consultation between the student and the supervisory committee, and must be approved by the departmental Graduate Studies Committee. A research project must be completed, the result of which will be embodied in a thesis. An oral defence of the thesis is required.

Doctor of Philosophy (PhD)

*All graduate students are required to take MICI 5400.03 in their first year. Students and supervisors may request a one year deferral under special circumstances, for example, students required to upgrade their academic background.

For minimum time required to complete this program, see the Faculty of Graduate Studies Regulations. Participation in seminars and advanced topic courses (journal clubs) is required. The course requirements for each PhD candidate, normally consisting of 9 - 12 credit hours, are determined by consultation between the student and the supervisory committee, and must be approved by the departmental Graduate Studies Committee. Comprehensive knowledge of the area of specialization must be demonstrated and will be assessed by written and oral examination.

Research of a high calibre is required, the results of which must be embodied in a thesis which makes a significant contribution to knowledge in the chosen field. An oral defence of the thesis before an external examiner is required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MICI 5003 Special Topics in Microbiology and Immunology

CREDIT HOURS: 3
This course allows students to investigate, under the supervision of a faculty member, an area of microbiology or immunology that is not covered in formal classes. The topics in which the Department can offer instruction are dependent on the research interests and expertise of department members. Student must consult with the Graduate Studies Coordinator prior to enrolling in this course.
FORMAT: Seminar| Discussion

MICI 5011 Cancer Biology Seminars

CREDIT HOURS: 3
A seminar-based course where each student presents a paper from the recent cancer biology/molecular biology/virology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall Term for MICI 5011.03 and in the Winter Term for MICI 5021.03; PhD students must register in the Fall Term for MICI 5031.03 and in the Winter Term for MICI 5041.03.
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5021.03, MICI 5031.03, and MICI 5041.03

MICI 5016 Topics in Advanced Immunology

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent immunology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall Term for MICI 5016.03 and in the Winter Term for MICI 5056.03; PhD students must register in the Fall Term for MICI 5036.03 and in the Winter Term for MICI 5046.03.
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5036.03, MICI 5056.03, and MICI 5046.03

MICI 5019 Advanced Topics in Molecular Pathogenesis

CREDIT HOURS: 3
A seminar-based course where each student presents a paper from the recent bacterial pathogenesis literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall Term for MICI 5019.03 and in the Winter Term for MICI 5029.03; PhD students must register in the Fall Term for MICI 5039.03 and in the Winter Term for MICI 5049.03.
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5039.03, MICI 5029.03, and MICI 5049.03

MICI 5021 Cancer Biology Seminars

CREDIT HOURS: 3
A seminar-based course where each student presents a paper from the recent cancer biology/molecular biology/virology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5011.03 and in the Winter term for MICI 5021.03; PhD students must register in the Fall term for MICI 5031.03 and in the Winter term for MICI 5041.03.
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5011.03, MICI 5031.03, and MICI 5041.03

MICI 5027 Molecular Mechanisms of Cancer

CREDIT HOURS: 3
This course focuses on the molecular mechanisms of cancer and consists of lectures and student presentations. Topics include: receptors and downstream signaling, oncogenes and tumor suppressors, cancer metastasis and angiogenesis, DNA repair, cell cycle control and apoptosis.
FORMAT: Lecture| Discussion
PREREQUISITE: Minimum grades of B+ in a 3000 level Microbiology, Pathology or Biochemistry course. Permission of instructor required.
CROSS-LISTING: MICI 4027.03/PATH 5027.03/BIOC 4027.03

MICI 5029 Advanced Topics in Molecular Pathogenesis

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent bacterial pathogenesis literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknessess, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5019.03 and in the Winter term for MICI 5029.03; PhD students must register in the Fall term for MICI 5039.03 and in the Winter term for MICI 5049.03
CROSS-LISTING: MICI 5039.03, MICI 5019.03, and MICI 5049.03

MICI 5031 Cancer Biology Seminars

CREDIT HOURS: 3
A seminar-based course where each student presents a paper from the recent cancer biology/molecular biology/virology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper

presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5011.03 and in the Winter term for MICI 5021.03; PhD students must register in the Fall term for MICI 5031.03 and in the Winter term for MICI 5041.03
CROSS-LISTING: MICI 5011.03, MICI 5021.03, and MICI 5041.03

MICI 5033 Advanced Microbial Genetics

CREDIT HOURS: 3
This advanced course focuses on select aspects on bacterial gene regulation including bacterial viruses. Topics include gene transfer, transposon biology, bacterial cell signaling, activators and repressors, molecular and chemical approaches to genetic analysis and regulation of bacterial gene expression.
PREREQUISITE: A grade of B- or better in MICI 3119.03 or instructor's consent
CROSS-LISTING: MICI 4033
ASSESSMENT METHOD: Presentation, Report, discussion, written summaries, class participation

MICI 5036 Topics in Advanced Immunology

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent immunology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5016.03 and in the Winter term for MICI 5056.03; PhD students must register in the Fall term for MICI 5036.03 and in the Winter term for MICI 5046.03
CROSS-LISTING: MICI 5016.03, MICI 5056.03, and MICI 5046.03

MICI 5038 Molecular Biology of Yeast

CREDIT HOURS: 3
A seminar -based course in which students prepare and present papers from the recent molecular biology literature. Each student presents one paper per term and submits a written one-page summary and critique. Following each presentation, active discussion of the paper and relevant issues is encouraged from all participants, so as to discuss the merits, strengths and scientific importance of the paper presented. This is a pass/fail course based on the quality of student presentations, written critiques and contributions to discussion.
FORMAT: Seminar
PREREQUISITE: Permission of instructor required.

MICI 5039 Advanced Topics in Molecular Pathogenesis

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent bacterial pathogenesis literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknessess, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5019.03 and in the Winter term for MICI 5029.03; PhD students must register in the Fall term for MICI 5039.03 and in the Winter term for MICI 5049.03
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5019.03, MICI 5029.03, and MICI 5049.03

MICI 5040 Pathobiology of Cancer

CREDIT HOURS: 3
This course will examine the basic molecular and cellular biology of carcinogenesis and tumour pathobiology, as well as emerging topics in cancer genomics, diagnosis and treatment. The clinical aspects of cancer management will also be highlighted, including surgery, radiation and chemotherapy.
CROSS-LISTING: BIOC 5503.03, PATH 5040.03

MICI 5041 Cancer Biology Seminars

CREDIT HOURS: 3
A seminar-based course where each student presents a paper from the recent cancer biology/molecular biology/virology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5011.03 and in the Winter term for MICI 5021.03; PhD students must register in the Fall term for MICI 5031.03 and in the Winter term for MICI 5041.03
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5011.03, MICI 5021.03, and MICI 5031.03

MICI 5046 Topics in Advanced Immunology

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent immunology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5016.03 and in the Winter term for MICI 5056.03; PhD students must register in the Fall term for MICI 5036.03 and in the Winter term for MICI 5046.03
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5036.03, MICI 5056.03, and MICI 5016.03

MICI 5049 Advanced Topics in Molecular Pathogenesis

CREDIT HOURS: 3
A seminar-based class where each student presents a paper from the recent bacterial pathogenesis literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknessess, and the scientific relevance of the paper presented.
NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5019.03 and in the Winter term for MICI 5029.03; PhD students must register in the Fall term for MICI 5039.03 and in the Winter term for MICI 5049.03
FORMAT: Seminar| Discussion
CROSS-LISTING: MICI 5039.03, MICI 5029.03, and MICI 5019.03

MICI 5056 Topics in Advanced Immunology

CREDIT HOURS: 3

A seminar-based class where each student presents a paper from the recent immunology literature with a one page written summary and critique. Active discussion of the subject is encouraged from all participants to determine the merits, strengths and weaknesses, and the scientific relevance of the paper presented.

NOTES: Graduate students are required to take this course throughout their entire program. MSc students must register in the Fall term for MICI 5016.03 and in the Winter term for MICI 5056.03; PhD students must register in the Fall term for MICI 5036.03 and in the Winter term for MICI 5046.03

FORMAT: Seminar| Discussion

CROSS-LISTING: MICI 5036.03, MICI 5016.03, and MICI 5046.03

MICI 5100 Processes and Mediators of Inflammation

CREDIT HOURS: 3

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, steroids, tissue remodeling and transplant modulation. Current research questions and emerging treatments are emphasized.

FORMAT: Lecture| Discussion

CROSS-LISTING: MICI 4100.03, PATH 5100.03

MICI 5114 Advanced Topics in Molecular and Medical Virology

CREDIT HOURS: 3

A course designed to look in detail at selected aspects of molecular and medical virology. The course is based on student presentation of current literature, in combination with introductory lectures and paper discussions.

FORMAT: Lecture| Discussion

CROSS-LISTING: MICI 4114.03

MICI 5116 Current Topics in Mucosal Immunology

CREDIT HOURS: 3

The course consists of lectures and student-led presentations and discussions of current publications (chosen by the course coordinator). Each week will be focused on a single theme but covering topics in the gastrointestinal tract and respiratory and genitourinary systems. Weekly themes will include, mechanisms of tolerance, models of intestinal inflammatory diseases, role of IgA, vaccines use in respiratory diseases, response to urinary tract infection, aspects of reproductive immunology and others. Students will typically present three publications in the course. Evaluations are based on student presentations, written summaries of the discussion following (their own) presentations, participation in the discussions of other student presentations and a research project on a topic chosen by the student. There are no exams.

PREREQUISITE: MICI 3115.03 or permission of instructor

CROSS-LISTING: MICI 4116.03

MICI 5118 Molecular Bacterial Pathogenesis

CREDIT HOURS: 3

An advanced course on the molecular basis of bacterial pathogenesis. The course will use selected bacterial pathogens to develop basic principles regarding genes encoding virulence factors, their regulation and the molecular function of their gene products in surface colonization, invasion, intracellular growth and toxin production. The course may include student presentations of reviews and original research papers, and will emphasize the use of modern molecular biological tools in research and problem solving.

FORMAT: Lecture| Discussion

CROSS-LISTING: MICI 4118.03

MICI 5302 Clinical and Molecular Immunology

CREDIT HOURS: 3

An advanced course which investigates the molecules involved in the generation and expression of immune responses. Topics typically include the molecular mechanisms of cell death, molecular regulation of cytokines, the generation of antibody diversity by immunogobulin gene rearrangement, the structure and function of cell surface receptors such as the T cell antigen receptor, MHC and adhesion molecules, receptor signaling and the genetics of immune regulation.

FORMAT: Lecture| Discussion

CROSS-LISTING: MICI 4302.03, BIOL 5302.03, BIOL 4302.03

MICI 5400 Host Pathogen Interactions and Human Disease

CREDIT HOURS: 3

This advanced course explores host-pathogen interactions in human disease, focusing on how pathogens modify, disrupt or utilize cellular functions and the significance of these processes in human disease. Students will also learn how to critically evaluate the scientific literature, develop hypotheses and design experiments to test these hypotheses.

NOTES: All graduate students are required to take MICI 5400.03 in their first year. Students and supervisors may request a one year deferral under special circumstances, for example, students required to upgrade their academic background.

FORMAT: Lecture| Discussion

MICI 9000 MSc Thesis

CREDIT HOURS: 0

MICI 9530 PhD Thesis

CREDIT HOURS: 0

Musicology

Location:
Building/Room:
Street Address 1: 6101 University Avenue
Street Address 2: Room 514
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1465
Fax: (902) 494-2801
Website: www.dal.ca/academics/programs/graduate/music.html
Email Address: musicgrd@dal.ca

Introduction

The Fountain School of Performing Arts welcomes students interested in the study of musicology at the graduate level, leading to the MA degree. Students in the MA in Musicology program will have the opportunity to investigate music's role and meaning in various social and historical contexts, through text-based analysis informed by cultural studies. Our faculty members pursue research in genres ranging from medieval chant to contemporary experimental composition, canonic orchestral repertoire, film music, and diverse styles understood to be popular music. We foster a vibrant intellectual climate that encourages innovative approaches and non-traditional thinking about music as a social text, and the small size of our program guarantees a great deal of specialized attention and the possibility of tailoring courses of study to suit individual interests. The MA in Musicology is suitable preparation for doctoral studies in musicology and some other humanities disciplines, as well as work in the fields of journalism, music education, editing, and arts administration.

Staff

Director of School

Warwick, J.

Graduate Studies Coordinator

Joubert, E.

Professor Emeritus

Schroeder, D. P., AMus, BA, MA (Western) PhD (Cantab)

Associate Professors

Bain, J., BMus (Wilfrid Laurier), MA (McGill), PhD (SUNY Stony Brook)
Baur, S., BA (Music) (Loyola Marymount), MA, PhD (UCLA)
Blais, J., BMus (McGill), MMus, DMus (Montreal)
Joubert, E., BMus, MA (Toronto), DPhil (Oxford)
Warwick, J., BMus (Toronto), MA (York), PhD (UCLA)

Adjunct (FGS)

McDonald, C., BA (Trent), MA, PhD (UBC)
Hennessy, J., BSc (Trent), BMus (Acadia), MA (UBC), PhD

Cross-listed Member

Barker, R., BA (King's), MA (Dalhousie), PhD (Shakespeare Institute)

Admission Requirements

Admission to the program is granted to applicants with a Bachelor's degree in a relevant field, and who demonstrate an outstanding capacity for research in music. Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Master of Arts (MA) Degree Program

The MA is a thesis-based program, in which students take two required seminar courses and choose three other seminars before embarking on a thesis prospectus and then thesis research. This is normally a two-year degree. Students in the program are eligible for Fountain Graduate Fellowships, Dalhousie graduate scholarships, and research and teaching assistantships in the Fountain School of Performing Arts.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MUSC 5000 Research Methods in Music

CREDIT HOURS: 3
In this course students will develop skills in current musicological research practices.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree

MUSC 5001 Proseminar in Musicology

CREDIT HOURS: 3
This course is an introduction to recent methods and techniques of music scholarship: we will consider the scholarly approaches of music theory, historical musicology, music criticism, popular music studies and cultural studies. The focus of our inquiry will be the potential advantages of such lines of questioning, and their significance for musicology as a scholarly discipline.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree

MUSC 5002 Directed Studies I

CREDIT HOURS: 3
Individually directed research and writing under the supervision of an appropriate member of the School.
PREREQUISITE: Permission of instructor and the graduate coordinator

MUSC 5003 Directed Studies II

CREDIT HOURS: 3
Individually directed research and writing under the supervision of an appropriate member of the School.
PREREQUISITE: Permission of instructor and the graduate coordinator

MUSC 5066 Music and Gender

CREDIT HOURS: 3
An exploration of the ways in which gender shapes musical discourse. Three broad themes will be examined in the context of various music styles and genres: gender and composition, gender and performance, and representations of gender through music.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree in music or permission of the instructor

MUSC 5280 Contemporary Techniques

CREDIT HOURS: 3
Some of today's main 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 aleatoric strategies.
FORMAT: Seminar

PREREQUISITE: MUSC 2202, or permission of instructor
CROSS-LISTING: MUSC 4280.03

MUSC 5283 Early Music Analysis

CREDIT HOURS: 3
A seminar exploring the various approaches to early music analysis, covering monophony and music by significant figures before 1600 including Hildegard, Machaut, DuFay and Josquin.
FORMAT: Seminar
PREREQUISITE: Undergraduate degree in Music
CROSS-LISTING: MUSC 4283.03

MUSC 5285 Late 19th-Century Chromaticism

CREDIT HOURS: 3
A seminar exploring chromaticism as it was practised in the late 19th century. Through selected readings, we will examine various independent chords, progressions and sequences, the intersection of different 'scalar' collections and chromaticism, the changing nature of harmonic function, and the role of transformation and large-scale key relationships.
FORMAT: Seminar
PREREQUISITE: Undergraduate degree in Music
CROSS-LISTING: MUSC 4285.03

MUSC 5353 Music Since 1945

CREDIT HOURS: 3
This course examines themes in music since 1945. Topics to be considered include compositional techniques, music and cultural theory, and avant-garde and mainstream musics.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree in music or permission of the instructor
CROSS-LISTING: MUSC 4351.03

MUSC 5354 Popular Music Analysis

CREDIT HOURS: 3
We examine various methods and techniques for studying popular music, the central debates of this relatively new field of scholarly inquiry, and the contributions of popular music scholarship to the larger fields of music study.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree in music or permission of the instructor
CROSS-LISTING: MUSC 4354.03

MUSC 5355 Narrative Strategies in Nineteenth-Century Music: Gender, Identity, and Social Politics

CREDIT HOURS: 3
An interdisciplinary survey of nineteenth-century instrumental music, focusing on the narrative potential of nineteenth-century musical conventions and their relationship to other aspects of nineteenth-century Western culture. Representative works will be studied within the context of broader social and cultural issues including gender, race, class, sexuality, nationality, ethnicity, and identity.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree
CROSS-LISTING: MUSC 4355.03, GWST 4355.03

MUSC 5356 Opera Studies

CREDIT HOURS: 3
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', 'Women in Opera,' 'Opera on Film.'
FORMAT: Seminar
PREREQUISITE: MUSC 2352: Open to non-majors by permission of instructor
CROSS-LISTING: MUSC 4356.03

MUSC 5362 Topics in Canadian Music

CREDIT HOURS: 3
This 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
PREREQUISITE: Bachelor's degree in music or permission of instructor
CROSS-LISTING: MUSC 4362.03

MUSC 5364 Topics in Musicology

CREDIT HOURS: 3
These are intensive studies of selected topics announced annually.
NOTE: Course Details listed here also apply to MUSC 5365/MUSC 5366.
FORMAT: Seminar
PREREQUISITE: Undergraduate degree in music

MUSC 5365 Topics in Musicology

CREDIT HOURS: 3
See MUSC 5364.

MUSC 5366 Topics in Musicology
CREDIT HOURS: 3
See MUSC 5364.

MUSC 5367 Topics in Musicology
CREDIT HOURS: 3
These are intensive studies of selected topics announced annually.
NOTE: Course Details listed here also apply to MUSC 5368/MUSC 5369.
FORMAT: Seminar
PREREQUISITE: Undergraduate degree in music

MUSC 5368 Topics in Musicology
CREDIT HOURS: 3
See MUSC 5367

MUSC 5369 Topics in Musicology
CREDIT HOURS: 3
See MUSC 5367

MUSC 5370 Selected Composer Studies
CREDIT HOURS: 3
An intensive study of a single composer, focusing on works and cultural context.
NOTE: Course Details listed here also apply to MUSC 5370.
FORMAT: Seminar
PREREQUISITE: Undergraduate degree in music

MUSC 5371 Selected Composer Studies
CREDIT HOURS: 3
See MUSC 5371.

MUSC 5379 Music in Paris at the fin de siècle
CREDIT HOURS: 3
A survey of musical culture in Paris between roughly 1875 and 1915, investigating the leading individuals, institutions, movements, and themes of the period through critical analyses of representative musical works.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree

MUSC 5380 Music and Society in Nineteenth-Century America
CREDIT HOURS: 3
An exploration of music and its relationship to American social issues during the nineteenth century, tracing multiple and varied musical traditions throughout the period and investigating their role in the negotiation of race, class, gender, and other vital social issues.
FORMAT: Seminar
PREREQUISITE: Bachelor's degree

MUSC 8000 M. A. Thesis Prospectus
CREDIT HOURS: 0
Although not a formal seminar course, this course number identifies the student's independent work in developing the thesis prospectus and in research towards the thesis.
PREREQUISITE: Permission of graduate coordinator

MUSC 9000 M. A. Thesis
CREDIT HOURS: 0

PREREQUISITE: Permission of graduate coordinator

Nursing

Location:
Building/Room: Forrest Building
Street Address 1: 5869 University Avenue
Street Address 2: 1st Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2535
Fax: (902) 494-3487
Website: nursing.dal.ca
Email Address: colette.bissett@dal.ca

Staff

Director

MacMillan, K., BSc, MA, MSc, PhD (Toronto), RN. Patient safety, interprofessional education in emergency and critical care services, interprofessional care practices, nursing history

Associate Director Research and International Affairs

Tomblin Murphy, G., BN, MN (Dalhousie), PhD (Toronto), RN. Health policy, health human resource planning, healthcare delivery (system, provider, health outcomes), evaluation, global health

Associate Director Graduate Studies

Macdonald, M., BN (UNB), MScN (Maine), PhD (San Diego), RN. Patient safety, safety in home care, systematic reviews (JBI)

Associate Director Undergraduate Studies

Sabo, B., BA (Manitoba), MN, PhD (Dalhousie), RN. Psychosocial oncology issues (e.g. depression, anxiety, traumatic stress), the cancer experience, palliative and end of life care, interpretive phenomenology, mixed methods, interpretive studies

Assistant Director Undergraduate Admissions and Student Affairs

Houk, S., BSc (Saskatchewan), MN (Dalhousie), RN. Professional practice, accountability, quality care, interprofessional learning, clinical evaluation

Professors

Hughes, J. M., BN (Dalhousie), MS (Boston), PhD (McGill), RN. Family violence: child abuse/maltreatment, mother-child interaction/parenting, empathy, mental health issues/policy, autonomy/resiliency
MacMillan, K., BSc, MA, MSc, PhD (Toronto), RN. Patient safety, interprofessional education in emergency and critical care services, interprofessional care practices, nursing history
Macdonald, M., BN (UNB), MScN (Maine), PhD (San Diego), RN. Patient safety, safety in home care, systemic reviews (JBI)
Martin Misener, R., DOCHN, BScN, MN (Dalhousie), PhD (Calgary), RN, NP. Nurse Practitioners, primary health care, rural/northern health
Sullivan, P., BScN (MSVU), MSc (Boston), PhD (Alberta), RN. Maternal-child, women's and family health, families in conflict, international health and development
Tomblin Murphy, G., BN, MN (Dalhousie), PhD (Toronto), RN. Health policy, health human resource planning, healthcare delivery (system, provider, health outcomes), evaluation, global health

Associate Professors

Aston, M., BNSc, MEd (Queen's), PhD (Toronto), RN. Community health nursing, family nursing, maternal, child and infant care, critical pedagogy, feminist research,

poststructuralism, global health
Curran, J., BN, MEd (Memorial), PhD (Dalhousie), RN. Knowledge translation research, professional practice change, knowledge synthesis, pediatrics, emergency care, behaviour change theories, intervention design
Goldberg, L., BA (CBU), MA (Dalhousie), PhD (Alberta), RN. Perinatal nursing, feminist phenomenology, queer women's health, and nursing philosophy
Latimer, M., BA (Mt. A), BScN, MN (Dalhousie), PhD (McGill), Post Doc (Laval) RN. Pediatric pain care, nurses' worklife and patient outcomes, knowledge translation, organizational research, Aboriginal people research
Sabo, B., BA (Manitoba), MN, PhD (Dalhousie), RN. Psychosocial oncology issues (e.g., depression, anxiety, traumatic stress), the cancer experience, palliative and end of life care, interpretive phenomenology, mixed methods, interpretive studies
Snelgrove-Clarke, E., BN (Memorial), MN (Dalhousie), PhD (McGill), RN. Knowledge translation (research utilization), implementation strategies, maternal child nursing, quantitative research methods, clinical trials, focus group research, realist synthesis
Steenbeek, A., BScN, MScN, PhD (UBC), RN. Infectious diseases, epidemiology, Aboriginal sexual health, community based research
Tamlyn, D., BN (McGill), MEd (Ottawa), PhD (Dalhousie), RN. Leadership policy initiatives, women and aging
Weeks, L., BSc (UPEI), MSc (Univ Maine), PhD (Virginia Tech). Aging, care transitions, gender and aging, family caregivers, abuse of older adults, end-of-life care, housing, long-term care, rural issues

Assistant Professors

Bombay, A., BSc (Ottawa), MSc, PhD (Carleton), Post Doc (Ottawa). Relations between well-being, cultural identity, discrimination among Canadian Aboriginal peoples; long-term effects of collective traumas, eg., Indian Residential Schools
Cambell-Yeo, M., BN, MN (Dalhousie), PhD (McGill), RN. Clinical trials examining the impact of family and novel interventions on infant outcomes, pain stress, skin-to-skin contact, co-bedding
Chircop, A., BScN, MN, PhD (Dalhousie), RN. Health equity, social justice, environmental health, social and cultural determinants of health, community and family health, critical ethnography, institutional ethnography
Edgecombe, N., BN (Lethbridge), MN, PhD (Alberta), NP. Health issues of the Inuit population, culturally appropriate interventions
Murphy, N., BN (Dalhousie), MScN (UBC), RN. Mental health/psychiatric nursing, citizen participation in health policy
Price, S., BScN, MN (Dalhousie), PhD (McGill), RN. Nursing health services, professional socialization, community and women's health, interprofessional collaboration, qualitative methodology
Richardson, H., BScN, MN, PhD (Dalhousie). Holistic child health and development, spirituality, palliative and end-of-life care, qualitative methods
Vukic, A., RN (Mohawk), BN, MN, PhD (Dalhousie). Aboriginal health, community health nursing
Waldron, I., BA (McGill), MA (London), PhD (Toronto). Impact of inequality on the health and mental health of racially diverse communities
White, F. M., BN (UNB), MN (Dalhousie), RN. Childbearing families, breastfeeding, interprofessional education, distributed learning, health informatics
Wight Moffatt, F., BN (Memorial), MN (Boston C), PhD (Toronto), RN. Childbearing families, stressors and anxiety in pregnancy, psychology and physiology of women with high-risk pregnancies, fetal health assessment, perinatal loss/grief

Adjunct (FGS)

Alder, R., BSc, MSc (McMaster), PhD (Toronto)
Carson, G., BN, MN (Dalhousie), PhD (Alberta)
Conroy, S., BN, MEd (McGill), DPhil (Oxford)
Gilbert, J., MSc, PhD (Purdue)
Gregory, D., BScN (Ottawa), MN (Manitoba), PhD (Arizona)
Gurham, M. E., BN, MN (Dalhousie)
Leipert, B., BA, BSN (Saskatchewan), MSN (UBC), PhD (Alberta)

Lecturer

Hebert, K., BN (Memorial), MN (Athabasca), NP. Nurse practitioner primary health care, clinical teaching and simulation
Prendergast, S., RN (McMaster), BMid (Otago Polytechnic), MN/NP (Alberta). Decision making for pregnancy, birth and mothering

Admission Requirements/Deadlines

Master of Nursing (MN)

All applicants must be licensed to practice as a registered nurse (active practitioner) in a province in Canada or in a foreign country. Applicants must have a four-year Bachelor's degree or its equivalent with a minimum "B" standing. Introductory courses in research and statistics are required. Applicants to the MN Nurse Practitioner option must hold a license to practice in a Canadian jurisdiction.

The application deadline for the Master of Nursing is February 1.

Master of Nursing/Master of Health Administration (MN/MHA)

Applicants must apply to both the School of Nursing and the School of Health Administration and must satisfy the entrance requirements of both programs. Applicants must take the Graduate Management Admission Test (GMAT) and have the results forwarded to the Coordinator of the Graduate Program, Health Administration, prior to the application deadline.

PhD (Nursing)

All applicants must be licensed to practice as a registered nurse (active practitioner) in a province in Canada or in a foreign country. Applicants must have a first-class Masters degree in nursing or a relevant discipline or its equivalent from a recognized university.

The application deadline for the PhD (Nursing) is February 1.

Master of Nursing (MN)

Dalhousie University School of Nursing offers a Master of Nursing program that is framed within a philosophy of primary health care that recognizes the unique strengths and contributions of individuals, families, and communities. It is a 36-credit hour research and practice-based program which prepares students to be leaders in professional nursing and provides a solid foundation for doctoral studies. Students in the thesis stream are required to complete eight courses (24 credit hours) and a thesis equivalent to (12 credit hours). Students in the Health Policy Practicum stream are required to complete either 10 courses (30 credit hours) and a policy practicum equivalent to six credit hours or 12 courses (36 credit hours). Nurse Practitioner students complete 10 courses (30 credit hours) and a final practicum (six credit hours) for a total of 36 credit hours. A candidate for the degree Master of Nursing will require at least 24 months of full-time study to complete all degree requirements.

Students complete required courses in practice-related theory and research that are the foundation of all advanced practice nursing roles. Students select one of three program options: thesis, health policy practicum, or nurse practitioner:

1. The thesis option is intended for those students seeking to conduct independent and/or collaborative research.
2. The health policy practicum option is intended for those students seeking to increase knowledge and skills in health care policy development, implementation or evaluation.
3. The nurse practitioner option is intended for those students seeking preparation in advanced nursing practice.

Prospective applicants are encouraged to consult the School of Nursing to identify specific clinical offerings in any academic year. Elective course(s), from a variety of fields, may be chosen in consultation with the academic advisor.

Non-nursing electives may be taken at other universities (prior approval must be obtained from the School of Nursing). Graduate nursing courses (excepting specific nurse practitioner courses) are also offered by distance education modes to other centres. Consult department for details.

Master of Nursing/Master of Health Administration (MN/MHA)

The combined MN/MHA program enables students to select courses leading to the degrees of Master of Nursing and Master of Health Administration. The MN/MHA program is designed to enable students to:

- Advance knowledge in the area of nursing management;
- Analyze, implement, and evaluate theories and models relevant to nursing;
- Conduct independent and/or collaborative research;
- Work collaboratively with other health professions in planning, implementing, and evaluating health care; and
- Demonstrate leadership in nursing and society.

The method of delivery includes traditional classroom seminar/courses, professional clinical experiences, a residency in administration in a nursing area, and a thesis with an administration focus. The thesis committee will include faculty committee members from the Schools of Nursing and/or Health Administration. The integrity of both programs is maintained by the design of the MN/MHA program; however, the number of credits required is reduced by electing to take this joint program. A minimum three year commitment will normally be necessary to satisfy the requirements of this program.

Doctor of Philosophy (PhD) Nursing

The goal of the PhD (Nursing) program is to prepare nurse scholars who will provide leadership in the advancement of nursing knowledge, nursing theory and practice, and health policy through scholarly research and the dissemination of research findings. This is a full-time program of study.

The orientation of the doctoral program is on the short and long term impacts of nursing practices and health outcomes at the individual, family, community, and/or population levels, or women's health outcomes specifically. The required courses and the doctoral seminar provide forums to analyse, discuss, and critique the concepts

of health outcomes and health and social policies from the perspective of nursing practice. Health related policy is addressed through the thesis, doctoral seminars, and courses in the student's substantive area.

The program is organized around the four pillars of the School of Nursing research plan. These pillars are: Health Needs of People; Marginalized Populations and Health Equity; Health Systems and Health Workforce Planning and Impact; and Knowledge Translation Research. This starting point becomes the vehicle for the student to develop an advanced understanding of research methodologies and techniques and to gain knowledge which contributes to the theoretical development and practice of nursing.

Core courses, the doctoral seminar, and the thesis are all designed to prepare students who:

- Understand the philosophical and theoretical foundations of nursing science.
- Critically analyse their own and others' perspectives in relation to research and nursing practice.
- Demonstrate the requisite cognitive skills to examine health outcomes generally, or women's health outcomes specifically.
- Develop nursing practices that improve health outcomes generally, or women's health outcomes specifically.
- Influence health and social policy to improve health and health care systems.

The program consists of:

1. A minimum of four core courses:

- NURS 6050: Contemporary Views of Nursing Science: Philosophy, Research, and Practice
- two courses in the student's substantive area of study (one of which will be NURS 6200: Nursing Sensitive Health Outcomes, or NURS 6210: Women's Health Outcomes)
- an advanced research methods/design course

2. NURS 6300: Doctoral Seminar
3. Comprehensive Examination
4. NURS 9530: Doctoral Thesis

The PhD Comprehensive Examination in the student's area of study must be taken in the second year of the program. Comprehensive examinations may be taken only after the completion of all required course work and they cannot be taken less than one year prior to the submission of the thesis for final defence. By the end of the student's first year of study, the Thesis Supervisory Committee will be identified. It is to be comprised of the Thesis Supervisor and a minimum of two additional faculty having membership in the Dalhousie University Faculty of Graduate Studies and expertise in the student's area of research interest. The Graduate Studies Committee and the Faculty of Graduate Studies will be notified of the Thesis Supervisory Committee membership. Members of the Thesis Supervisory Committee will set the student's Comprehensive Examination.

Immunization

Before undertaking clinical practica (NURS 54X5, NURS 54X6, NURS 5487: Principles and Theories for Health and Disease Management in Family All Ages Nurse Practitioner Practice, NURS 5620: Advanced Practice Role Practicum, NURS 5740: Advanced Health Assessment), students must provide evidence of appropriate immunization and their immune status, as required by the clinical agency. This will include, but may not be restricted to: polio, diphtheria, tetanus, rubella, measles, mumps, varicella and Hepatitis B. Evidence of 2-step tuberculin testing (Mantoux) is also required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Required Courses

Master of Nursing Courses Required in All Program Options

NURS 5050.03
NURS 5060.03
NURS 5200.03

Required in Thesis and Health Policy Practicum Options

These courses are an integration of the theories, research, and practice related to selected health-related concepts and issues in assessment and understanding of patterns of health and illness relevant to advanced practice across the specific clinical special area. This course includes 2-3 course hours and six clinical practice hours per week. Not all clinical foci will be offered every year, subject to faculty resources and student demand. Check with the Department.

Each student completes one of the following:
NURS 5435.03
NURS 5445.03
NURS 5455.03
NURS 5465.03
NURS 5475.03

Each student completes one of the following:
NURS 5436.03
NURS 5446.03
NURS 5456.03
NURS 5466.03
NURS 5476.03

Required in Nurse Practitioner Option

NURS 5485.03
NURS 5486.03
NURS 5487.03
NURS 5610.03
NURS 5620.03
NURS 5732.03
NURS 5734.03
NURS 5735.03
NURS 5740.03

Required in Health Policy Practicum Option

Focused Electives for Health Policy Practicum Option
NURS 5893.03
NURS 6000.03

Consult department regarding other possible course selections.

Required in Thesis Option

NURS 9000.00

Focused Electives for Thesis Option
NURS 5000.03
NURS 5100.03
NURS 5120.03

Other Electives
NURS 5000.03
NURS 5100.03
NURS 5110.03
NURS 5120.03

NURS 5330.03
NURS 5610.03
NURS 5732.03
NURS 5734.03
NURS 5735.03
NURS 5800.06
NURS 5810.03
NURS 5820.03
NURS 5830.03
NURS 5850.03
NURS 5871.03
NURS 5891.03
NURS 5892.03
NURS 5893.03
NURS 5894.03
NURS 5895.03
NURS 5897.03
NURS 5899.03
NURS 5900.06
NURS 5910.03
NURS 5920.03
NURS 5950.03
NURS 6000.03
NURS 6130.03
NURS 6200.03
NURS 6210.03

PhD Courses

NURS 6050.03
NURS 6130.03
NURS 6200.03
NURS 6210.03
NURS 6300.03
NURS 6800.03
NURS 6820.03
NURS 9530.00
PHDP 8000.00

Course Descriptions

NURS 5000 Intermediate Statistics

CREDIT HOURS: 3
This course provides graduate students with a working knowledge of statistical issues and methods commonly used by researchers in the Health Professions. The statistical software package SAS is introduced and used by students throughout the course. Topics covered include a review of probability and one or two sample interferences for means and proportions. This is followed by some common experimental designs, contingency tables and odds ratios. Final topics are correlation and linear regression (simple and multiple), analysis of variance, analysis of covariance, and logistic regression. A term data analysis project is required in which students make use of both statistical methods learned in class and the SAS software package.
PREREQUISITE: MATH 1060.03
CROSS-LISTING: HESA 6500.03, HEED 5503.03, LEIS 5503.03, PHAR 5980.03, PHSE 5503.03, KINE 5503.03, STAT 5990.03

NURS 5050 Nursing Philosophy, Knowledge and Theory

CREDIT HOURS: 3
This course explores the major philosophical and methodological underpinnings of science and knowledge. This exploration will inform a critical analysis of how nursing knowledge has evolved and will illuminate how the experience of nurses, along with the production of knowledge, meanings and values, can best be understood. Learners will develop an understanding of the assumptions underlying different research paradigms and the knowledge they generate by exploring issues such as: What is science? How has science evolved? What is knowledge? What is truth? What are the various research/science paradigms? How is knowledge translated into action?

NURS 5060 Research and Evidence Based Practice in Nursing

CREDIT HOURS: 3
The course explores the processes of research and scholarly inquiry in nursing research utilization and knowledge to foster evidence-based practice. Students will explore the fundamental principles governing Quantitative and Qualitative research methods, identify clinical research questions, learn the essential components of literature searches and critiques, and develop a better comprehension of research utilization and evidence based practice in the clinical setting.

NURS 5100 Qualitative Research Methods

CREDIT HOURS: 3
In this qualitative research course, we will differentiate between method and methodology. The latter addresses all assumptions which guide research as a political

process. Method refers to the ways in which data are collected, or the techniques for designing methods of analysis. Various methodologies will be examined in detail in order to acquire an understanding of the differences in assumptions between traditional qualitative research and critical, action oriented, participatory, and feminist qualitative research.

NURS 5110 Qualitative Research: Learning Grounded Theory

CREDIT HOURS: 3
In this qualitative research course, students will commence with a brief review of the assumptions associated with the Qualitative Research Paradigm, moving into a discussion of classical, Straussian, and constructivist Grounded Theory. The primary focus of this course will be on the study of the methodology and application of the methods associated with Constructivist Grounded Theory.
FORMAT: Seminar

NURS 5120 Quantitative Research Methods

CREDIT HOURS: 3
There is a basic structure and process to the development of a design for scientific inquiry. This course focuses on research methods in general and quantitative research methods in particular. These research methodologies are used in nursing science as they relate to the development and/or testing of theoretical formulations, design, critique, and writing of research proposals.

NURS 5200 Health Care System Policy Analysis

CREDIT HOURS: 3
Health policy can be defined as “a set of interrelated decisions, taken by authorities, concerning the selection of goals and the means of achieving them” (as defined in A Code of Good Practice on Policy Dialogue). This seminar course examines critical issues and trends affecting health policy in addition to the management practices of healthcare delivery services in Canada. Students engage in analytical debate while drawing on the assigned readings, other research, and their own clinical experience. Discussions incorporate historical and global perspectives as well as a range of influencing factors to understand, test, challenge, and contrast the effectiveness of current health policy in relation to the healthcare system in Canada.

NURS 5330 Theoretical Concepts & Competencies Related to the Helping Relationship in Advanced Nursing Practice

CREDIT HOURS: 3
This course examines the multiple challenges to effective interpersonal interaction in today's constantly changing, high-stress healthcare environments with multiple stakeholders. It is designed for advanced practitioners who encounter interaction challenges with clients, peers, and colleagues at staff and managerial levels. The course examines current models of helping in terms of their varied philosophical underpinnings, roles, and responsibilities. The course also considers alternative modes of helping and vehicles for interaction. A unique feature of this course is that it provides opportunities for students to practice alternate approaches and to develop advanced roles and competencies using case studies and simulated subjects.

NURS 5435 Adult Nursing: Theory/Practice I

CREDIT HOURS: 3
In this seminar course, students will be challenged to think about and reflect on beliefs and values that inform nursing knowledge with consideration of the comprehensive societal issues occurring in settings where the discipline of nursing is undertaken. While our focus is on the care of adults in the context of illness, the course will reflect a critical analysis of the existing theoretical and evidence-based perspectives influencing health and decision-making that span from the individual to the organization. In the student-professor negotiated clinical practicum component, students will examine how individuals/families/communities manage health related concerns throughout the health-illness continuum with the goal being improved quality of life. Students are challenged to think creatively and critically with regard to the design of their clinical experience.

NURS 5436 Adult Nursing: Theory/Practice II

CREDIT HOURS: 3
Building on NURS5435, students will be challenged to think about and reflect on beliefs and values that inform nursing knowledge with a consideration of the comprehensive societal issues occurring in settings where the discipline of nursing is undertaken. Students will share new knowledge resulting from the synthesis and transfer of evidence across disciplines and healthcare sectors and will examine how society is currently dealing with health related concerns throughout the entire health-illness continuum. Contextual issues within the broad social, economic, and cultural environments of nursing practice will be addressed through an analysis of competencies needed to support health system changes that value innovation and create new collaborative partnerships not previously fostered within traditional healthcare settings. The clinical practicum component builds on the work conducted in NURS5435. Students, as emerging nurse leaders, will engage in the implementation and evaluation of conceptual and/or theoretical frameworks being applied in their practice setting. Innovation and creative thinking will support the implementation process.

NURS 5445 Community Nursing: Theory/Practice I

CREDIT HOURS: 3
This course is designed to analyse and integrate concepts, theories, research, and practice knowledge that is relevant in community assessment, understanding, planning, and advanced practice of community health nursing. The philosophy and principles of population health, primary healthcare, health promotion, and community development are foundational to the course and provide a broad framework for reflection and critical analysis of current issues and trends in community health nursing.

NURS 5446 Community Nursing: Theory/Practice II

CREDIT HOURS: 3
This course is designed to analyse and integrate concepts, theories, research, and practice knowledge that are relevant to the advanced practice of community health nursing. The philosophy and principles of public health, population health, primary healthcare, health promotion, and community development are foundational to the course and provide a broad framework for reflection and critical analysis of current issues and trends in community health nursing.

NURS 5455 Mental Health Nursing: Theory/ Practice I

CREDIT HOURS: 3
This course assists students to enhance the development of advanced knowledge and competency regarding mental health and psychiatric nursing. Critical inquiry and clinical practice opportunities will be used to examine complex mental health phenomena, apply related theoretical concepts (with individuals, families, and/or groups), and strengthen students' skill base.

NURS 5456 Mental Health Nursing: Theory/Practice II

CREDIT HOURS: 3

This course assists students to enhance the development of advanced knowledge and competency regarding mental health and psychiatric nursing. Critical inquiry and clinical practice opportunities will be used to examine complex mental health phenomena, apply related theoretical concepts (with individuals, families, and/or groups), and strengthen students' skill base.

NURS 5465 Maternal-Child Nursing: Theory/ Practice I

CREDIT HOURS: 3

This course explores selected phenomena that are relevant to advanced nursing practice in child-bearing and women's health settings, and does so within a context of primary healthcare, the changing nature of the Canadian healthcare system, and a perspective of client as individual, family, and/or community. Students will explore literature in perinatal/neonatal nursing and other disciplines to discover how the phenomena are manifested in human responses to health and illness, how the patterns of those responses have been and could be assessed, and identify implications for advanced nursing practice. As part of the course requirements, students will engage in clinical practica to focus on the assessment and understanding of patterns of development, health, and illness occurring within a child-bearing population of personal interest.

NURS 5466 Maternal-Child Nursing: Theory/ Practice II

CREDIT HOURS: 3

This course builds on the knowledge, skills, and experiences of NURS 5465. Through critical inquiry and active communication and decision making, students will use scientific and empirical evidence to implement an advanced nursing practice role in a clinical childbearing setting within a primary healthcare context.

NURS 5475 Nursing Families of Ill Children: Theory/Practice I

CREDIT HOURS: 3

This course examines the theoretical and research basis on which the nurse acts in providing care for families with ill children. Physiological, psychosocial, cultural, and nursing concepts, theories, and research reports will be studied and applied to the understanding of the behaviour and needs of the child and family when faced with illness and/or healthcare. Students engage in clinical practice with children and families and apply relevant theories, paradigms, and concepts in the plan of care.

NURS 5476 Nursing Families with Ill Children: Theory/Practice II

CREDIT HOURS: 3

This course provides an opportunity for students to increase understanding of the child and family in high-risk and/or chronic health situations, to increase nursing proficiency through the development of theoretically- and empirically-based approaches to nursing care, and to provide leadership in working with staff and families to develop approaches to the problems encountered. The course requires students to implement advanced nursing approaches to biopsychosocial phenomena on individual and aggregate bases.

NURS 5485 Principles and Theories for Nurse Practioner Practice

CREDIT HOURS: 3

This master's level course will introduce all nurse practitioner students to a general healthcare focus of populations across the lifespan and in multiple clinical settings. This course will consist of theories, terminology, point-of-care technology, assessment, diagnosis and treatment directed towards a population of all ages. Theories of family, change and adult learning will be presented to guide the nurse practitioner student in the development of a holistic plan of care for health promotion and disease prevention, health maintenance, health assessment, and acute and chronic disease management.

FORMAT: Seminar

PREREQUISITE: NURS 5740

NURS 5486 Principles and Theories for Health and Disease Management in Adult Nurse Practitioner Practices

CREDIT HOURS: 3

This course will expand on the nurse practitioner student's knowledge, skills, and competency in health promotion, health maintenance, health assessment and management of disease in adults. The focus is the adult population (18+) who seeks healthcare services in multiple clinical settings. A strong emphasis will be placed on health issues and common illnesses of adults with higher acuity levels and comorbidities, recognizing the acute and chronic nature of disease and targeting optimal health outcomes.

FORMAT: Seminar

PREREQUISITE: NURS 5734.03, NURS 5740.03, NURS 5485.03

NURS 5487 Principles and Theories for Health and Disease Management in Family All Ages Nurse Practitioner Practice

CREDIT HOURS: 3

This course is designed for nurse practitioner students who have chosen the Family All Ages focus for their future practice. Students will utilize a family focused approach in assessing clinical and research literature as a means of developing competence in health promotion, health maintenance and cultural sensitivity in caring for clients in the community setting.

FORMAT: Seminar

PREREQUISITE: NURS 5734.03, NURS 5740.03, NURS 5485.03

NURS 5488 Principles and Theories for Health and Disease Management in Neonatal Nurse Practitioner Practice

CREDIT HOURS: 3

The course focus is the neonatal population. Emphasis will be placed on the management of health issues and common illnesses of high risk neonates, recognizing the acute and chronic nature of disease and targeting optimal health outcomes. The course will build on previous course work of advanced assessment/diagnosis/treatment using primary healthcare principles to optimize patient outcomes.

FORMAT: Seminar

PREREQUISITE: NURS 5485.03, NURS 5732.03, NURS 5734.03, NURS 5740.03

NURS 5540 Health Needs of People: Theoretical Insights and Application

CREDIT HOURS: 3

This seminar course involves an examination and analysis of theories, concepts, research, and practice knowledge that is relevant to the health needs of people. This course is grounded in the primary health care philosophy of the graduate program "that recognizes and respects the unique strengths and contributions of individuals,

families, and communities."
FORMAT: Seminar

NURS 5550 Marginalized Populations: Theoretical Insights and Applications

CREDIT HOURS: 3
This seminar course involves an examination and analysis of theories, concepts, research, and practice knowledge regarding marginalized populations - those systematicaly pushed away from economic, social, political, and cultural participation and power. Students will be challenged to develop an of the unique health experiences and challenges faced by marginalized individuals who are relegated to, or find themselves on, the margins of society.
FORMAT: Seminar

NURS 5560 Transformative and Innovative Health Systems Planning

CREDIT HOURS: 3
The goal of this seminar course is to explore and discuss the structure of current health care systems in both developed and developing countries (particular focus on Canada) and the multiple factors that influence how health care is designed and delivered.
FORMAT: Seminar

NURS 5570 Introduction to the Science and Practice of Knowledge Translation

CREDIT HOURS: 3
This seminar course will introduce students to knowledge translation theory, practice and research methods. The goal of the course is to highlight relationships and conflicts between different conceptual and theoretical approaches to knowledge translation.
FORMAT: Seminar

NURS 5610 Advanced Practice Role Development

CREDIT HOURS: 3
The focus of this course is the role of advanced practice nurses in healthcare. Emphasis will be on the examination and critique of the role components of the clinical nurse specialist, nurse practitioner and combined roles. These components include: direct care, consultation, coaching, research, collaboration, leadership/administration and ethical decision-making. Issues surrounding the implementation of these roles within various healthcare contexts and clinical specialties will be discussed.

NURS 5620 Advanced Practice Role Practicum

CREDIT HOURS: 6
This course provides the student with the opportunity to integrate, synthesize and analyze previously developed knowledge and skills in an intensive clinical practice experience directly related to the student's chosen client population/discipline in an advanced nursing practice role. Practice settings will offer experiences with clients experiencing acute and chronic illness states with multiple and complex care needs. While implementing the advanced practice role, students will consider the organizational, political, and healthcare policy-related issues that relate to advanced nursing practice and change in healthcare delivery that affect role development and implementation.
FORMAT: Other (explain in comments)
PREREQUISITE: NURS 5486.03, or NURS 5487; NURS 5732.03; NURS 5734.03; NURS 5735.03; NURS 5740.03; NURS 5610.03 is a pre or co-requisite

NURS 5732 Pathophysiology for Advanced Nursing Practice

CREDIT HOURS: 3
This course uses an evidence-based conceptual approach to critically and comprehensively examine pathophysiologic phenomena relevant to advanced nursing practice. The phenomena examined are commonly encountered in acute and long-term illnesses, are alterations in function involving multiple body systems, are seen across the boundaries of age, disease entities, and clinical states, and are those for which nurses have a major role in assessing, monitoring, managing, and evaluating. Seminars are framed to systematically and critically examine the impact of these pathophysiologic phenomena on cell function, host defense responses, maintenance of vital functions, and neuro-endocrine-immune responses in individuals and groups across the lifespan.

NURS 5734 Principles of Pharmacotherapy for Nurse Practitioners

CREDIT HOURS: 3
This course focuses on core principles of pharmacotherapy relevant to all nurse practitioner practice. Pharmacotherapeutic problem solving approaches will be introduced and applied throughout the course. Effective and strategic use of drug and therapeutic information resources will be emphasized. Relevant issues to pharmacotherapeutic policy will be addressed. Principles of pharmacokinetics and pharmacodynamics will be introduced and integrated throughout therapeutic content areas. Legal and ethical responsibilities related to prescriptive authority and pharmacotherapeutic interventions will be addressed.

NURS 5735 Pharmacotherapeutics for Nurse Practitioners

CREDIT HOURS: 3
The course focuses on clinical applications of drug therapies relevant to nurse practitioner practice. Students will be given the opportunity to gain knowledge in order to integrate pharmacokinetic and pharmacodynamic concepts for a chosen client population in their clinical setting and practicums. Students will gain therapeutic knowledge that includes the mechanism of actions, usual dosages, absorption, distribution, metabolism, elimination, and therapeutic use of medications. Principles of management for side effects and drug interactions of medications frequently encountered by nurse practitioners will be reviewed and applied. Additionally, students will be provided with the opportunity to identify and utilize timely and appropriate drug information resources that are applicable to their daily practice. Legal and ethical responsibilities related to pharmacotherapeutic interventions are addressed.

NURS 5740 Advanced Health Assessment

CREDIT HOURS: 3
This course prepares students to perform advanced health assessments of young, middle-aged, and elderly adults who are healthy, as well as those who are experiencing illness. It will focus on the knowledge, skills, and processes required for advanced health assessment. Students will develop competence in completing focused and comprehensive health assessments including history taking, physical examination, synthesis, critical analysis, diagnostic reasoning, clinical judgement, and interpretation of health data. Students will further develop their understanding of the pathophysiological basis of clinical findings and will integrate an increasing knowledge of pathophysiology and pharmacology as a basis for formulating a plan of care. Elements of an advanced health assessment include physical and mental health, psychosocial, family, cultural, and community factors, the determinants of health, and risk appraisal as they relate to a client's health status. Clinical, theoretical, and scientific knowledge will be synthesized in the identification and management of existing and potential states of health and illness. Approaches to effective written and verbal communication of advanced health assessments to lay and health professional colleagues will be addressed. It is expected that students will be competent in basic health assessment techniques prior to beginning the course. All students will develop an Individual Learning Plan [ILP] to guide their learning experience.

FORMAT: Lab| Seminar

NURS 5810 Reading Class
CREDIT HOURS: 3

NURS 5820 Reading Class
CREDIT HOURS: 3
See NURS 5800.

NURS 5830 Palliative Care Nursing
CREDIT HOURS: 3
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 guide 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.
CROSS-LISTING: NURS 4060.03

NURS 5850 Women and Aging
CREDIT HOURS: 3
As women grow older the experience of aging is generally more difficult for them than for men. Somewhere in mid-life, anxieties about the aging process exacerbate 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, lesbians, and women who are physically challenged. While aging is a biological phenomenon, ageism is socially constructed. Specifically, under patriarchy, older women are seen as a burden, desexualized, 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.
CROSS-LISTING: NURS 4370.03, SOSA 3245.03, SOSA 5245.03, GWST 3810.03

NURS 5871 Addictions Nursing Practice
CREDIT HOURS: 3
This Web-based course examines dominant discourses within nursing and other disciplines that underlie addiction treatment practices. Students will critically analyze how established and emerging paradigms inform addictions nursing practice with individuals, families, and communities. Learners will consider the interplay of broader gender, social, and cultural circumstances and addictions.
FORMAT: Seminar
CROSS-LISTING: NURS 4371.03

NURS 5891 Health Informatics
CREDIT HOURS: 3
This course will provide an introduction to Information Technology and Systems as it relates to practice, research, administration, and education for health professionals. Students will be introduced to information technology and provided with opportunities to use critical thinking in analyzing the implication of information systems for healthcare. This course will be taught using interactive distance technology. Students will be required to contribute to class discussion through a Web-based bulletin board.
CROSS-LISTING: NURS 3310.03

NURS 5892 Specialty Practice of Oncology Nursing
CREDIT HOURS: 3
This course will focus on adults with cancer. Course content will reflect a critical analysis of the existing theories that influence health related behaviours, health promotion, illness prevention, and decision making. Contextual issues within the broad social, economic, and cultural environments of cancer care will be addressed.
CROSS-LISTING: NURS 4351.03

NURS 5893 Health Program Planning and Evaluation
CREDIT HOURS: 3
The focus of this course is on the theoretical and practical knowledge and abilities required for the cycle of health program planning and evaluation (HPPE) in contemporary healthcare. Students will build their own theoretical knowledge related to program planning approaches, evaluation models, theories and methods of data collection. Knowledge translation will be discussed, analyzed and critiqued including the contextual influences in program planning and evaluation such as ethics, politics, evaluator roles and stakeholder involvement. Prior knowledge of research methods will be beneficial.

NURS 5894 Interprofessional Psychosocial Oncology: Introduction to Theory and Practice
CREDIT HOURS: 3
This course provides graduate students in five core disciplines an opportunity to develop an understanding of psychosocial oncology. Case based learning in small interprofessional groups will allow students to explore key learning themes relevant to psychosocial oncology, and to develop an understanding and interpretation of the cancer experience and beginning competency in psychosocial oncology assessment, interprofessional collaboration, and cultural safety.

NURS 5895 Introduction to Epidemiology Methods in Nursing Practice
CREDIT HOURS: 3
This introductory course is 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 analysis and interpretation 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 developing and evaluating public health programs. A clinical background and a basic understanding of statistics are an asset but not necessary.
FORMAT: Seminar

PREREQUISITE: There are no prerequisites for this course, though students are required to have completed the second year of their undergraduate program or have permission from the course instructor. A clinical background and a basic understanding of statistics for the Graduate students are strongly advised but not necessary for the Undergraduate students.
CROSS-LISTING: NURS 4380.03

NURS 5897 Relational Practices with Families in Oncology and Palliative Care

CREDIT HOURS: 3
The course provides students in five disciplines (medicine, nursing, psychology, social work, spiritual care) with opportunity to explore the interprofessional care of families experiencing cancer along the illness trajectory from diagnosis through to bereavement or long term survivorship. Key themes that will be explored include: family theory, models of family and couple counselling/therapy, family assessment, therapeutic conversations and interventions.
FORMAT: Seminar

NURS 5899 Sexual Health and Counseling in Cancer

CREDIT HOURS: 3
Cancer causes wide-ranging impacts on sexual health, but many health care professionals do not feel confident about addressing sexual health needs. This course is designed to provide graduate students in the health professions with the knowledge and skills to intervene with sexual health problems that arise in cancer.
FORMAT: Seminar| Online Delivery

NURS 5910 Reading Class

CREDIT HOURS: 3

NURS 5920 Reading Class

CREDIT HOURS: 3

NURS 5950 Self-directed Learning in Nursing

CREDIT HOURS: 3
This elective provides an opportunity for students to carry out an independent study or project related to healthcare, with assistance from the faculty facilitator and resource persons. Students will systematically identify, plan, execute and evaluate a learning project relevant to nursing practice, administration, or education.
CROSS-LISTING: NURS 4330.03

NURS 5990 Interdisciplinary Human Nutrition

CREDIT HOURS: 3
Students will acquire current information about the basic principles of human nutrition and nutritional requirements throughout the life cycle. They will also analyze a variety of psychological, social, economic, physical, educational, and cultural factors which influence eating habits. Appropriate nutrition-related community resources will be identified. The students will gain an insight into the similarities of classmates' educational backgrounds and a further understanding of their professional roles, thus enhancing possibilities for interdisciplinary cooperation in future clinical areas and the community.
CROSS-LISTING: NURS 4800.03, HEED 2250.03, PHYT 3090.03, PHAR 4850.03, KINE 5990.03

NURS 6000 Nursing Administration and Leadership

CREDIT HOURS: 3
This course focuses upon the changing role and expectations for healthcare managers and leaders within the Canadian healthcare system. Course topics such as organizational theories, the philosophy of primary healthcare, management theory and research based practice, and management challenges are covered through a variety of course activities including extensive readings, case studies, student presentations, field assignments, and papers.
CROSS-LISTING: HESA 6000.03

NURS 6050 Contemporary Views of Nursing Science: Philosophy, Research, and Practice

CREDIT HOURS: 3
This course explores the philosophy underlying the ontological, epistemological, and ethical approaches to nursing and its practices. Both learner and educator will critically analyze, reflect, and dialogue in a relational, scholarly, and intersubjective learning space. An in-depth understanding of the diverse research traditions that exist within the discipline of nursing and the unique body of knowledge that evolves within each tradition will be illuminated.
FORMAT: Seminar

NURS 6130 Measurement in Nursing Phenomena

CREDIT HOURS: 3
This course is designed to prepare learners to develop and share nursing knowledge in methodological and measurement issues as an evolving field in today's research environment. The preparedness of nursing science to embrace critical multiplism from the perspective of methodology, measurement, and evaluation will be interrogated.

NURS 6200 Nursing Sensitive Health Outcomes

CREDIT HOURS: 3
Conceptual, philosophical, theoretical, epistemological, methodological, and feasibility issues central to health outcomes research are examined. The concept of health outcomes and related health and social policies from the perspective of nursing practices are analyzed and critiqued. The impacts of nursing practices on health outcomes at individual, family, community, and population levels will be discussed, analyzed and critiqued.

NURS 6210 Women's Health Outcomes

CREDIT HOURS: 3
The course provides a forum to analyze, discuss, and critique philosophical, conceptual, theoretical, methodological, and feasibility issues central to women's health outcomes research and nursing practice from a gender-based and diversity analysis perspective and the relationship to health and social policies. The short and long term impacts of nursing practices on women's health outcomes and nursing practice at the individual, family, community, and population levels will be analyzed.

NURS 6300X/Y Doctoral Seminar

CREDIT HOURS: 3

The goal of the doctoral seminar is for students and faculty to share the findings from their research, engage in scholarly debate, and foster scholarship. The seminar will facilitate proposed and ongoing research between and among doctoral students, faculty members, and other keystakeholders. Focus is on the critical examination of the research process in nursing, health service delivery, and policy decision-making with an emphasis on maintaining the links between the research problem, theory, and research methods. Consideration is given to both quantitative and qualitative research approaches, designs, and data collection and analysis. Knowledge translation as a core component of research design will be discussed. Strategies for critically analyzing research studies and for utilizing findings are examined.

NOTES: Students taking this course must register in both X and Y in consecutive terms; credit will only be given if both are completed consecutively.

NURS 6800 Directed Doctoral Study

CREDIT HOURS: 3

This course offers doctoral students the opportunity to undertake further study in a specific topic of interest that is not covered by regular course offerings. The student will be supervised by a faculty member who is competent in the area of interest. Regular meetings between the student and the supervising faculty member will be held. The method of evaluation will be contracted by the student and supervising faculty member.

NURS 6820 Doctoral Reading Course

CREDIT HOURS: 3

This course offers doctoral students the opportunity to undertake further study in a specific topic of interest that is not covered by regular course offerings. The student will be supervised by a faculty member who is competent in the area of interest. Regular meetings between the student and the supervising faculty member will be held. The method of evaluation will be contracted by the student and supervising faculty member.

NURS 8000 Health Policy Practicum

CREDIT HOURS: 0

This practicum provides students with an opportunity to build knowledge and skills regarding health policy development, its application and/or evaluation. The practicum will focus on one particular policy relevant to the student's discipline/field of practice and will be tailored to individual student needs. The focus of the practicum can be generated from student work completed in other courses, or as a new topic of interest. The practicum is offered to any Master of Nursing student who elects the Policy option. Graduate students from other health-related disciplines are also eligible for this practicum subject to the availability of faculty expertise and resources.

NOTES: 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.

NURS 8893 Clinical Plc - Arctic Nurs III

CREDIT HOURS: 0

NURS 9000 Masters Thesis

CREDIT HOURS: 0

NOTES: 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.

NURS 9530 Doctoral Thesis

CREDIT HOURS: 0

Occupational Therapy

Location:
Building/Room: (Atlantic) School of Occupational Therapy/Forrest Building
Street Address 1: 5869 University Avenue
Street Address 2: Room 215
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-8804
Fax: (902) 494-1229
Website: www.occupationaltherapy.dal.ca
Email Address: occupational.therapy@dal.ca

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 promoting participation in meaningful and desired daily life occupations (e.g., caring for the self or home, engaging in leisure pursuits, working, studying). Occupational therapists work to promote justice and equity so that all persons have the opportunity and ability to engage in meaningful daily occupations.

Occupation is viewed broadly to include everything we do to “occupy” ourselves in enjoying life, looking after ourselves and others, and contributing to the social and economic productivity of our communities.

Health is viewed broadly as having the ability, opportunity and resources, for quality of life with meaningful occupations in supportive environments.

Occupational therapists use their unique and diverse knowledge and skills to enable individuals, groups, and organizations to overcome obstacles that limit their ability to do the things they need and want to do. Obstacles addressed by occupational therapists may include illness, injury, physical or mental disability, developmental delay, social disadvantage, old age, and environmental barriers within the home, community and workplace. The focus can be either on enabling individual change, or enabling change in physical and social environments, policies or legislation to enhance occupational performance and engagement in society. Strategies may facilitate change in skills, attitudes, routines, design of buildings, use of assistive technology, policies, etc.

The role of an 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.

Staff

Director

Packer, T., BSc (OT) (Western), MSc, PhD (Queen’s)

MSc (Occupational Therapy) Graduate Coordinator

Versnel, J., BSc (OT) (Toronto), MSc (OT) (Western), PhD (Queen's)

MSc (Occupational Therapy - Post-Professional) Graduate Coordinator

Stadnyk, R., BA (Alberta), BSc (OT), MSc (Queen’s), PhD (Toronto)

Professors Emeriti

O'Shea, B., DipP & OT (Toronto), BSc (Queens), MS (Colorado State), LLD (Dalhousie), Honourary PhD. Occupation as a determinant of health; curriculum design for professional studies; cross-cultural transfer of knowledge
Townsend, E., DipP & OT, BSc (OT) (Toronto) MAdEd (St. FX), PhD (Dalhousie). Educational and social foundations of occupation and occupational therapy: social organization of knowledge and systems; power and empowerment, client-centred practice, enablement

Professors

Beagan, B., BA, MA (Dalhousie), PhD (UBC). Sociology of health and illness, health profession education, social inequality, research methodology
Packer, T., BSc (OT) (Western) MSc, PhD (Queen's). Self Management of disability and chronic disease

Associate Professors

Merritt, B., BS (Psychology), MS (OT), PhD (Colorado State). Occupation-based assessment, occupational therapy theory, educational leadership, efficacy of occupation-based practice
Versnel, J., BSc (OT) (Toronto), MSc (OT) (Western), PhD (Queen's). Occupational transitions in children, adolescents and families, cognition and learning, and chronic disease self management
Warner, G., PhD (Epidemiology) (Case West Reserve Univ). Measurement and Evaluation, Health Services Research, Knowledge Transfer and Exchange, Health System Change to improve participatory outcomes

Assistant Professors

Brown, J., BSc (OT) (Toronto), MSc (OT-Post-Professional) (Dalhousie). Primary Health Care, occupational therapy in mental health, recovery-oriented services and psychiatric rehabilitation, chronic disease management
Dieleman, C., BSc (OT) (Western), MSc, PhD (Queen's). Mental health care for criminal offenders with mental illness, policy implementation in dual prisonhospitals, understanding crime as occupation
Kiepek, N., BSc (Hon), MSc (OT) (Toronto), PhD (Western). Substance use, unsanctioned occupations, deviance, critical discourse analysis, discursive practices
Lauckner, H., BSc (OT), MSc, PhD (Queen's). Community development and occupational therapy; community-base rehabilitation; qualitative research; fieldwork education
MacKenzie, D., BSc Physical Education (Saskatchewan), BSc (OT) (Alberta), MA (Ed) (MSVU), PhD (Dalhousie). Observation and eye movement, Neurological rehabilitation, and interprofessional education
Stadnyk, R., BA (Alberta), BSc OT, MSc (Queen's), PhD (Toronto). Community practice; everyday lives of frail elderly persons and policies and services to support them
White, C., BEd (UNB), BSc (OT) (Dalhousie), MEd (UNB), MSc (OT Post Professional) (Dalhousie), PhD (Queen's). Mental health, knowledge translation, teaching/learning

Lecturer

Landry, K., BSc (OT), MSc (Rehabilitation Research - Physiotherapy) (Dalhousie)

Instructor

O'Keefe, C., BSc (OT), MSc (OT Post Professional) (Dalhousie)

School Fieldwork Education Coordinator

White, C., BEd (UNB), BSc (OT) (Dalhousie), MEd (UNB), MSc (OT Post Professional) (Dalhousie), PhD (Queen's)

International Fieldwork Education Coordinator

Lauckner, H., BSc (OT), MSc, PhD (Queen's)

Cross Appointments

Gahagan, J., BA (Hons) (Carleton), MA (Windsor), PhD (Wayne State)
Hutchinson, S., BA (Univ Vic), MA (Dalhousie), PhD (Georgia)
Manuel, P., BA (Carleton), MSc (McGill), PhD (Dalhousie)
Unruh, A., BSc (OT) (Western), MSW (Carleton), PhD (Dalhousie)
Waldron, I., BA (McGill), MA (Univ of London), PhD (Toronto)

Adjunct (FGS)

Carswell, A., Dipl (OT), BSc (OT), MSc (McGill), PhD (Toronto)
Egan, M., BSc (OT) (Western), MSc (OT) (Alberta), PhD (McGill)
Kirsh, B., BSc (OT), MEd, PhD (Toronto)
Pranger, T., BSc (OT), MEd, PhD (Toronto)
Wicks, A., BAS (OT) (Curtin), MHS (OT) (South Australia), PhD (Charles Sturt)

Graduate Certificates

Introduction

Graduate certificates are offered in three topic areas:

- Chronic Condition Self-Management
- Aging and Continuing Care
- Diversity and Inclusion

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.

Chronic Condition Self-Management is an approach currently being adapted across settings, jurisdictions and disciplines in Canada and beyond to help people with chronic conditions such as diabetes, cardiopulmonary disease, mental illness, and/or neurological conditions such as MS manage their health and everyday life.

Aging and Continuing Care is an increasingly important topic in health, social and community services due to the aging of our population.

Diversity and Inclusion has been identified as an important area for health, social and educational services in order to meet the needs of vulnerable groups in an increasingly diverse Canadian population.

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 greater in a relevant field. These fully online certificates are suitable for students who are interested in advanced study but do not necessarily want to complete a full post-professional Master's degree. Each certificate consists of three three-credit courses: one required course in the topic area, and two electives selected by the student. The student completes all assignments for their electives in the topic area of their certificate.

Through completion of a certificate, students will:

1. further develop knowledge and remain abreast of current advances of within a practice-relevant topic area (chronic condition self-management, aging and continuing care, diversity and inclusion)
2. critically analyze the current knowledge base within a specific topic area
3. learn to apply knowledge in this topic area at a program or systems level through engaging in studies in other relevant areas (through selection of elective courses).

Admission Requirements for Graduate Certificate Programs

Student must qualify to enrol in Graduate Studies at Dalhousie University. Normally this means completion of a four year Bachelor's degree or equivalent with an average of B or better. Others may be eligible and will be considered on a case by case basis.

Application

Applicants apply as Special Student - Graduate Studies (SSGS) (Faculty of Graduate Studies Regulation V5.5.7). (This includes applicants who may have already completed a Master's degree, either at Dalhousie or elsewhere.)

All students must complete a Faculty of Graduate Studies Application form which is available at dalgrad.dal.ca/admissions. Students must also provide:

- If applicable, proof of English Language Competency
- Two copies of official transcripts of all university courses
- Request for specific course of interest

Application Deadlines:

Chronic Conditions Self-Management:	August 1
Aging and Continuing Care:	November 15
Diversity and Inclusion:	April 1

PLEASE NOTE that certificates may not be offered every year. Students should contact the School of Occupational Therapy occupational.therapy@dal.ca to find out the schedule for certificate offerings.

Tracking and Application for Certificate

As students complete each elective, they complete and submit a form that demonstrates that they have completed all the course assignments in the subject area of their certificate. The course instructor verifies the form and a copy is sent to the student for their records. The form is available on the School of Occupational Therapy website.

Once students complete their three courses, they apply for their certificate, which is mailed to them. The application form is on the School of Occupational Therapy website.

Graduate Certificate Programs

Students complete one of these required courses depending upon which certificate they select:

- OCCU 6507.03: Critical Perspectives on Inequities in Everyday Life (Diversity and Inclusion)
- OCCU 6508.03: Chronic Condition Management
- OCCU 6509.03: Aging and Continuing Care

Following completion of the required courses, students select two elective courses from this list:

- OCCU 5010.03: Advanced Studies on Enabling Occupation
- OCCU 5030.03: Advanced Research Theory and Methods for Occupational Therapists
- OCCU 5040.03: Identity and Transitions
- OCCU 5041.03: Evidence-based Occupational Therapy
- OCCU 5042.03: Community Development for Occupational Therapists
- OCCU 5043.03: Program Evaluation for Occupational Therapists
- OCCU 6504.03: Measuring Health Outcomes

PLEASE NOTE: Not all courses are offered every year. Student should contact the School of Occupational Therapy occupational.therapy@dal.ca to find out the schedule for course offerings.

Master of Science (Occupational Therapy) (MSc OT) to enter the profession

Introduction

The MSc (OT) program was implemented in 2006 and replaced the BSc (OT) program of study. The MSc (OT) program is a full-time, on-site program of study that is designed to prepare students to enter into the profession of occupational therapy. The program is fully accredited by the Canadian Association of Occupational Therapists (CAOT) and World Federation of Occupational Therapists. The program is 22 months in total, beginning in September and concluding in June. Following the completion of their program, students are eligible to write the CAOT national examination in July or November, which in turn provides eligibility for licensure by provincial, territorial, and international regulatory bodies. Graduates have a wide range of employment options in Canada and abroad.

1. MSc (OT) Program: 78 credit hours full-time study, 22 consecutive months (six semesters)

a) Academic component: 58 credit hours
b) Interprofessional health education component: Within the 22 month program, students will engage in a constellation of required interprofessional collaborative learning experiences. Students are required to maintain continuous registration in the Interprofessional Health Education Course (IPHE 5900) for the duration of the program.
c) Fieldwork component: 20 credit hours for a total of 1027.5 hours. Students may be assigned to fieldwork sites in any of the four Atlantic provinces. Normally, a student will complete no more than one fieldwork course in the Halifax/ Dartmouth area. Applicants who anticipate difficulty meeting fieldwork requirements are strongly encouraged to contact the School Fieldwork Education Coordinator to explore options early in their first academic term. National and International fieldwork options may be available.

2. Single courses: with Entry Level Graduate Program Coordinator and Instructor permission, see Regulation 4.3.7.

Admission Requirements MSc (OT)

- Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies
- Admission to the MSc (OT) program requires the completion of a four year Bachelor's degree in any field of study at a recognized academic institution, with a minimum B average (73-76%), calculated on the last 60 credit hours of the degree.
- Two prerequisite courses are required:
  - Six credit hours in human physiology. The six credit hour human physiology prerequisite course should contain study of the following system content: cell, endocrine, neural, muscle, cardiovascular, respiratory, renal, and gastrointestinal.
  - Three credit hours in human/vertebrate anatomy. The three credit hour human anatomy prerequisite course should enable the student to explain and describe, at a basic level, the gross anatomy and histology of the human body. Content topics of the course should include study of the following: development, cells, tissues, skeletal, muscular, integument, nervous, cardiovascular, digestive, respiratory, renal and reproductive systems.
- Reference Letters - two academic confidential letters
- Admission into the program will normally be 66 students. Admission is on a competitive basis with preference given to residents of the Atlantic Provinces. The provincial quota system currently allocates 35 seats as follows: nine positions to New Brunswick, eight positions to Newfoundland and Labrador, 16 positions to Nova Scotia, and two positions to Prince Edward Island. Remaining seats are non-designated. Selection is based on completion of prerequisites, academic achievement, reference letter and affirmative action.
- Single Courses: with Entry Level Program Coordinator and Instructor permission (see Regulation 4.3.7). The admission category is Special Student-Graduate Studies (SSGS).

Application

All applicants must complete

- The Faculty of Graduate Studies Application for Admission Forms which are available at

www.dalgrad.dal.ca/admissions/ and,

The School of Occupational Therapy's Supplementary Occupational Therapy Application form, available at
occupationaltherapy.dal.ca/Files/MScOT_Supplementary _Application_Form.pdf

Affirmative Action: The School of Occupational Therapy is committed to the professional advancement of qualified occupational therapists who are persons with disabilities and/or who are members of the African Canadian or Aboriginal communities of the Atlantic region. Fully qualified applicants from these groups will be given preference in admissions. If you belong to one of these groups and wish to take advantage of this policy, you may voluntarily provide this information about yourself on application. Please note that students who request accommodations for a disability of any type are required to be registered with the Dalhousie Advising and Access Services Centre.

Application Deadline MSc (OT) Program:

- January 31 is the deadline for submission of the Faculty of Graduate Studies Application for Admission Forms and the Supplementary Occupational Therapy Application Form to the School of Occupational Therapy. All final transcripts for courses that are still in progress must be received by June 1 of the admission year in order for the application to be considered by the Admissions Committee, even if a student has been placed on the waitlist for acceptance.

Special Student - Graduate Studies Application Deadlines

- Fall Term: August 1
- Winter Term: December 1
- Spring/Summer Term: April 1

Program Information

Pre-placement Requirements

Fieldwork education, the practice component of the educational program, takes place in a variety of occupational therapy practice sites where students may be exposed to, or be carriers of communicable diseases which are vaccine preventable. Prior to fieldwork, students must meet the immunization requirements as indicated in the "Immunization Record" and "Mandatory Tuberculosis Skin Test" - see: http://www.dal.ca/faculty/healthyprofessions/current-students/student-policies-and-procedures.html

The School also requires students to complete CPR (level C), and to provide a Criminal Record Check, a Vulnerable Sector Check, and proof that they are not on the Child Abuse Registry. Additional requirements may be requested by individual sites, and are the responsibility of the student.

Transfer Credits

Normally, transfer credits are not granted for OCCU courses. Transfer credit inquiries should be directed to the MSc (OT) Graduate Coordinator and course instructor; transfer credits are subject to approval of the course instructor. Students inquiring about transfer credits must provide a photocopy of the calendar description of the completed course, as well as a copy of the course syllabi.

Academic Dismissal

The School of Occupational Therapy will assume that a student has withdrawn from the program, and will accept another student in the seat, if the first student fails to attend orientation and the first week of classes without prior permission. In addition, a student who absents her/himself from the School of Occupational Therapy without prior permission for an extended period (four weeks or greater) will be presumed to have withdrawn and will be required to re-apply for admission to the MSc (OT) program. See also Regulation 5.4

Fieldwork Costs

Students enrolled in entry-to-practice graduate programs of study in the Faculty of Health Professions are advised that they may have to do some or all of their required clinical education/fieldwork at sites outside Halifax, and hence may 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.

The School of Occupational Therapy is committed to rural health practice. Students may receive some travel and accommodation support through the School's Rural and Remote Fieldwork program.

Awards, Scholarships, Bursaries

Refer to www.occupationaltherapy.dal.ca for information regarding awards, scholarships, and bursaries for the entry-level MSc (OT) program.

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 objectives of interprofessional education in the Faculty of Health Professions include 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.

Required Program of Study for MSc (OT) students

Students admitted to the MSc (OT) program will enroll in the full time program of study documented in the Table below. Progression to each semester of the program is contingent upon completion of all program courses in the previous semester. While each student will maintain continuous enrollment in IPHE 5900 for the duration of the MSc (OT) program, the grade (pass/fail) for this course will not be submitted until the final term of the student's program. Please register in IPHE 5900.00 (section 3). Students must successfully complete all program courses to meet the requirements for graduation. (Note: Student pays program fee for two academic years = six terms).

Year 1- 45 credit hours - 12 months September - August

Fall Term: Sept - Dec (On-Site) 18 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 5000.03: Theories of Occupation, Enabling and Justice (3 cr hr)
OCCU 5001.03: Enabling Occupation 1 (3 cr hr)
OCCU 5002.03: Health Conditions and Occupational Performance (3 cr hr)
OCCU 5003.03: Dimensions of Professional Practice (3 cr hr)
OCCU 5111.01X: Fieldwork I: 90 hours total (1 cr hr)
ANAT 5217.06: Functional Human Anatomy (6 cr hr)
Winter Term: Jan - mid-Apr (On-Site) 15 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 5004.03: Occupational Assessment and Occupational Analysis (3 cr hr)
OCCU 5005.04: Enabling Occupation 2 (4 cr hr)
OCCU 5006.03: Wellness and Inclusion by Design and Technology (3 cr hr)
OCCU 5111.01Y: Fieldwork I: 90 hours total (1 cr hr)
OCCU 5007.03: Research Approaches for Occupational Therapists (3 cr hr)
Spring Term: (flex delivery): May-August 12 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 5222.06: Fieldwork II: 337.5 h (6 cr hr)
OCCU 6002.03: Social Influences on Occupational Peformance (3 cr hr)
OCCU 5041.03: Evidence Based Occupational Therapy (3 cr hr)

Year 2 - 33 credit hours - 10 months September - June

Fall Term: September-December (On-Site) 14 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 6001.05: Enabling Occupation 3 (5 cr hr)
OCCU 6140.06: Neuroscience for Occupational Therapy (6 cr hr)
OCCU 6130.01: Pharmacology for Occupational Therapists (1 cr hr)
OCCU 6000.02 Applied Research 1 (2 cr hr)
Winter Term: January-April (Off-Site) 12 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 6111.06: Fieldwork III 300 hr (6 cr hr)
OCCU 6222.06: Fieldwork IV 300 hr (6 cr hr)
Spring Term: May - June (On-Site) 7 credit hours
IPHE 5900.00: Interprofessional Health Education Portfolio (0 cr hr)
OCCU 5043.03: Program Evaluation for Occupational Therapists (3 cr hr)
OCCU 6003.03: Advanced Practice Issues (3 cr hr)
OCCU 6600.01: Applied Research II (1 cr hr)

Master of Science (Occupational Therapy–Post-Professional) (MSc OT)

Introduction

The School of Occupational Therapy opened a post-professional Master of Science program in occupational therapy in 1998. Admitting qualified occupational therapists from national and international locales, this is an innovative, part-time or full time on-line distance education, 30 credit hours Master's program with course work (non-thesis) or thesis options. Students require regular and consistent access to the internet to participate successfully in this online distance education program.

1. Full MSc (OT–Post-Professional) Program: 30 credit hours full- or part-time study on line
   a) Research Thesis Stream: Two required courses, two electives and a thesis
   b) Practice Leaders Stream: Five required courses, including a practicum and four electives
2. Single courses: with Post Professional Graduate Program Coordinator and Instructor permission, see Regulation 5.7

Admission Requirements MSc (OT–Post-Professional)

Admission to the degree program is open to occupational therapists who have completed their occupational therapy education at a World Federation of Occupational Therapists (WFOT) approved educational program. Priority will be given to those who hold an entry level four year baccalaureate or master's degree in occupational therapy. Occupational therapists with a diploma who present strong evidence of experience or advanced study in theory and research will also be considered. Applicants must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Priority will be given to occupational therapists who demonstrate the most favorable combination of academic excellence, leadership experience, referee recommendation, and knowledge of current trends in occupational therapy. Practice Leader and Research Thesis Streams are available.

Application

All Program applicants must complete:

- Faculty of Graduate Studies Application Forms which are available at

www.dalgrad.dal.ca/admissions;

If applicable, proof of English language competency;
Letter of Intent;
Curriculum Vitae;
Two letters of Academic Reference;
Two copies of official transcripts of all university courses;
Single course: SSGS and Certificate applicants need only provide:

- FGS application forms;
- If applicable, proof of English language competency;
- two copies of official transcripts of all university courses;
- request for specific courses of interest

Application Deadlines

1. MSc (OT– Post- Professional) Admissions for Canadian and Non-Canadian Applicants
   Application deadlines are as per Faculty of Graduate Studies Regulations. Please see Regulation 3.2.
   All new students are expected to complete their Program Orientation in the first calendar year of their program, normally in advance of their coursework. Please see 5.1 Residency, Orientation, Additional Courses, Advisors.
2. Special Student-Graduate Studies (SSGS) applications
   Individuals applying to complete courses under SSGS status may apply for admission for the Fall, Winter, or Spring/Summer term.
   SSGS Applicants must submit Faculty of Graduate application form and two copies of official transcripts of all university courses.

Fall Term	August 1
Winter Term	November 15
Spring/Summer Term	April 1

MSc (Occupational Therapy—Post-Professional) Program

Post Professional Courses (selection for Practice Leaders or Research Thesis Streams). Please note that not all courses are offered every year.

OCCU 5010.03: Advanced Studies on Enabling Occupation
OCCU 5020X/Y.06: Graduate Seminar and Practicum
OCCU 5030.03: Advanced Research Theory and Methods for Occupational Therapists
OCCU 5040.03: Identity and Transitions
OCCU 5041.03: Evidence-Based Occupational Therapy
OCCU 5042.03: Community Development for Occupational Therapists
OCCU 5043.03: Program Evaluation for Occupational Therapists
OCCU 5050.03: Public Dialogue on Occupations and Enablement
OCCU 5501.03/OCCU 5502.03/OCCU 5503.03/OCCU 5504.03: Graduate Reading
OCCU 6501.03: Special Topics in Health, Health Care, and Social Services
OCCU 6502.03: Special Topics: Advanced Data Analysis
OCCU 6503.03: Advancing Vocational Rehabilitation Through Critical Occupational Analysis
OCCU 6504.03: Measuring Health Outcomes
OCCU 6506.03: Practice Management of Occupational Therapy
OCCU 6507.03: Critical Perspectives on Inequities
OCCU 6508.03: Chronic Condition Management
OCCU 6509.03: Aging and Continuing Care

OCCU 9001.18: Thesis

Practice Leaders Stream (Coursework)

The Practice Leaders Stream is designed for clinicians and managers and emphasizes leadership in enabling occupation in any area of practice. Students may complete the degree in 10 months full-time study or part-time up to five years. Elective options should be confirmed each year with the School. Students with specific clinical management or other interests are encouraged to consult with the School about options. Please note that not all courses are offered every year.

Students complete five required courses (18 credit hours):

OCCU 5010.03: Advanced Studies on Enabling Occupation
OCCU 5020 X/Y.06: Graduate Seminar and Practicum
OCCU 5041.03: Evidence-Based Occupational Therapy
OCCU 5043.03: Program Evaluation for Occupational Therapists
OCCU 5050.03: Public Dialogue on Occupations and Enablement

Students select four elective courses (12 credit hours):

OCCU 5030.03: Advanced Research Theory and Methods for Occupational Therapists
OCCU 5040.03: Identity and Transitions
OCCU 5042.03: Community Development for Occupational Therapists
OCCU 5501.03: Graduate Reading
OCCU 6501.03: Special Topics in Health, Health Care, and Social Services
OCCU 6502.03: Special Topics: Advanced Data Analysis
OCCU 6503.03: Advancing Vocational Rehabilitation Through Critical Occupational Analysis
OCCU 6504.03: Measuring Health Outcomes
OCCU 6506.03: Practice Management for Occupational Therapy
OCCU 6507.03: Critical Perspectives on Inequities
OCCU 6508.03: Chronic Condition Management
OCCU 6509.03: Aging and Continuing Care

Sample Plan for Part-Time Practice Leaders Stream
(Note: Student pays program fee over nine academic terms, continuing theses only fees thereafter) Part time may attend to five years.

	Fall Term	Winter Term	Spring Term
YEAR 1	OCCU 5010	OCCU 5043	Elective
YEAR 2	OCCU 5020	OCCU 5020	Elective
YEAR 3	OCCU 5041 OCCU 5042	OCCU 5050	Elective

Research Thesis Stream

Students registered in the Research Thesis Stream complete a minimum of 30 credit hours including OCCU 5010: Advanced Studies on Enabling Occupation (3 credit hours), OCCU 5030: Advanced Research Theory and Methods for Occupational Therapists (3 credit hours), two elective courses (3 credit hours), and a thesis (18 credit hours). Thesis students must complete OCCU 5010 and OCCU 5030 before defending their thesis proposal.

Sample Plan for Full-Time Research Thesis Stream
(Note: Student pays program fee for one academic year; continuing fees thereafter). Students studying full time may complete courses and a thesis proposal in one year. Thesis completion time will depend on the study and student/research circumstances.

Fall term	Winter Term	Spring Term
OCCU 5010	OCCU 5030	OCCU 9001
Elective	Elective	
OCCU 9001	OCCU 9001	

Sample Plan for Part-Time Research Stream (three years)
(Note: Student pays program fee over nine academic terms; thesis only fees thereafter).|
Part time may attend to five years.

	Fall Term	Winter Term	Spring Term
YEAR 1	OCCU 5010	OCCU 5030	Elective
YEAR 2	Elective	OCCU 9001	OCCU 9001
YEAR 3	OCCU 9001	OCCU 9001	OCCU 9001

Program Information

Residency, Orientation, Additional Courses, Advisors (Degree students, not single course students)

All full-time and part-time MSc (OT–Post-Professional) students in both Practice Leaders and Research Thesis Streams are required to participate in an online orientation period of up to two weeks. The schedule includes an orientation to the program, library and technology. Each student is assigned a Faculty Advisor upon their admission to the program.

Students wishing to spend time on campus at any time throughout their program are encouraged to use library and other university and School facilities. Students are also welcome to complete part or all of their program on-site. Students determine their own schedule in consultation with their Faculty Advisor. Faculty Advisors may or may not become the student's Thesis Supervisor.

For students in the Research Thesis Stream, negotiations between a student and Thesis Supervisor may result in a student being required to complete an additional three credit hours in research methods or elective courses, as available and accessible with appropriate permission.

Full-Time and Part-Time Study

The MSc (OT–Post-Professional) program is available to Research Thesis students on a full time or part time basis. The Practice Leader Stream is available on a part-time basis only. Full-time students may enrol in up to 30 credit hours per year. Part-time students may enrol in up to 15 credit hours in any one academic year. Students are advised to enrol first in OCCU 5010.03: Advanced Studies on Enabling Occupation. The normal upper time limits are four years for full time and five years for part time study. Extensions may be granted in special cases upon petition to the Faculty of Graduate Studies

Distance Costs

Students pay a Distance Fee per course to cover mailings, limited long distance phone costs, administration, and related expenses. Additional student expenses include: textbooks, long distance telephone and fax costs, photocopy costs for library materials, access to the Internet and other technology or software. Depending on a student's thesis research, statistical or qualitative analysis software and bibliographic software may be required.

Transfer Credits

Occupational therapists with partial graduate level education in another field or at another university may submit a request to transfer credits to this program if the credits have not been used toward another degree. A maximum of six credit hours with a grade of B- or above may be transferred, on individual review of transcripts and full course descriptions by the Post Professional Program Coordinator. All transfers are subject to approval by the Faculty of Graduate Studies.

Dalhousie Letters of Permission

Students may complete up to six credit hours of the MSc (OT–Post-Professional) program outside Dalhousie under Letters of Permission from the Graduate Program Coordinator. Requests, including a detailed course outline, must be submitted prior to the student enrolling in the course. A grade of B- or higher is required for these courses to be credited towards the student's MSc (OT–Post-Professional) degree. Enrollment at Dalhousie enables students to complete courses by Letter of Permission at Canadian Atlantic universities without additional fees. Additional fees are normally required by other universities.

Awards, Scholarships, Bursaries

Refer to www.dalgrad.dal.ca/funding for information regarding awards, scholarships and bursaries for the MSc (OT–Post-Professional) program

Special Student - Graduate Studies (SSGS) (No-Degree, For Course Specific Admission)

Occupational therapists who meet Faculty of Graduate Studies criteria, and who have permission of the School Post-Professional Program Coordinator may enroll in a maximum of six credit hours offered within the MSc (OT– Post-Professional) program.

Normally, courses completed under SSGS status cannot be used for credits towards formal graduate programs. However, occupational therapists who complete courses under SSGS status can at the time of their application to the MSc (OT– Post-Professional) program, apply to receive transfer credit for up to two SSGS courses (one full credit total). Final approval must be granted by the Post-Professional Graduate Program Coordinator and the Faculty of Graduate Studies. (see Regulation 5.7.7)

NOTE: The fees paid as an SSGS do not count towards the program fee paid by a student admitted to the MSc (OT– Post-Professional) program.

Doctor of Philosophy (PhD)

Faculty in the School of Occupational Therapy welcome applications for PhD studies focused on occupational therapy or occupational science. Interested persons are encouraged to contact individual faculty. Applications will be submitted through the most suitable program, such as the PhD program in Health, Interdisciplinary PhD

program, or Biomedical Engineering. Prospective students may be eligible for funding through scholarship programs at NSERC, SSHRC, CIHR, or from the Nova Scotia Health Research Foundation (NSHRF). Within Dalhousie funding possibilities include Killam scholarships.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Please refer to specific Occupational Therapry graduate program sections to see list of courses required to complete MSc (OT) and MSc (OT–Post-Professional) degrees.

Course Descriptions

OCCU 5000 Theories of Occupation, Enabling & Justice

CREDIT HOURS: 3
This course analyzes the theories, practice models and frames of reference that are foundational to the occupational therapist's view of occupation, participation, occupational performance, enabling occupation, and occupational justice. When applying theories, completing assignments and participating in discussions, students are expected to engage in critical and reflective analysis, and creative problem solving.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Admission to the MSc (OT) program, or SSGS (Special Student Graduate Studies) status by permission of the instructor

OCCU 5001 Enabling Occupation 1

CREDIT HOURS: 3
An introduction to the occupational therapy process of practice used in relation to the personal and environmental factors of individuals who are experiencing mental health problems. Laboratory sessions focus on practice skills such as establishing the therapeutic relationships, identifying person and environmental factors affecting occupational performance and engagement, and determining appropriate intervention approaches.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Admission to the MSc (OT) program, or SSGS (Special Student Graduate Studies) status by permission of the instructor.

OCCU 5002 Health Conditions and Occupational Performance

CREDIT HOURS: 3
This course examines the relationship between medically-defined health conditions and occupational performance across the lifespan. Students will learn to describe health conditions and analyze their impact on the performance of occupations in daily life as well as the impact of occupational performance on health conditions. The knowledge base developed will be in the aetiology, medical classification and diagnosis, symptoms, treatment and prognosis of common mental and physical conditions that affect the performance of daily occupations. Knowledge about conditions drawn from various medical specialties will be synthesized with occupation specific knowledge. Multiple learning methods will include lectures, small group tutorials, self-directed inquiry, and critical analysis of the cultural construction of health conditions.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Admission to the MSc (OT) program, or SSGS (Special Student Graduate Studies) status by permission of the instructor.

OCCU 5003 Dimensions of Professional Practice

CREDIT HOURS: 3
This course is designed to prepare students for professional practice. Emphasis is placed on the importance of professional behaviours, ethical and legal issues that arise in the healthcare context, and professional reasoning required to begin professional practice in fieldwork experiences. Through a variety of experiences and with a professional perspective, students will expand their current knowledge about occupation, and integrate theory and knowledge from co-requisite and prerequisite to issues that are representative of current occupational therapy practice.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Admission to the MSc (OT) program, or SSGS (Special Student Graduate Studies) status by permission of the instructor.

OCCU 5004 Occupational Assessment and Occupational Analysis

CREDIT HOURS: 3
Students will (a) explore fundamental concepts, processes and strategies to assess and analyze a client's occupational performance and engagement; (b) learn to select, conduct, and interpret formal and informal assessment approaches when evaluating the person, environment, occupation fit; and (c) critically review how assessment methods are employed to elicit a comprehensive understanding of the client's occupational needs.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor.

OCCU 5005 Enabling Occupation 2

CREDIT HOURS: 4
This course builds on the knowledge and skills acquired in Enabling Occupation I, by introducing students to the biomechanical aspects of occupational engagement

and performance. The focus of the course will be on the occupational therapy process of practice (e.g., assessment, intervention, documentation) with clients experiencing occupational engagement and performance issues that are related to musculoskeletal impairments.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 5006 Wellness and Inclusion by Design and Technology

CREDIT HOURS: 3
In this course students learn the principles and best-practice application of environmental design and technology to enable occupational well-being, participation and inclusion in the public and personal sectors. Through practical projects in environmental design, technology and community development, and application in laboratory sessions, students develop skills in evaluating, designing and promoting the reachability, usability and accessibility of the built and social environment which has a profound effect on the choice and opportunities we have in engaging in meaningful occupations in everyday life.TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 5007 Research Approaches for Occupational Therapists

CREDIT HOURS: 3
This course introduces theories and epistemologies underlying positivist and naturalist (quantitative and qualitative) approaches to research, particularly focusing on the issues that arise for research on occupation and in occupational therapy. We explore tensions between objectivity and subjectivity, the value of standardized measures, insider/ outsider issues unique to clinician-researchers, concerns about inclusion/ exclusion, ethical issues in research, and particularly power concerns inherent in research. We examine the epistemological and methodological 'fit' of various research approaches with occupational therapy, asking how research may best move the profession forward. The focus in this course is on critical appraisal of the social, political, economic, and ethical matters that shape the research enterprise. The aim is to develop astute consumers and critics of scholarly research.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 5010 Advanced Studies on Enabling Occupation

CREDIT HOURS: 3
This 13 week course will facilitate advanced critique on research and theories on occupation, and on processes on enabling change in individuals, environments and systems. Drawing on empirical, interpretive, and critical social sciences, students will explore the key issues and literature relating to occupation and occupational therapy, particularly focusing on the three areas of concentration for the post-professional MSc program: Foundations, Evaluation, and Systems Organization.
TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: Qualified Occupational Therapists and permission by instructor

OCCU 5020X/Y Graduate Seminar and Practicum

CREDIT HOURS: 6
This 26-week seminar and practicum course is designed to enable students to identify and assume new roles as occupational therapists. This course is based on our understanding that individuals' occupational engagement can be supported or constrained by the environments in which they live, work and play. Environments are largely constructed by the services, systems, and policies that humans establish. In this course, students will partner with organizational clients to enable them to more effectively meet the occupational needs of their clients, consumers and/or members. Students are provided with the opportunity to develop their abilities to assume the role of consultant. Using the Canadian Practice Process Framework to guide their interactions with their organizational clients, students will explore and identify how to use theory while enabling occupation. Students are responsible for identifying and negotiating agreements with organizational clients. The course coordinator must approve each student's proposed practicum project. Students are provided with regular opportunities to receive feedback, guidance, and support from the course coordinator and classmates through journaling assignments. TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
NOTES: 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: MSc (OT-Post-Professional)students only

OCCU 5030 Advanced Research Theory and Methods for Occupational Therapists

CREDIT HOURS: 3
This 13-week web-based distance-education course gives a comprehensive introduction to theory and epistemology underlying qualitative and quantitative research methods distinguishing between naturalistic and experimental approaches.It then focuses on the development and application of theoretical approaches to research. Goals of the course are to develop facility in designing and pursuing research projects, encouraging students to become critical, independent researchers. In addition to completing research assignments relating to both qualitative and quantitative methods and analysis, students will prepare a proposal which may serve as a first draft of their thesis proposal, giving particular attention to epistemology, methodology, and ethical considerations. Students are encouraged in this course to develop a facility with quantitative and qualitative methods and statistics packages that will benefit their thesis research or interests in evidence-based practice. TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements. Other software may be required at the discretion of the instructor.
PREREQUISITE: Open to SSGS and graduate students in any field, by permission of instructor.

OCCU 5040 Identity and Transitions

CREDIT HOURS: 3
People craft identities from what they do and within the social relations of which they are part, and these identities shift and change as people move through their lives and experience their worlds and find new ways to present themselves. This internet-based course explores discourses and narratives of identity construction with particular focus on gender, culture, occupation and meaning, and on transitions both physical or social. TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: Open to SSGS and graduate students in any field, by permission of instructor.

OCCU 5041 Evidence-Based Occupational Therapy

CREDIT HOURS: 3
This course provides students with the opportunity to examine and critique evidence-based practice and its application to occupational therapy. Using readings, online exercises, and discussion, students analyze the principles underlying evidence-based practice, learn methods to critically appraise the literature, and integrate these methods into occupational therapy practice. **This course has 2 sections, one in each of the masters programs using different teaching formats. Please check with the School before enrolling to ensure you are in the appropriate section.** TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.

PREREQUISITE: Admission to the MSc (OT) or MSc (OT–Post-Professional) program. Other Graduate Students or SSGS (Special Student Graduate Studies) status by permission of the instructor. Students enrolled in the MSc (OT) program must have successfully completed all program courses in the previous semester.

OCCU 5042 Community Development for Occupational Therapists

CREDIT HOURS: 3
This course explores community development as a distinctive domain of practice for occupational therapists. A wellness and community development approach in enabling and facilitating systemic and community building is offered within the contexts of primary healthcare, health promotion and community development philosophy and in particular, the Ottawa and Jakarta Declaration of Health Promotion as guides for reflective practice. Practical and professional integrated skills and knowledge are developed. TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: Qualified occupational therapists; other graduate and SSGS students by permission of the instructor

OCCU 5043 Program Evaluation for Occupational Therapists

CREDIT HOURS: 3
This course covers the key issues involved in undertaking program planning and evaluation. This is a knowledge and skill development course that covers such topics as: the purpose and rationale for evaluation; models of evaluation with an emphasis on collaborative (client-centred) approaches; types (Evaluability assessment, process & outcome, summative & formative); stages and ethical issues. **This course has 2 sections, one in each of the masters programs using different teaching formats. Please check with the school before enrolling to ensure that you are in the appropriate section.**TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: Admission to the MSc (OT) or MSc (OT–Post-Professional) program, or SSGS(Special Student Graduate Studies) status by permission of the instructor. Students enrolled in the MSc(OT) program must have successfully completed all program courses in the previous semester.

OCCU 5050 Public Dialogue on Occupations and Enablement

CREDIT HOURS: 3
This is a ‘capstone’ course, and constitutes the major paper requirement of the distance education, coursework post-professional MSc program. Students develop a public presentation and publishable manuscript to stimulate public dialogue on occupations and enablement. TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.
PREREQUISITE: OCCU 5010.03, Qualified Occupational Therapists and permission by instructor

OCCU 5111X/Y Fieldwork I (90 hr) (September – April)

CREDIT HOURS: 2
Students gain first hand experience of the personal and social forces that influence occupational development, participation and engagement of individuals and groups in the Halifax Regional Municipality. Weekly learning activities from the School and student generated learning objectives provide a structure for developing core professional skills of observation, occupational assessment and occupational analysis, enabling approaches, professional conduct, communication and professional reasoning. Students take responsibility for their own learning consistent with the School's educational philosophy of experiential learning. Students perform learning activities in different community organizations in conjunction with on site supervision, peer support, and group tutorials with licensed occupational therapists. Tutorials guide students in critical reflection on the relationships between their fieldwork experience, academic learning, personal background and prior assumptions.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
NOTES: 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: Admission to the MSc (OT) program, or SSGS (Special Student Graduate Studies) status by permission of the instructor.

OCCU 5222 Fieldwork II (337.5 hr) (May – June)

CREDIT HOURS: 6
Students focus on the broad scope of occupational therapy practice in mental and physical health settings. There is a focus on rural health in this course. Students develop a clear professional identity and learn to describe and justify their professional reasoning through the full process of occupational therapy practice. Occupational therapist preceptors provide supervision, direct, concrete feedback and frequent coaching sessions.TECHNOLOGY: Access to internet and e-mail is strongly recommended during fieldwork courses.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 5501 Graduate Reading

CREDIT HOURS: 3
In a reading course, the student works with a full-time, part-time, or an Adjunct faculty of Dalhousie’s School of Occupational Therapy, who is also a member of the Faculty of Graduate Studies. The student and faculty member submit a discussion schedule and planned assignments and grading criteria for approval by the School’s Graduate Program Committee. Available in all four terms (Fall, Winter, Spring, and Summer), the goal is for an individual graduate student to design, critique, debate, and complete a program of reading on a selected topic or area.
NOTE: Course Details listed here also apply to OCCU 5502/OCCU 5503/OCCU 5504.
PREREQUISITE: Open to graduate students in any field

OCCU 5502 Graduate Reading

CREDIT HOURS: 3
See OCCU 5501.

OCCU 5503 Graduate Reading

CREDIT HOURS: 3
See OCCU 5501.

OCCU 5504 Graduate Reading

CREDIT HOURS: 4
See OCCU 5501.

OCCU 6000 Applied Research I

CREDIT HOURS: 2

This is the first part of the major project course for the entry-level Master of Science (Occupational Therapy) program. The students choose from a list of possible scholarly projects related to occupational science, occupational therapy, and/or related fields. Together with a faculty member, student teams will negotiate the project to be undertaken, develop a theoretical rational for the project, conduct an in-depth literature review, design and/or defend the methodology and conduct the project.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6001 Enabling Occupation 3

CREDIT HOURS: 5
This course will build upon the practice knowledge and skills developed in Enabling 1 and Enabling 2 by introducing the student to the neurological and cognitive aspects of occupational performance across the lifespan. Focus will be on occupational therapy processes of practice with clients experiencing complex occupational performance issues.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6002 Social Influences on Occupational Performance

CREDIT HOURS: 3
This course explores the ways occupational meaning, engagement and performance are shaped by 'social location' - the experiences, values, assumptions, expectations that arise out of such factors as our race, class, gender, sexual orientation, culture, age, ability/disability. We explore how these factors affect therapy and occupation for both clients and therapists.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6003 Advanced Practice Issues

CREDIT HOURS: 3
This course builds skills in critical analysis, evidence-based professional reasoning, presentation, and synthesizing previous knowledge into current practice. Using current issues in health and occupational therapy practice, the required exercise of reflecting, reasoning, determining, a personal perspective and developing a plan of action strengthens current and life-long learning patterns.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements
FORMAT: Discussion
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6111 Fieldwork III

CREDIT HOURS: 6
Students focus on developing competence and confidence in integrating theory, research, enabling principles and principles of evidence based practice through the full process of practice with clients experiencing complex occupational performance issues across the life span, and with groups and organizations. Students practice in a safe manner and begin to make a meaningful contribution as a team member. Occupational therapist preceptors provide periodic or occasional coaching.
TECHNOLOGY: Access to internet and e-mail is strongly recommended during fieldwork courses
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6130 Pharmacology for Occupational Therapists

CREDIT HOURS: 1
The course provides students with relevant and comprehensive information on how contemporary drug therapies, including some alternative natural/herbal remedies, can affect patients receiving occupational therapy. It introduces basic pharmacological principles and includes information on drug delivery, pharmacokinetics and metabolism. Students learn to use commonly available resources to investigate drugs.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6140 Neuroscience for Occupational Therapy

CREDIT HOURS: 6
This course provides students with the foundational neuroscience knowledge and application of human neuroanatomy and neurophysiology concepts for occupational therapy practice. Emphasis will be placed on functional neuroscience of brain systems experiencing common neurological challenges, and involves work in microanatomy, gross anatomy, and neurophysiology of the brain and spinal cord.
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6222 Fieldwork IV

CREDIT HOURS: 6
Students focus on consolidating and refining core competencies, reflecting on practice, and seeking new challenges, while integrating theory, research, enabling principles and principles of evidence based practice through the full process of practice. Students become independent in working with individual, group and organizational clients and demonstrate clinical confidence and consistency in making sound professional decisions and judgments in preparation for entering professional practice. Occupational therapist preceptors provide minimal guidance and coaching.TECHNOLOGY: Access to internet and e-mail is strongly recommended during fieldwork courses
PREREQUISITE: Successful completion of all MSc(OT) program courses in the previous semester, previously approved Special Student - Graduate Studies (SSGS) status from the School of Occupational Therapy and the Faculty of Graduate Studies, or by permission of instructor

OCCU 6501 Special Topics in Health, Healthcare, and Social Services

CREDIT HOURS: 3
This seminar consists of an intensive examination of a selected substantive issue of concern broadly in health, well-being, healthcare and social services. In particular attention will be given to practice, policy, economic and/or sociocultural issues that arise in diverse contexts. The course will encourage interdisciplinary and interprofessional perspectives. Since the specific topic or issue which receives special treatment will differ from year to year, students are advised to consult the School prior to registration.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements

PREREQUISITE: Open to graduate students in any field

OCCU 6502 Special Topics: Advance Data Analysis

CREDIT HOURS: 3

This fully online 8-week course focuses on the theories, techniques and issues of qualitative data analysis. The course is aimed at graduate students in any field who have completed a qualitative course or a course with a qualitative component, and who are at a stage in their graduate career to begin data analysis. While having data to use in the course is preferable, students who do not have data are welcome. A central aspect of the course is the examination of how issues of culture, race, disability, gender, sexual orientation, socio-economic status/poverty and other differences inform epistemology, methodology and analysis of data collected from diverse population groups. As such, the course is intended to give students a critical and reflexive understanding of how identity, power, privilege, dominance and marginalization are implicated in the interpretation and analysis of data.TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements. Other software may be required at the discretion of the instructor.

PREREQUISITE: Open to graduate students in any field.

OCCU 6503 Advancing Vocational Rehabilitation Through Critical Occupational Analysis

CREDIT HOURS: 3

This course provides students with an opportunity to discuss and critically analyze the practice of vocational rehabilitation. Students will utilize their knowledge of enabling occupational performance to critique the current vocational rehabilitation processes presented in the literature. The outcome will be advanced knowledge to develop a client-centered practice in the field. TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements

PREREQUISITE: Qualified occupational therapists, other graduate and SSGS students by permission of the instructor.

OCCU 6504 Measuring Health Outcomes

CREDIT HOURS: 3

This course provided students, as consumers of research to understand how assessments are developed; determine if assessments generate accurate, consistent and meaningful measures; determine the potential of existing assessments to generate measures; and appreciate how new assignments are constructed to generate reliable, valid, and sensitive measures.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements

PREREQUISITE: Qualified occupational therapists, other graduate and SSGS students by permission of the instructor.

OCCU 6506 Practice Management for Occupational Therapy

CREDIT HOURS: 3

Exceptional leadership and management capabilities are required by occupational therapy practice leaders. This course will prepare students to identify and reflect on issues, as well as problem solve potential solutions to practice management challenges.

PREREQUISITE: Admission to MScOT (Post-Professional) Program

OCCU 6507 Critical Perspectives on Inequities

CREDIT HOURS: 3

This fully online course examines how everyday discriminatory events, inequities and unfair treatment play out in what people do every day to occupy life, including work, leisure, health services utilization and schooling. Drawing on an occupational science lens, this course examines the implications of everyday inequities on health and well-being.

PREREQUISITE: Open to graduate students in Health Professions and the Interdisciplinary PhD

OCCU 6508 Chronic Condition Management

CREDIT HOURS: 3

OCCU 6508 examines substantive issues related to Chronic condition management. Chronic disease is the greatest contributor to the cost of healthcare in most developed countries. Student will critically explore issues including: contexts for care; models of chronic care; practice-based approaches; tools and intervention strategies; quality and safety; and organizational change.

PREREQUISITE: Open to graduate students and special student -Graduate Studies, Students by permission of the instructor.

OCCU 6509 Aging and Continuing Care

CREDIT HOURS: 3

OCCU 6509 focuses on older adults, their inclusion and participation in occupations (that is, the things they want to do, need to do, and are expected to do, and the continuing care policies and services that support their occupational lives).

PREREQUISITE: Open to graduate students and special student -Graduate Studies, Students by permission of the instructor.

OCCU 6600 Applied Research II

CREDIT HOURS: 1

This is the second part of the major project course for the entry-level Master of Science (Occupational Therapy) program. The students have completed a scholarly project related to occupational science, occupational therapy, and/or related fields supervised by a faculty member. Together with the faculty member, the students will complete a report and disseminate the outcome of the project with their team to a relevant audience.

PREREQUISITE: OCCU 6000.02

OCCU 9001 Thesis

CREDIT HOURS: 18

The thesis requires original research at the master's level. Basic or applied research using qualitative or quantitative methodologies will be conducted as appropriate. Thesis supervision by distance will involve email, telephone, post, teleconference or other communication as appropriate.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements

PREREQUISITE: MSc(OT-Post-Professional)Research Thesis stream students

RESTRICTIONS: MSc (OT-Post-Professional) Thesis stream students

Oceanography

Location:
Building/Room: Life Sciences Centre
Street Address 1: 1355 Oxford Street
Street Address 2: 3rd Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3557
Fax: (902) 494-3877
Website: www.dal.ca/oceanography
Email Address: Oceanography@dal.ca

Staff

Chair of Department

Hill, P. S.

Graduate Studies Coordinator

Kelley, D.

Professors Emeriti

Bowen, A. J., MA (Cantab), PhD (Scripps), FRSC. Physical oceanography, nearshore dynamics, sediment transport
Cullen, J. J., AB (Calif, Santa Cruz), PhD (Scripps), FRSC. Phytoplankton processes, optical measurements
Fournier, R. O., MSc (Wm & Mary), PhD (URI). Biological oceanography
Mills, E. L., BSc (Carl), MS, PhD (Yale), FLS. Benthic ecology, history of oceanography
Moore, R. M., BA (Oxan), PhD (Southampton). Chemical oceanography

Professors

Beaumont, C., BSc (Sussex), PhD (Dalhousie), Canada Research Chair. Geodynamics
Boudreau, B. P., BSc (UNB), MS (Texas A & M), MPhil, PhD (Yale), FRSC. Diagenesis, sediment-water exchange, geochemical modelling
Fennel, K., MSc, PhD (Rostock), Biogeochemical Modelling (Canada Research Chair)
Grant, J., BSc (Duke), PhD (South Carolina). NSERC - Cooke Industrial Research Chair in Sustainable Aquaculture
Hay, A., BSc, MSc (Western), PhD (UBC). Physical and acoustical oceanography, nearshore and sediment dynamics, turbulence and tidal energy
Hill, P. S., AB (Dartmouth), MSc, PhD (Wash). Fine sediment transport, particle aggregation
Kelley, D., BSc (Mt. A), PhD (Dalhousie). Ocean mixing, deep convection, double diffusion, arctic mixing
Kienast, M., BSc (Clausthal), MSc (Kiel), PhD (UBC) (CIFAR Scholar). Paleoceanography, stable isotope geochemistry
Lewis, M. R., BS, MS (Maryland), PhD (Dalhousie). Biological oceanography, marine ecosystem modelling
Metaxas, A., BSc (McGill), MSc (UBC), PhD (Dalhousie). Benthic ecology, larval biology, deep-sea biology, marine conservation, marine protected areas
Sheng, J., BEng (East China Technical Univ), MSc, PhD (Memorial), (LRF Chair). Shelf circulation, ocean modelling, data assimilation
Taggart, C. T., BSc (Carleton), MSc (York), PhD (McGill). Biological oceanography, early life history, physical influences on zooplankton, fish and whales
Thomas, H., MSc (Dusseldorf), PhD (Rostock). Chemical oceanography, marine carbon cycles, coastal seas
Thompson, K. R., BSc, MSc (Manchester), PhD (Liv), jointly with Math and Statistics, Canada Research Chair. Physical oceanography/climatology
Wallace, D. W., BSc (Univ of East Anglea), PhD (Dalhousie) Canada Excellence Research Chair (CERC) in Ocean Science and Technology. Climate - biogeochemistry interactions in tropical oceans, International SOLAS programme

Associate Professor

Ross, T., BSc, PhD (Manitoba). Acoustics, turbulence, bio-physical interactions

Assistant Professors

Algar, C. K., BSc (Laurention), PhD (Dalhousie)
Barclay, D., BSc (McGill), PhD (Scripps, Univ of California). Acoustical oceanography, ocean instrumentation (Canada Research Chair)
Kienast, S., MSc (Kiel), PhD (UBC). Paleoceanography, marine geochemistry

Adjunct (FGS)

Azetsu-Scott, K., BSc, MSc (Japan), PhD (Dalhousie). Ocean circulation section, BIO, climate change, tracer studies and carbon cycles
Baumgartner, M., BSc (Notre Dame), MSc (Southern Mississippi), PhD (Oregon State). Woods Hole Oceanographic Institution, Biology Department
Bowen, A. J., MA (Cantab), PhD (Scripps), FRSC. Physical oceanography, nearshore dynamics, sediment transport
Craig, S. E., BSc Physics (Hons), PhD (Strathclyde). Ocean colour, bio-optics, phytoplankton ecology
Cranford, P., BSc, PhD (Dalhousie), BIO, Marine Environmental Sciences Division. Growth, reproduction and survival of bivalve molluscs
Cullen, J. J., AB (Calif, Santa Cruz), PhD (Scripps), FRSC. Phytoplankton processes, optical measurements
DiBacco, C., BSc, MSc (Dalhousie), PhD (Scripps). BIO, Marine invertebrates
Ellis, D. D., BSc (Mt. A), MSc, PhD (McMaster). Scientific Inc. Modelling and analysis in underwater acoustics
Fournier, R. O., MSc (Wm & Mary), PhD (URI). Biological oceanography
Frank, K. T., BSc, PhD (Toledo), Department of Fisheries and Ocean, BIO Population dynamics, stock assessment, fisheries oceanography recruitment
Greatbatch, R. J., BSc (Liverpool), PhD (Cambridge). Ocean/atmosphere dynamics
Greenberg, D. A., MMath (Waterloo), PhD (Liverpool), BIO Ocean Sciences Division. Tidal behaviour and prediction, sediment transport, modelling
Hebert, D., MS (UVic), PhD (Dalhousie), Fisheries and Oceans Canada, Ocean Sciences Division. Physical oceanography concerning small - scale mixing processes, such as turbulence, double - diffusion and intrusions
Hines, P., BSc (Dalhousie), PhD (Bath). Hines S&T Consulting, Acoustic consultant for a broad range of areas related to ocean acoustics and undersea warfare
Johnson, B., BEng (North Carolina), PhD (Dalhousie). Gas exchange; bubbles
Kortziger, A., PhD (Christian Albrecht), GEOMAR Helmholtz Centre for Ocean Research
Krastel, S., PhD (Kiel). Marine hazards, sediment transport
Li, W., BSc (UBC), PhD (Dalhousie), Marine microbiology
Louden, K. E., BA (Oberlin), MEd (Temple), PhD (MIT). Marine geophysics
Lu, Y., BEng (Tsinghua), MSc (Qingdao), MSc (Memorial), PhD (UVic), Envrionment Canada, Meteorological Research Division. Ocean circulation, mixing, ocean-ice and atmosphere-ocean interaction
MacIntyre, H., BA (Cantab), MA (Univ Texas at Austin), PhD (U Delaware)
Milligan, T., BSc, MSc (Dalhousie), Scientist Emeritus, Fisheries & Oceans Canada, Sediment dynamics
Moore, R., BA (Oxan), PhD (Southampton). Chemical oceanography
Mosher, D. C., BSc (Acadia), MSc (Memorial), PhD (Dalhousie), GSC Atlantic (BIO). Marine geological hazards
Oschlies, A., MPhil (Cambridge), PhD (Kiel). Marine biogeochemical modelling
Perrie, W., BSc (Toronto), MSc (California), PhD (Massachusetts Institute of Technology), BIO. Ocean climate, physical oceanography
Piper, D. J. W., BA, MA, PhD (Cantab), BIO, Marine sedimentology
Ritchie, H., BSc (Mt. A), BA (Oxford), MSc, PhD (McGill). Numerical methods for atmosphere and oceans, atmosphere-ocean coupling, environmental prediction
Ruddick, B. R., BSc (Victoria), PhD (MIT). Physical oceanography
Smith, J., BSc (McGill), MA (Chicago), PhD (Toronto), BIO, Fisheries & Oceans. Marine chemistry and radioactivity
Sommer, U., PhD (Vienna). Biological oceanography, plankton
Tanhua, T., MSc, PhD (Göteborg). Marine biogeochemistry

Admission Requirements

An Honours degree, or its equivalent, is required for admission to the Oceanography Department.

Undergraduate preparation may be in any of the basic sciences - Biology, Chemistry, Physics or Geology. Degrees in Atmospheric Science, Meteorology, Mathematics or Engineering are also acceptable if the undergraduate work includes a reasonably good background in relevant basic science.

Master of Science (MSc)

For minimum time required to complete this program, see the Faculty of Graduate Studies Regulation 1.3.1 in this calendar.

Minimum course requirements are a total of 15 credit hours at the 5000 level or higher, at least 9 credit hours of which must be chosen from the core courses (5110.03-5140.03).

Additional courses may be required to strengthen a student's background in basic science.

Research and a thesis are required.

Doctor of Philosophy (PhD)

For minimum time required to complete this program, see the Faculty of Graduate Studies regulations in this calendar. Students must complete at least six graduate level courses, including at least two Oceanography core courses (OCEA 5110.03: Geological Oceanography to OCEA 5140.03: Biological Oceanography) outside the student's sub-discipline. Candidates are expected to meet an extra qualifying criterion. Consult the Oceanography Graduate Handbook for details.

Candidates must write and defend a proposal for thesis research.

Research and a thesis are required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

OCEA 5110 Geological Oceanography

CREDIT HOURS: 3
This course is intended to gives 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; seismic, heat flow, gravity, and magnetic methods; patterns and processes of sediment transport and deposition.
NOTES: Some laboratory exercises augment the lectures. No previous background in Geology or Geophysics is required.
CROSS-LISTING: OCEA 4110.03, ERTH 4110.03

OCEA 5120 Physical Oceanography

CREDIT HOURS: 3
This course introduces graduate students to the physical properties and dynamics of the oceans. Topics range from global circulation down to the small scales of turbulence. Fact and theory are blended throughout. Quantitative problem solving is emphasized in assignments.
CROSS-LISTING: OCEA 4120.03

OCEA 5130 Chemical Oceanography

CREDIT HOURS: 3
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 oceans on atmospheric chemistry. Other topics included are chemical tracers, and radiochemical dating methods, stable isotope studies, chemical speciation and chemical models of sea water.
CROSS-LISTING: OCEA 4130.03

OCEA 5140 Biological Oceanography

CREDIT HOURS: 3
The goal is to describe how physical, chemical and biological processes interact to determine the species 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.
CROSS-LISTING: OCEA 4140.03, BIOL 4661.03, 5661.03, MARI 4661.03

OCEA 5160 Fisheries Oceanography

CREDIT HOURS: 3
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 primary literature and some on fishery management. Primary-publication-style research paper required. Competence with fundamental population dynamics, ecology, physical oceanography, mathematics, and statistical analyses expected.
CROSS-LISTING: BIOL 4369.03, OCEA 4160.03, MARI 4369.03

OCEA 5210 Time Series Analysis in Oceanography and Meteorology

CREDIT HOURS: 3
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.
CROSS-LISTING: OCEA 4210.03, STAT 5390.03, STAT 4390.03

OCEA 5220 Numerical Modelling of Atmospheres and Oceans

CREDIT HOURS: 3

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 analyses; data assimilation and ensemble prediction methods; and boundary treatment for ocean models.

CROSS-LISTING: OCEA 4220.03

OCEA 5221 Ocean Dynamics

CREDIT HOURS: 3

An advanced course for students in Physical Oceanography and Atmospheric Science that studies the basic equations governing rotating geophysical flows, plus applications. Topics include geostrophy, conservation of potential vorticity, quasi-geostrophic dynamics, geostrophic adjustment, response to surface forcing (steady and unsteady).

CROSS-LISTING: OCEA 4221.03

OCEA 5222 Estuary, Coast and Shelf Dynamics

CREDIT HOURS: 3

An advanced course in the physical processes operative on the continental shelf. Topics include long waves, tides, tidal mixing, thermohaline circulation, wind forcing, upwelling, etc.

CROSS-LISTING: OCEA 4222.03

OCEA 5223 Ocean Waves

CREDIT HOURS: 3

This course investigates the different types of waves known to be important in the ocean, at an advanced level. Topics include: group velocity; surface and internal gravity waves; planetary and topographic waves, nonlinear effects, and various problems related to refraction and interactions with currents.

OCEA 5230 Biology of Phytoplankton

CREDIT HOURS: 3

This course presents the phytoplankon 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.

CROSS-LISTING: OCEA 4230.03, MARI 4662.03, BIOL 4662.03

OCEA 5240 Modules in Oceanography

CREDIT HOURS: 3

Three modules are taught based on the needs of students in the graduate program. Each module is taught by a suitable faculty member through a combination of lectures, problem assignments, directed reading and group discussion. Potential topics include: Data Assimilation, Observational Technologies, Marine primary productivity, Paleo-oceanography, Turbulence and Mixing, etc.

FORMAT: Lecture| Seminar

PREREQUISITE: Permission of instructor

OCEA 5241 Special Topics in Oceanography

CREDIT HOURS: 3

OCEA 5242 Topics in Oceanography

CREDIT HOURS: 3

OCEA 5250 Acoustical Oceanography

CREDIT HOURS: 3

This course covers the basic theory of sound propagation and scattering in the ocean environment, and the applications to acoustic remote sensing of the ocean interior. Topics include: normal modes; ray theory; scattering from particles, bubbles and biota; sonar theory and operation.

CROSS-LISTING: OCEA 4250.03

OCEA 5285 Marine Biogeochemical Processes

CREDIT HOURS: 3

This advanced course is designed for students interested in cutting-edge developments in marine biogeochemistry. Topics to be discussed include linkages between climate, marine biogeochemistry, carbon cycling on seasonal to glacial-interglacial time-scales, and their perturbations during the Anthropocene. Students will perform a guided literature survey and present selected topics during classes.

FORMAT: Seminar

PREREQUISITE: OCEA 4130.03/5130.03, OCEA 4140.03/5140.03

OCEA 5290 Advanced Chemical Oceanography

CREDIT HOURS: 3

This course presents research topics in chemical oceanography, taught as 3-4 self-contained modules. Examples include, the oceanic C02 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.

CROSS-LISTING: OCEA 4290.03

OCEA 5292 Chemical Methods in Oceanography

CREDIT HOURS: 3

This course provides a more detailed account of analytical methods used in chemical oceanography. Gas chromatography, mass spectrometry, radiochemical, optical and electrochemical methods will be covered. Emphasis is on techniques that are available either in our own laboratories or at neighbouring institutions.

OCEA 5293 Advanced Marine Particles

CREDIT HOURS: 3

This course explores the various roles of particles in the sea and the processes that govern them. Topics include sources and types of marine particles, particle size distributions, settling velocities, mass transfer to and from small particles, mechanics of particle contact, surface chemistry, and erosion, deposition and transport.

OCEA 5311 Fluid Dynamics I

CREDIT HOURS: 3

An introduction to the theory of fluid dynamics, with some emphasis on geophysically important aspects. Contents: tensor mathematics, flow kinematics, equations of motion, viscous flow, potential flow, convection, turbulence, and basic aerodynamics. Occasional reference will be made to current research topics, especially those in Physical Oceanography.

CROSS-LISTING: OCEA 4311.03, PHYC 4311.03/5311.03

OCEA 5330 Benthic Ecology

CREDIT HOURS: 3

A graduate/fourth year undergraduate course on major problems of benthic ecology, such as food supply to benthic animals, and geomicrobiological processes in sediments. Courses consist of two lectures per week and one journal paper discussion session. The last three weeks of the course are devoted to a class research project.

CROSS-LISTING: BIOL 4666.03, OCEA 4330.03, MARI 4666.03

OCEA 5331 History of Marine Science

CREDIT HOURS: 3

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.

CROSS-LISTING: BIOL 4664.03, HIST 3073.03, HSTC 3331.03, OCEA 4331.03, SCIE 4001.03, MARI 4664.03

OCEA 5335 Environmental Impacts in Marine Ecosystems

CREDIT HOURS: 3

Consideration of various activities in marine environments, with focus on ecosystem level influences: dispersion, elemental fluxes, benthic impacts, food webs, biodiversity. Simulation modelling of ecosystems is undertaken using Simile OOP software. Courses include lectures, modelling examples, and discussion of research papers, Course requirements consist of problem sets and modelling project.

CROSS-LISTING: OCEA 4335.03, BIOL 4335.03, MARI 4335.03

OCEA 5370 Deep Sea Biology

CREDIT HOURS: 3

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.

CROSS-LISTING: BIOL 4370.03, OCEA 4370.03, MARI 4370.03

OCEA 5380 Marine Modelling

CREDIT HOURS: 3

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.

CROSS-LISTING: OCEA 4380.03

OCEA 5411 Atmospheric Dynamics I

CREDIT HOURS: 3

See course description for PHYC 5411.03 in the Physics and Atmospheric Science section of this calendar.

PREREQUISITE: Consent of instructor

CROSS-LISTING: OCEA 4411.03, PHYC 4411.03/5411.03

OCEA 5412 Atmospheric Dynamics II

CREDIT HOURS: 3

See course description for PHYC 5412.03 in the Physics and Atmospheric Science section of this calendar.

CROSS-LISTING: OCEA 4412.03, PHYC 4412.03/5412.03

OCEA 5470 Introduction to Seismic Imaging

CREDIT HOURS: 3

See course description for ERTH 5470.03 in the Earth Sciences section of this calendar.

FORMAT: Lecture| Lab

PREREQUISITE: Consent of instructor

CROSS-LISTING: OCEA 4470.03, ERTH 4470.03, ERTH 5470.03

OCEA 5480 Advanced Seismic Imaging

CREDIT HOURS: 3

See course description for ERTH 5480.03 in the Earth Sciences section of this calendar.

CROSS-LISTING: ERTH 4480.03, ERTH 5480.03, OCEA 4480.03

OCEA 5505 Atmospheric Physics

CREDIT HOURS: 3

See course description for PHYC 5505.03 in the Physics and Atmospheric Science section of the calendar.
FORMAT: Lecture
PREREQUISITE: PHYC 5520.03 or permission of the instructor
CROSS-LISTING: PHYC 5505.03, PHYC 4505.03, OCEA 4505.03

OCEA 5520 Introduction to Atmospheric Science
CREDIT HOURS: 3
See course description for PHYC 5520.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: OCEA 4520.03, PHYC 4520.03/5520.03

OCEA 5541 Synoptic Meteorology I
CREDIT HOURS: 3
See course description for PHYC 5540.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: OCEA 4541.03, PHYC 4540.03/5540.03

OCEA 5550 Synoptic Meteorology II
CREDIT HOURS: 3
See course description for PHYC 5550.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: OCEA 4550.03, PHYC 4550.03/5550.03

OCEA 5570 Light Scattering, Radiative Transfer , and Remote Sensing
CREDIT HOURS: 3
See course description for PHYC 5570.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: PHYC 5570.03

OCEA 5575 Topics in Atmospheric Radiation
CREDIT HOURS: 3
See course description for PHYC 6575.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: PHYC 6575.03

OCEA 5580 Cloud Physics
CREDIT HOURS: 3
See course description for PHYC 6580.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: PHYC 6580.03

OCEA 5595 Atmospheric Chemistry
CREDIT HOURS: 3
See course description for PHYC 5595.03 in the Physics and Atmospheric Science section of this calendar.
CROSS-LISTING: OCEA 4595.03, PHYC 4595.03/5595.03

OCEA 5680 Ecosystem Modelling of Marine and Freshwater Environments
CREDIT HOURS: 3
See course description for ENGM 6680.03 in the Engineering Mathematics section of this calendar.
CROSS-LISTING: ENGM 6680.03, ENGM 4680.03

OCEA 6500X/Y Graduate Seminar in Tectonics
CREDIT HOURS: 3
A lecture and seminar course on quantitative aspects of tectonics that focuses on plate boundary processes on geological timescales.
CROSS-LISTING: ERTH 6500.03

OCEA 9000 MSc Thesis
CREDIT HOURS: 0
Students in the MSc Program must be registered in this course in every term.

OCEA 9530 PhD Thesis
CREDIT HOURS: 0
Students in the PhD Program must be registered in this course in every term.

Oral and Maxillofacial Surgery

Location:
Building/Room:
Street Address 1: 5981 University Avenue
Street Address 2: Room 5132
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1679
Fax: (902) 494-6411
Website: www.dalgrad.dal.ca
Email Address: omfs.dentistry@dal.ca

The six year program in Oral and Maxillofacial Surgery and Medicine which starts on June 1st each year is designed to provide students with a comprehensive background for the practice and teaching of Oral and Maxillofacial Surgery, and to qualify them for examination by the Royal College of Dentists of Canada.

Particular emphasis is placed upon the basic sciences, medicine and clinical hospital surgery practice.

Staff

Chair

Davis, B., BSc, DDS, Dip in OMFS, FRCD (C)

Honourary Chair

Delaire, J., MD, DDS, LLD

Director of Residency Training

Gregoire, C., DDS, MD, MSc, FRCDC

Honourary Professor

Natsume, N., DDS, MD, PhD

Professors Emeriti

Cohen, M. M., Jr., AB (Mich), DMD (Tufts), MSD (Minn), MPH (Boston), PhD (Minn), FCCMG, Division of Oral and Maxillofacial Pathology. Syndromology, genetics, pediatrics
Lovely, F. W., DDS (Dalhousie), MS (Mich), FRCD (C) FICD, FACD

Professor

Goodday, R. H. B., DDS, MSc (Dalhousie), FRCD(C), FICD, FACD. Orthoganthic and obstructive sleep apnea

Associate Professors

Davis, B., DDS, FRCD (C), TMJ reconstruction
Launcelott, G., MD, Department of Anaesthesia, Director Acute Pain Service, QEII
Leahey, L., MD, FRCS (C), Orthopedic Surgery
Robertson, C. G., DDS, MD, MSc, FRCD (C), Oral oncology

Assistant Professors

Gregoire, C., DDS, MD, MSc, FRCDC
Hung, O., MD, Cert. in Anaesthesia, FRCP (C)

Admission Requirements

Candidates to be considered must possess either a DDS or DMD and be eligible for student Licensure in the Province of Nova Scotia (as granted by the Provincial Dental Board of Nova Scotia).

Candidates must register for the entire six years of the program and pay full tuition for the first five years and continuing fees for the sixth year.

Applicants whose first language is not English must provide acceptable scores from a recognized English language proficiency test; as defined by Dalhousie University Faculty of Graduate Studies.

Deadline for applications is August 31st of the year preceding commencement of the program. The program start date is June 1st. All supporting documents must be received in the Oral and Maxillofacial Sciences Department by August 31st.

Application Procedure

To apply for admission to the MD/MSC Oral and Maxillofacial Surgery program you need to submit the following documents:

Completed Application for Admission Form of Graduate Studies dalgrad.dal.ca/prospectivestudents/admissions/admissioninfo/

The following supporting documents are to be sent directly to the department:

1. Original transcripts of all previous academic work. (two copies) (Official transcripts from Dalhousie are not required from current or previous Dalhousie students.)
2. At least two academic letters of reference. The letters should be in sealed envelopes with the referee's signature over the seal.
3. A letter from the Dean of the graduating Dental School indicating the applicant's standing in the class during the four years of the program.
4. Curriculum Vitae, including information regarding academic background and work/volunteer experience.
5. Personal statement outlining the reason for interest in oral and maxillofacial surgery
6. Documentation of English Language Competency. Non-Canadian applicants, whose first language is not English must arrange the submission of original documentation of successful TOEFL or other recognized language test by the Testing Service to the Oral and Maxillofacial Sciences Department.

Documents should be mailed to:
Department of Oral and Maxillofacial Sciences
Dalhousie University
5981 University Avenue, Room 5132
PO Box 15000
Halifax, NS B3H 4R2

All documents must be received in the Oral and Maxillofacial Sciences Department by August 31st.

For inquiries regarding applications, email omfs.dentistry@dal.ca

Doctor of Medicine/Master of Science (MD/MSc) Degree Program Requirements

1. Satisfactory completion or credit for the prescribed courses
2. Satisfactory knowledge and skills in all the phases of clinical oral and maxillofacial surgery
3. Satisfactory completion of a research study and submission of the results in the form of a thesis acceptable to the Director of the program

In addition to the requirements for successful completion of the MD degree, the following courses are required to complete the MSc component of the program.

Medicine

First Year
Second Year
Clinical Years (Full clinical rotations of all disciplines including those specifically listed above.)
Please refer to the Four-Year Program in the undergraduate calendar for Medicine.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

ORAL 5000X/Y Anatomy

CREDIT HOURS: 3
This course is offered during the 1st year, consists of 14 hours of lectures and 36 hours of dissection and serves as an overview of the anatomy of the chest, thoracic cavity, arm and iliac crest areas of the pelvis. Detailed anatomy of the head and neck shall be covered. Emphasis will focus on anatomical structures and adjacencies as they relate to deformities, injuries and other pathological processes of the head and neck.

ORAL 5010X/Y Surgical Anatomy

CREDIT HOURS: 3
This course is offered during the 1st year and consists of 30 hours of dissection. It permits the graduate student to perform a variety of surgical procedures on the cadaver. The opportunity exists to not only practice the steps of the surgical procedures but to explore the major anatomic adjacencies.

ORAL 5060X/Y Oral and Maxillofacial Pathology

CREDIT HOURS: 3
This course is presented to residents over a two-year period, twice during the 4 years of their program. Students study the cause, pathogenesis, clinical, radiographic and microscopic characteristics of diseases affecting the oral and peri-oral structures. Emphasis is placed on recognition of abnormalities, formulation of differential diagnoses, arrival at definitive diagnoses and patient management.

ORAL 5070X/Y Oral and Maxillofacial Surgery Seminar

CREDIT HOURS: 3
This course is offered during all 6 years of the MSc component of the program. This seminar, with all the Oral and Maxillofacial Surgery Senior Staff and residents, will: 1) review, by subjects, the various major treatment aspects in the total practice of Oral and Maxillofacial Surgery by Resident presentation, 2) have monthly case reviews, 3)discuss on a monthly basis pertinent topics researched in the literature.
CROSS-LISTING: ORAL 6040.06, 7010.06, 8010.06

ORAL 5080X/Y Clinical Oral and Maxillofacial Surgery

CREDIT HOURS: 3
Presented during 5 years of the MSc component of the program. A major portion of the Graduate Student's time will be spent in the provision of Oral and Maxillofacial Surgical services for patients. Residents will be given increasing responsibility for the care of out-patients in the Teaching Unit and shall be responsible, through the Senior Resident, to the Chief of the Service. The Senior Resident shall provide care for all in-patients under supervision.

ORAL 6000X/Y Anesthesia

CREDIT HOURS: 6
This is a four month rotation. Working with a tutor assigned monthly, the Oral and Maxillofacial Surgery Resident will be supervised in pre-operative and post-operative rounds, and in the minute-to-minute administration of anesthesia in the operating room. Covered under Medicine Curriculum.

ORAL 6010X/Y Medicine

CREDIT HOURS: 6
The objectives of this one month rotation are: 1) to participate in the management of patients who have either cardiac or respiratory disease; 2) to develop skills of assessing patients in order to consult intelligently with the Department of Medicine; 3) to prepare for anesthesia rotation. Covered under Medicine Curriculum.

ORAL 6030X/Y Oral and Maxillofacial Pathology
CREDIT HOURS: 6

ORAL 6040X/Y Oral and Maxillofacial Surgery Seminar
CREDIT HOURS: 0

ORAL 6050X/Y Clinical Oral and Maxillofacial Surgery
CREDIT HOURS: 6

ORAL 6060X/Y Orthopaedics
CREDIT HOURS: 6
This is a two-month rotation with the main objectives being: 1) to provide the resident with sufficient clinical experience to harvest bone solo from the iliac crest; 2) to support the clinic skills in (1) with an appreciation of general principles of bone management; 3) to allow participation in the management and care of the polytraumatized patient.Covered under Medicine Curriculum

ORAL 6070X/Y Infectious Diseases
CREDIT HOURS: 0
This rotation is one month. The objectives of the rotation are: 1) to participate in the management of patients who have been admitted to the Infectious Diseases service; 2) to apply skills and knowledge acquired in Microbiology class; 3) to acquire the skills of responsible and appropriate use of antimicrobial agents. Covered under Medicine Curriculum

ORAL 6080X/Y Emergency Medicine
CREDIT HOURS: 6
This is a one month rotation with its objectives being: 1) to participate in the general management of patients in an emergency situation; 2) to apply skills acquired on Orthopedics and Anesthesia in the management of the emergency patient; 3) to manage and instruct Emergency Room staff in the techniques of facial fracture treatment. Covered under Medicine Curriculum

ORAL 6090 Neurosurgery
CREDIT HOURS: 0
This is a one month rotation. Covered under Medicine Curriculum.

ORAL 7000X/Y Oral and Maxillofacial Pathology
CREDIT HOURS: 6

ORAL 7010X/Y Oral and Maxillofacial Surgery Seminar
CREDIT HOURS: 6

ORAL 7020X/Y Clinical Oral and Maxillofacial Surgery
CREDIT HOURS: 6

ORAL 7030X/Y Research
CREDIT HOURS: 6
A mandatory course that all students must complete in order to graduate. Satisfactory performance in the components of the course is required throughout the degree program in order for the student to be permitted to register for the course in their final year. The main objective of the course is for the student to complete a research project and publish the findings in a thesis format, acceptable to the Thesis Committee, Program Director, and the Faculty of Graduate Studies.The components of the course are as follows:1. Research Proposal - The student will develop a proposal for their research project. This will be written up and presented to the Thesis Committee prior to the commencement of the study. This component of the course also includes submission of the proposal to the appropriate Research Ethics Board and subsequent approval. This is to be completed by the end of Year 2 of the program.2. Presentation of Preliminary Findings - The student is to present preliminary research findings to the Thesis Supervisor prior to the beginning of the final year of the program. This is to be followed by presentation of the preliminary findings at the annual Graduate Student Research Day of the Faculty of Medicine and/or at a national or international conference.3. Presentation of the Completed Research Project - The completed research project must be presented to the Thesis Committee prior to the Thesis Defence. The complete first draft of the thesis must be made available to members of the Thesis Committee at least two weeks prior to this presentation. This component of the course must be completed by December 15 of the final year of the program.
CROSS-LISTING: ORAL 9000.00

ORAL 8000X/Y Clinical Oral and Maxillofacial Surgery
CREDIT HOURS: 6
Covered under 5080.06

ORAL 8060X/Y Oral and Maxillofacial Pathology
CREDIT HOURS: 3
This course is presented to residents four times over the six years of their program. Students study the cause, pathogenesis, clinical, radiographic and microscopic characteristics of diseases affecting the oral and peri-oral structures. Emphasis is placed on recognition of abnormalities, formulation of differential diagnoses, arrival at definitive diagnoses and patient management.

ORAL 9000 Thesis

CREDIT HOURS: 0
Covered under 7030.06

Pathology

Location:
Building/Room: Sir Charles Tupper Building
Street Address 1: 5859 University Avenue
Street Address 2: 11th Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2091
Fax: (902) 494-2519
Website: pathology.medicine.dal.ca
Email Address: pathgrad@dal.ca

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In addition, candidates with the MD degree may be admitted.

Staff

Head of Department

Heathcote, J. G.

Graduate Coordinator

Greer, W. L.

Professors

Anderson, D., MD, FRCPC Blood transfusion therapy; thromoembolic disorders, major appointment in Medicine
Fraser, R. B., MSC, MD (Dalhousie), FRCP(C), FCAP, PP
Greer, W. L., BSc, PhD (Western), FCCMG. Human molecular genetics; molecular diagnosis of cancer, Graduate Studies Coordinator
Hanly, J., MD (Univ College. Cork, Ireland); Rheumatology, major appointment in Medicine
Hatchette, T., MD (Memorial), Virology, infectious diseases and medical microbiology
Heathcote, J. G., MA, MB, BChir (Cantab), PhD (Manchester), FRCPC Head, Neck and eye pathology, ocular pathology
Hoskin, D., BSc, PhD (McGill), Tumour immunology, cancer biology, apoptosis
Issekutz, T., MD (Dalhousie), FRCP (C), Pediatric immunology, inflammation, major appointment in Pediatrics
Lee, P. W. K., PhD (Alberta), Molecular Virology, Cancer Biology
Lee, T., PhD (Glasgow), major appointment in Microbiology and Immunology, Immunoregulation, transplantation immunology and herbal medicine
Lin, T. -J., PhD (China), major appointment in Microbiology and Immunology
Liwski, R., MD, PhD, FRCPC (Dalhousie). Hematopathology
Marshall, J. S., BSc, PhD (Manchester), major appointment in Microbiology and Immunology. The role and regulation of mast cells in immune responses to bacteria, viruses and tumours, regulation of cytokines in inflammatory bowel diseases and asthma
Nassar, B. A., BSc (Beirut), PhD (Newcastle), MB, BCh (Cairo), FRCP(C), Essential fatty acids and prostaglandins; molecular diagnosis of hyperlipidemias; familial cancers; porphyrias
Robitaille, J. M., MD, FRCSC (McGill), Pediatricophthalmology, human genetics, developmental vascular eye diseases, major appointment in Opthalmology and Visual Sciences
Sadek, I., MB (Cairo) FRCP, Hematopathology
Waisman, D., BSc (Brandon), PhD (Manitoba), joint appointment in Biochemistry and Molecular Biology
Xu, Z., MD (Shanghai Medical Univ), Pulmonary pathology; cytopathology

Associate Professors

Alwayn, I., MD, PhD (Leiden), major appointment in Surgery. Multiorgan Transplantation
Bedard, K., BS (St. FX), MSc (Dalhousie), PhD (Atlantic Veterinary College). Oxidative stress; molecular biology; functional genetics
Berman, J., MD (Toronto), major appointment in Pediatrics: Cancer, cell biology, zebrafish
Dellaire, G., BSC, PhD (McGill), Cancer biology, DNA repair
Easton, A., MBBS, PhD (Univ of London), Neuropathology
Harrison, K., PhD, FCCMG (McMaster). Cytogenetics

Huang, W. -Y., MD (Taipei), PhD (Toronto). Anatomic Pathology
Johnston, B., PhD (Calgary), major appointment in Microbiology and Immunology. Inflammation and immune response
Leblanc, J., PhD (Dalhousie). Virology, immunology and molecular epidemiology
Legaré, J. F., MD (McGill), major appointment in Surgery. Transplantation and mechanism of heart failure
MacLellan, D., MD, BSc, major appointment in Urology. Urinary tract anomalies, proteomics
Marignani, P., BSc, MSc, PhD, major appointment in Biochemistry and Molecular Biology. Molecular signalling of tumour suppressors, protein kinases and cellular migration, stem cell biology, genome stability, model organisms, translational research, system biology
Morash, B., BSc (MSVU), PHD (Dalhousie). Cytogentics
Riddell, D. C., BSc, PhD (Queen's). Tumour suppressors; human molecular genetics

Assistant Professors

Davis, I., MD (Toronto), major appointment in Medicine. Infectious Diseases, Microbiology
Marcato, P., BSc, PhD (Alberta). Cancer stem cells, breast cancer

Research for the MSc degree may be conducted in experimental pathology and/or allied fields of medical sciences (e.g. clinical chemistry, hematopathology, histopathology or molecular pathology and molecular genetics) for those planning a career as a laboratory scientist

Master of Science (MSc) in Pathology

This program is intended to give the student a strong background in the experimental approach in pathology. Although the program may be completed in 12 months, most students require 24 months.

The research work and thesis defence are valued at 18 credit hours. All students are required to attend and participate in the research seminar program (PATH 5091.03: Pathology Research Seminar Series) for three credit hours. Those students without a medical background are required to take PATH 5000: General Pathology for three credit hours. Other courses may be required depending upon the background of preparation of the student, the nature of their thesis or the student's career goals, bringing the total requirement to 30 credit hours.

Candidates are expected to participate as appropriate in a weekly series of seminars or journal clubs in immunopathology, laboratory medicine or molecular pathology/genetics.

Research and a thesis are required. The thesis must be defended by oral examination which covers the candidate's area of study and research. Yearly presentations to the Department are required of every candidate.

Doctor of Philosophy (PhD) in Pathology

Pre-requisite for acceptance into this program is an MSc degree in Pathology or other Life Sciences field or an MD degree with research experience. Students entering from a BSc would first enter the MSc program but could transfer to the PhD before completing the MSc provided that the student had made satisfactory progress and the project had sufficient scope and depth. Course requirements are the same as for MSc students. Candidates are required to pass both a written and oral comprehensive examination, but the most significant requirement is the preparation and oral defense of his/her thesis describing an extensive original investigation. The minimum time requirement for PhD study is two years for students with an MSc or three years for those transferring from an MSc program.

Seminars - Conferences

A series of weekly seminars, journal clubs, and conferences is conducted throughout the year in various areas of pathology, and laboratory medicine.

Areas of Specialization for MSc or PhD Degree

- Multiprogram Transplantation: I. Alwayn
- Hematology, Oncology: D. Anderson
- Oxidative stress; molecular biology: K. Bedard
- Cancer, cell biology: J. Berman
- Infectious Diseases; Microbiology: I. Davis
- Cancer biology, DNA repair: G. Dellaire
- Neuropathology: A. Easton
- Animal models of diabetes: R. B. Fraser
- Human molecular genetics; molecular diagnosis of cancer: W. L. Greer
- Rheumatology: J. Hanly
- Cytogenetics: K. Harrison

- Medical Microbiology; infectious Disease: T. Hatchette
- Head, neck and eye pathology, ocular pathology: J. G. Heathcote
- Chronic rejection; allograft arteriosclerosis; vascular biology; cell adhesion molecules and T cell infiltration; cytolytic cell role in transplantation: G. Hirsch
- Tumor immunology: D. Hoskin
- Anatomic Pathology: W-Y. Huang
- Pediatric Immunology, Inflammation: T. Issekutz
- Inflammation and immune responses: B. Johnston
- Virology, immunology and molecular epidemiology: J. Leblanc
- Molecular Virology, Cancer Biology: P. Lee
- Immunoregulation, transplantation immunology and herbal medicine: T. Lee
- Transplantation and mechanism of heart failure: J. F. Legaré
- Hematopathology: R. Liwski
- Urinary tract anomalies, proteomics: D. MacLellan
- Cancer stem cells, breast cancer: P. Marcato
- Stem cell biology, genome stability, model organisms, translational research: P. Marignani
- Role and regulation of mast cells in immune responses to bacteria, viruses and tumors. Regulation of cytokines in inflammatory bowel diseases and asthma: J. S. Marshall
- Cytogenetics: B. Morash
- Essential fatty acids and prostaglandins; molecular diagnosis of hyperlipidemias; familial cancers; porphyrias: B. Nassar
- Role of skeletal muscle in epigenetic shaping of organs, tissues and cell fate choices: B. Kablar
- Tumor suppressors; human molecular genetics: D. C. Riddell
- Developmental vascular eye diseases: J. P. Robitaille
- Hematopathology: I. Sadek
- Molecular mechanisms of metastasis and angiogenesis: D. Waisman
- Pulmonary Pathology; Cytopathology: Z. Xu

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

PATH 5000 General Pathology

CREDIT HOURS: 3
This course covers basic systems and processes in pathology.

PATH 5001 Advanced Mechanisms of Pathology

CREDIT HOURS: 3
This course will provide an in-depth study of such topics as cell injury, adaptation and repair and inflammatory mechanisms followed by specific diseases of the cardiovascular, central nervous, gastrointestinal and genitourinary systems.

PATH 5013 Biochemistry of Clinical Disorders

CREDIT HOURS: 3
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 approach to their diagnosis. Topics include cardiovascular, renal, gastrointestinal and hepatobiliary disorders, in addition to acid base, carbohydrate, lipid and amio acid disorders; endocrine and rheumatological diseases, as well as tumor markers and toxicology, blood and immune abnormalities.
FORMAT: Lecture| Discussion
CROSS-LISTING: BIOC 4813.03 and BIOC 5813.03
EXCLUSIONS: PATH 5011.03 and PATH 5012.03

PATH 5027 Molecular Mechanisms of Cancer

CREDIT HOURS: 3
An in-depth study of the molecular and genetic basis of cancer. The multi-step nature of carcinogenesis will be the broad basis for studying oncogenes, tumour suppressor genes, genes regulating differentiation and apoptosis, and cancer susceptibility genes. Certain molecular biology techniques will be discussed in order to fully understand the molecular events of cancer.
CROSS-LISTING: MICI 4027.03/5027.03, BIOC 4027.03

PATH 5035 Human Genetics
CREDIT HOURS: 3
Topics include inborn 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.
CROSS-LISTING: BIOL 4035.03/5035.03/BIOC 4835.03

PATH 5040 Pathobiology of Cancer
CREDIT HOURS: 3
This course will outline the pathobiology of neoplasia. It will discuss both normal and abnormal mechanisms of cell growth and differentiation since cancer is ultimately a disease of these processes. The basic biology of carcinogenesis and behaviour of tumours will be highlighted. The clinical aspects of cancer management will also be presented.
CROSS-LISTING: BIOC 5503.03, MICI 5040.03

PATH 5050 Immunopathology
CREDIT HOURS: 3
This course will explore the intricacies, functions and abnormalities of the immune system. Both the humeral and cellular arms of the immune system will be detailed. Immunological deficiencies and autoimmune diseases will be discussed. Clinical aspects of topics such as transplantation and tumour immunology will also be presented.

PATH 5065X/Y Directed Readings
CREDIT HOURS: 6
This course provides an opportunity for individual students to study, in depth, a subject related to pathology that isn't offered as a formal course at Dalhousie. A supervisor is chosen for each student, based on his/her expertise and the topic of interest. The student and supervisor meet regularly to discuss assigned readings. The student must prepare a written paper or oral presentation to the Department each term.
NOTES: 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.

PATH 5066 Directed Readings
CREDIT HOURS: 3
See course description for PATH 5065X/Y.06

PATH 5067 Directed Readings
CREDIT HOURS: 3
See course description for PATH 5065X/Y.06

PATH 5091X/Y Pathology Research Seminar Series
CREDIT HOURS: 3
The objectives of this course are: 1) to provide a forum for graduate students to develop skills at presenting seminars; 2) to provide constructive evaluation of their research; and 3) to promote interaction between students and faculty.
NOTES: 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.

PATH 5092 Pathology Research Seminar
CREDIT HOURS: 3
See course description for PATH 5091X/Y.03

PATH 5093 Pathology Research Seminar
CREDIT HOURS: 3
See course description for PATH 5091X/Y.03

PATH 5100 Processes and Mediators of Inflammation
CREDIT HOURS: 3
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, steroids, tissue remodeling and transplant modulation. Current research questions and emerging treatments are emphasized.
CROSS-LISTING: MICI 4100.03, 5100.03

PATH 9000 MSc Thesis
CREDIT HOURS: 0

PATH 9530 PhD Thesis
CREDIT HOURS: 0

Periodontics

Location:
Building/Room: Department of Dental Clinical Sciences
Street Address 1: 5981 University Avenue
Street Address 2: Dentistry Building
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1912
Fax: (902) 494-2527
Website: www.dal.ca/faculty/dentistry/programs/graduate-programs/periodontics.html
Email Address: denadmis@dal.ca

Staff

Chair

Loney, R., BSc, DMD (Saskatchewan), MSc (Michigan), Prosthodontics

Director of Graduate Program

Matthews, D., BSc, DDS (Alberta), Dip. in Perio (Toronto), MSc (McMaster), Periodontics

Professors

Lee, S. F., BSc, PhD (Guelph), Microbiology and Immunology
Matthews, D., BSc, DDS (Alberta), Dip. in Perio (Toronto), MSc (McMaster), Periodontics

Associate Professor

Filiaggi, M. J., BSc Eng (Penn), MASc, PhD (Toronto), Biomaterials, Biomedical Engineering
Mello, I., DDS (Brazil), MSc, PhD (UBC), Endodontics

Assistant Professors

Kraglund, F., BSc (UNB), DDS (Dalhousie), MSc (Toronto), Comprehensive Care
Lee, CJ., BSc, MSc Pharmacy (Ottawa), DDS (Dalhousie), Comprehensive Care
Li, Y. H., Msc (UM), DMD (WU), PhD (UM), Microbiology and Immunology
Michaud, P. L., DMD, MSc and Certificate in Prosthodontics (Montreal), Prosthodontics
Robertson, C., DDS (UWO), MD, MSc (Dalhousie), FRCD(C), Oral and Maxillofacial Surgery
Wright, T., BSc Hon (Guelph), DMD (Manitoba), MSc Anatomy (Queen's), Diploma in Periodontics (Toronto), Periodontics

Adjunct (FGS)

Brillant, M., BSc, PhD (UNB), Research Development Officer

Admission Requirements

Candidate must have completed a minimum of an accredited four-year DDS program and be eligible for student licensure in the Province of Nova Scotia (as granted by the Provincial Dental Board of Nova Scotia). A minimum of B + average during the undergraduate dentistry program is required. Candidates whose native language is not English may be required to provide acceptable scores from a recognized English proficiency test (ie. minimum TOEFL score of 100, minimum IELTS score of 7.5).

Program Description

This program will be a minimum of three consecutive academic years in length. Basic and clinical sciences instruction will be designed to be relevant to the specialty of Periodontics. Program instruction will consist of formal courses and/or seminars, conferences, reading assignments, hospital rounds, laboratory assignments and experience in either a clinical or laboratory research.

Clinical management of patients will include a variety of experiences. Emphasis will be placed upon thoroughness of patient evaluation and accuracy in diagnosis and treatment planning in the treatment of both routine and complex cases. Students will be trained to the level of proficiency in the management of patients with periodontal diseases and mucogingival defects, including, but not limited to, healthy, geriatric patients and medically compromised patients. They will be trained to the level of proficiency in the management of patients with facial pain. They will become proficient in oral medicine and oral pathology as they relate to the periodontium, in managing patients requiring dental implant therapy and in conscious sedation techniques.

While this program is primarily aimed at developing clinical specialists, it is also intended to ensure students' participation in a research experience related to the specialty of periodontics - either in a clinical or laboratory research topic as both an investigator and author, or in the production of a systematic review with meta-analysis. They will be expected to write a scholarly paper to a standard for publication in a refereed journal. A traditional literature review will not be acceptable. In addition, students may choose to take graduate level courses (selected in consultation with their advisor) that are related to their area of research interest. The other Faculty/School involved will be required to approve the student's participation in the elective courses.

The successful completion of this program will lead to a Master of Periodontics.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

PERI 5100X/Y Basic Sciences for Graduate Dentistry

CREDIT HOURS: 6

Advances in dentistry and relevant topics in immunology, microbiology, molecular biology and functional genomics are presented. The structure and function of periodontal connective tissue cells and matrix, regulation of cells in periodontal connective tissues and bone and the ecology and physiology of microbes in dental biofilms will be explored.

PERI 5110X/Y Clinical Periodontics I

CREDIT HOURS: 9

Presented in three didactic, laboratory and clinical modules, this course offers students basic and fundamental skills and knowledge required in treating patients who present with various forms of periodontal disease and those in need of dental implants.

PERI 5120 Evidence-Based Dentistry and Biostatistics in Graduate Dentistry

CREDIT HOURS: 3

This course will outline basic research designs and levels of clinical evidence. The dental clinical epidemiology component of this course will cover the scientific basis for clinical decision making in prognosis, causation, diagnosis, and therapy according to the principles of evidence-based healthcare. Examples from the dental literature are used to illustrate these concepts and their practical application. The Biostatistics section is designed to provide graduate students with a basic understanding of the statistical methods used for data analysis and literature interpretation.

PERI 6110 Clinical Periodontics II

CREDIT HOURS: 9

A continuum of Clinical Periodontics I, this course exposes students to more complex cases requiring more advanced treatment modalities. An evidence-based approach to treatment is emphasized throughout the course. Students are expected to document their cases according to the format established by the Royal College of Dentists of Canada (RCDC).

PERI 6160 Oral Medicine, Pathology and Radiology for Graduate Dentistry

CREDIT HOURS: 3

Various advanced imaging modalities in oral radiology will be presented. Emphasis will be placed on the interpretation of abnormalities in the oral and maxillofacial

region encountered in the dental specialty practice. Oral soft and hard tissue pathologies involved in infections, developmental defects, reactive hyperplasia, benign and malignant tumors will be discussed.

PERI 6180X/Y Oral and Maxillofacial Pathology

CREDIT HOURS: 6
This course is presented to students over a 2 year period. Students study the cause, pathogenesis, clinical, radiographic and microscopic characteristics of diseases affecting the oral and peri-oral structures. Emphasis is placed on recognition of abnormalities, formulation of differential diagnoses, arrival at definitieve diagnoses and patient management.
CROSS-LISTING: ORAL 5060.06, ORAL 6030.06

PERI 7110 Clinical Periodontics III

CREDIT HOURS: 9
A continuum of Clinical Periodontics I and II, this course exposes students to more complex cases requiring more advanced treatment modalities. An evidence-based approach to treatment is emphasized throughout the course. Students are expected to document their cases according to the format established by the Royal College of Dentists of Canada (RCDC).

PERI 7130X/Y Graduate Dentistry Seminars

CREDIT HOURS: 9
This course covers many aspects of speciality practice not covered in other required courses. Students will present clinical cases they treated in the clinic according to the format established by the Royal College of Dentists of Canada.
FORMAT: Seminar

PERI 7140X/Y Hospital Rotation for Graduate Dentistry

CREDIT HOURS: 3
Special clinical rotations in implants, pediatric dentistry, oral medicine/diagnosis and treatment of facial pain and temporomandibular disorders. Students will also be exposed to training in single drug I.V. sedation techniques, and other conscious sedation methods.

PERI 7150X/Y Literature Review in Periodontics

CREDIT HOURS: 9
Taught in a seminar format, this course exposes students to contemporary periodontal and dental implant literature, drawn from various peer-reviewed journals. Students are expected to read and critique the assigned papers and to be able to convey their findings.
FORMAT: Seminar

PERI 7170X/Y Research Practicum in Graduate Dentistry

CREDIT HOURS: 18
The course is designed to enhance the student's critical analysis and presentation skills and expose students to research methodologies. Students will work directly with a faculty advisor in developing a research project, carrying out the research and preparing a presentation for a scientific audience and a manuscript for publication based on their completed research.
FORMAT: Lab| Seminar

Petroleum Engineering

Location:
Building/Room: Sexton Campus
Street Address 1: 5248 Morris Street
Street Address 2: Room A108
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1288
Fax:
Website: www.dal.ca/engineering/oilandgas
Email Address: gsr@dal.ca

Introduction

Petroleum engineering at Dalhousie is viewed as a specialized professional discipline focused on the fundamental knowledge and skills associated with the production, transport and processing of petroleum products. The petroleum industry traditionally distinguishes between its “upstream” and “downstream” sectors. Engineers in the “upstream” sector deal with oil and gas reservoir facilities and operations for exploration and production; engineers in the “downstream” sector focus on the transportation, processing, refining and distribution of petroleum products. This one-year, course-based Masters degree is aimed at giving graduate engineers from a variety of engineering disciplines exposure to Petroleum Engineering. The objective is to allow them to transition into the oil and gas sector. Depending upon the applicants engineering background a qualifying year may be required to gain the necessary prerequisite subject matter.

Staff

Graduate Coordinator

Donaldson, A. A., PhD, PEng

Faculty

Faculty members with appointments in the various disciplinary departments of the Faculty of Engineering and the Faculty of Science who are directly involved in teaching the core Petroleum Engineering program are:

Garagash, D., PhD (Minnesota). Fracture mechanics

Engineer

Kujath, M., BEng (Dalhousie), PEng

Master of Engineering (MEng) Degree in Petroleum Engineering

Admission to the Petroleum Engineering program is suspended. The program will continue to be delivered to any current students until all students have graduated, or the time allowed for program completion has elapsed, or all students have left the program.

This degree program is designed primarily for graduate professional engineers seeking a thorough introduction to the field of petroleum engineering. The curriculum (academic year 2010-11) consists of a core set of six prescribed courses, one approved elective, a graduate seminar, and a project.

The core courses in petroleum engineering are:

- PETR 6010.03: Reservoir Engineering
- PETR 6030.03: Natural Gas Reservoirs
- PETR 6040.03: Drilling Engineering
- PETR 6050.03: Production Technology
- PETR 6060.03: Petroleum Geoscience
- PETR 6980.03: Directed Studies

Approved elective courses may be chosen from a variety of subjects to suit each student's disciplinary background, oil and gas industry interests, and professional project area. Subjects include advanced courses in engineering disciplines and courses in law, economics, earth science, environmental studies and oceanography. Descriptions of these courses are in the Graduate Studies Calendar.

Engineering courses from various disciplines are available as electives for students of petroleum engineering. Examples include:

- CHEE 4803.03: Oil and Gas Processing
- CHEE 6737.03: Chemical Process Control
- CIVL 6144.03: Geotechnical Aspects of Waste Management
- CIVL 6147.03: Advanced Theory of Structures
- FOSC 6333.03: Industrial Rheology
- IENG 6912.03: Introduction to Operations Research
- IENG 6918.03: Decision Analysis
- IENG 6924.03: Capital Investment and Capacity Expansion Planning
- MATL 6014.03: Welding Metallurgy
- MATL 6030.03: Fracture of Metallic Materials
- MECH 6510.03: Advanced Mechanics of Solids
- MINE 6001.03: Advanced Rock Mechanics
- MINE 6008.03: Advanced Petroleum Engineering
- MINE 6009.03: Offshore Drilling and Production
- MINE 6010.03: Solid-Liquid Separation
- PETR 6020.03: Enhanced Oil and Gas Recovery

Selections from this list are expected to be consistent with the student's background, interest, and research or project area. Electives may also be chosen from the following list of courses in related disciplines:

- ECON 5516.03: Resource and Environmental Economics 1 (Resources)
- ERTH 5270.03: Applied Geophysics
- LAWS 2104.03: Environmental Law I
- OCEA 5120.03: Physical Oceanography

Both of these elective lists are illustrative and subject to revision.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

PETR 6010 Reservoir Engineering

CREDIT HOURS: 3

Basic concepts, principles and techniques relating to hydrocarbon reservoirs from an engineering viewpoint. Properties of reservoir rocks and reservoir fluids are examined in association with developing an understanding of the dynamics of fluid flow in porous rock. Review of basic well logging instruments and determination of reservoir characteristics.

PETR 6020 Enhanced Oil and Gas Recovery

CREDIT HOURS: 3

Basic concepts and principles relating to primary, secondary and enhanced recovery of oil and gas. Reservoir simulation —- model types and principles, methods of model formulation, particular aspects of gas reservoir modelling, reservoir case study data, use of commercial reservoir simulators, etc. Overall economic and environmental assessment of the development of oil and gas fields.

PETR 6030 Natural Gas Reservoirs

CREDIT HOURS: 3

Types of well tests and their use in analysis of reservoir production performance. Automated well logging data systems and well data analysis software applications. Case studies of gas reservoirs —- e.g. the Sable gas fields. Introduction to reservoir production management (planning, performance analysis, forecasting, data

management, and economics).

PETR 6040 Drilling Engineering

CREDIT HOURS: 3

Overview of drilling activities with an emphasis on offshore operations. Design of drilling tools (systems, drilling bits) and study of drilling techniques (directional, horizontal, MWD, etc.) and drilling fluids. Basic well completion (design requirements, materials, equipment, and procedures). Economic, health, safety and environmental aspects of drilling.

PETR 6050 Production Technology

CREDIT HOURS: 3

Overview of oil and gas production facilities with an emphasis on offshore situations. Engineering design and operation of wells, pipelines, and oil and gas processing equipment. Health, safety and environmental aspects of production operations.

PETR 6060 Petroleum Geoscience

CREDIT HOURS: 3

Petroleum exploration and hydrocarbon reservoirs from the perspective of professional geoscientists. Exploration methods (magnetic, gravity, seismic, borehole, telemetry, etc.) Subsurface and marine geology used to interpret measurement data. Generation and migration of petroleum, geological traps and seals, and sedimentary basins. Assessment of hydrocarbon reserves. Environmental impacts of exploration activities.

PETR 6980X/Y Directed Studies in Petroleum Engineering

CREDIT HOURS: 3

This course provides an opportunity to pursue studies in a specific area of petroleum engineering in which no graduate courses are offered. Studies must be pursued according to a clear plan under the guidance of a designated faculty member.

PETR 6990X/Y Graduate Seminar in Petroleum Engineering.

CREDIT HOURS: 0

This seminar is designed for communication and discussion on the latest research and technical developments in petroleum engineering and the oil and gas industry. Each student is required to make an oral presentation, in accordance with Faculty guidelines, on a topic relating to his/her thesis or project work.

PETR 9000 MEng Project

CREDIT HOURS: 0

Pharmacology

Location:
Building/Room: Sir Charles Tupper Medical Building
Street Address 1: 5850 College Street
Street Address 2: 6th Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-1384
Fax: (902) 494-1388
Website: pharmacology.medicine.dal.ca/
Email Address: pharmacology@dal.ca

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Staff

Head of Department

McMaster, C.

Graduate Coordinator

Pasumarthi, K.

Professors

Denovan-Wright, E. M., BSc, PhD (Dalhousie), Molecular neurobiology, Huntington's Disease, gene expression
Howlett, S. E., BSc (Concordia), MSc, PhD (Memorial), Cardiovascular pharmacology and electrophysiology, cardiac excitation-contraction coupling, heart disease
Kelly, M. E. M., BSc, PhD (Southampton), Ion channels, membrane transport, cell signaling, retinal neurobiology, ocular pharmacology
McDougall, J., BSc (Hons), PhD (Glasgow Univ, Scotland), Arthritis, pain, neurogenic inflammation, proteinase activated receptors, cannabinoids
McMaster, C., PhD (Manitoba), Drug discovery, gene discovery, metabolism, inherited diseases
Pasumarthi, K. B. S., DVM (India), PhD (Manitoba), Cardiac regeneration, cell cycle, myocyte apoptosis, cell transplantation, embryonic stem cells, gene expression, cloning, gene transfer and transgenic mice
Robertson, G. S., BSc, PhD (Dalhousie), Neurodegenerative disorders, apoptosis, gene therapy, inflammation, drug discovery, genetic disease models
Sawynok, J., BSc, MSc (Melb), PhD (Queen's), Adenosine, caffeine and pain; novel topical analgesics
Sinal, C., BSc, Bioc (McMaster), PhD (UWO), Nuclear hormone receptor, gene regulation, obesity, metabolism, diabetes, bone, osteoporosis

Associate Professors

Dupré, D. J., BSc, PhD (Sherbrooke), Adrenergic receptor, chemokines, signalling, chaperones
Fawcett, J., BSc, MSc, MSc (T) (McMaster), PhD (McGill), Axon guidance, proteomics, signal transduction
Rashid, S., BSc (Saskatchewan), MSc, PhD (Toronto), Lipoprotein metabolism, atheroslerosis, cardiovascular biomarker discovery, molecular biology, cellular biology, gene-altered mouse models, translational medicine, metabolic impairments in high cardiovascular risk human populations

Assistant Professors

Brunt, K. R., BSc Hons (Saskatchewan), PhD (Queen's), Experimental therapeutics, stem cells, heme metabolism, aging, nanomedicine, regenerative medicine, atherosclerosis, myocardial infarction, cardiac hypertrophy
Langille, M. G. I., BSc, BCS (UNB), PhD (Simon Fraser), Human genetics, human microbiome, bioinformatics, metabolism, biomarker discovery, drug discovery
Pelis, R., BSc, MSc (Univ of Massachusetts), PhD (Univ of Connecticut), Pharmacokinetics, metabolism, transport, barrier epithelia, structure - activity relationships in transporters, drug-drug interactions, adverse drug reactions

Cross Appointments

Goralski, K., BSc (Hon), PhD (Manitoba), major appointment in College of Pharmacy
Lehmann, Ch., PhD, MD (Humboldt Univ, Berlin), major appointment in Anesthesia

Master of Science (MSc) Pharmacology

Candidates must satisfactorily complete the following courses or their equivalents: PHAC 5405.03: Advanced Pharmacology, PHAC 5406.03: Introduction to Pharmacology I, PHAC 5508.03: Pharmacology Graduate Seminar. Thesis research (PHAC 9000.00: MSc Thesis), preparation and oral defense of a thesis are required.

Doctor of Philosophy (PhD) Pharmacology

Candidates must satisfactorily complete the following courses or their equivalents: PHAC 5405.03: Advanced Pharmacology, PHAC 5406.03: Introduction to Pharmacology I, PHAC 5507.03: PhD Lectures, PHAC 5509.03: Graduate Seminar (PhD), and one 5000 level course. For students transferring from a MSc program to PhD program or for students admitted directly to PhD program, a comprehensive examination (PHDP 8000.00: Doctoral Comprehensive Requirement) should be taken in the second year of the program or not later than the beginning of the third year. Thesis research (PHAC 9530.00: PhD Thesis), preparation and oral defense of a thesis are required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

PHAC 5405 Advanced Pharmacology

CREDIT HOURS: 3
This required course is a vehicle for graduate students to gain practical familiarity with research level concepts in receptor pharmacology. The main theme is analysis of receptor-mediated events, both in terms of the interaction of a drug at its binding site and in terms of the transduction of that initial signal. Both classical and modern molecular approaches will be discussed. We will also consider related drug discovery strategies. The course has two sessions/week, one a didactic session to introduce concepts and the second a workshop session for discussion of practical assignments.
FORMAT: Lecture| Discussion
PREREQUISITE: Normally required PHAC 5406 (Grade of B- or higher)

PHAC 5406 Introduction to Pharmacology I

CREDIT HOURS: 3
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. Graduate students will also prepare a paper reviewing a selected drug.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: A previous course in physiology and biochemistry is recommended. Extra reading may be required for students without these courses.
CROSS-LISTING: BIOL 4404.03, BIOC 4804.03 and NESC 4374.03

PHAC 5409 Introduction to Pharmacology II

CREDIT HOURS: 3
This course is intended to cover specific aspects of drug action not covered in PHAC 5406.03. 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 asthma. Graduate students also will complete a research elective in a pharmacology research laboratory.
COORDINATOR: D. Dupré
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

PREREQUISITE: BIOL 4404 and BIOC 4804 and NESC 4374
CROSS-LISTING: BIOL 4407.03, BIOC 4806.03, NESC 4376.03

PHAC 5507 PhD Lectures (2)

CREDIT HOURS: 3

PHAC 5508 Pharmacology Graduate Seminar (MSc)

CREDIT HOURS: 3
A mandatory course that all graduate students must complete in order to graduate. Satisfactory performance in the course components is required throughout the degree program in order for the student to be receive a grade in their final year. The main objectives of the course are to provide opportunities for students to acquire experience in giving seminars and poster presentations to scientific audiences, and in assimilating and evaluating scientific information presented by others. There are three components to the course: 1. The Pharmacology Departmental Seminar Series. There are several seminars per year and attendance is mandatory for all graduate students. Students are often given the opportunity to meet informally with guest speakers. Graduate students are also expected to attend relevant seminars in other Faculty of Medicine and University Departments. 2. Faculty of Medicine Graduate Student Research Day. MSc students are required to present a poster at the annual Faculty of Medicine Graduate Student Research Day in their second year of study (and annually thereafter for as long as they are in the program). PhD students must participate in the Faculty of Medicine Graduate Student Research Day in their second year of study and yearly thereafter. Presentation of a poster at a national or international conference is considered as equivalent to presenting at the Faculty of Medicine Graduate Student Research Day. 3. Presentation of departmental seminars during the Pharmacology Graduate Student Research Day. MSc students present at least two times during their program; PhD students must present two Departmental Seminars over the course of their program. Each student seminar is monitored by attending Faculty who provide oral and written feedback on their presentation.
DIRECTOR(S): Graduate Coordinator.
NOTE: Course Details listed here also apply to PHAC 5509 (PhD).

PHAC 5509 Phac Graduate Seminar (PhD)

CREDIT HOURS: 3
See PHAC 5508.
FORMAT: Lecture

PHAC 5612 Clinical Trials

CREDIT HOURS: 3
This course is designed for graduate students. It focuses on the design, conduct, reporting and interpreting of clinical trials. It includes attendance at a workshop that focuses on pragmatic issues involved in conducting trials.
FORMAT: Lecture| Discussion
PREREQUISITE: Permission of instructor

PHAC 5626 Special Topics in Pharmacology

CREDIT HOURS: 3
Students interested in topics not covered in formal courses may ask the department for special courses to meet their needs. The fields in which the department can offer instruction are reflected in the list of faculty research areas. Since different subjects may be covered each year, each course in the series has a separate number.
NOTE: Course Details listed here also apply to PHAC 5627/PHAC 5628.
NOTES: Review and discussion of relevant literature recorded through a brief written summary. Additional written component encompassing either a term paper or grant proposal; formal departmental seminar. A written outline of the proposed course of study must be submitted for review prior to final approval.
FORMAT: Lecture| Discussion
PREREQUISITE: Enrollment as a Dalhousie graduate student in good standing with permission from the students Supervisory Committee and the Pharmacology Graduate Coordinator. Students from departments other than Pharmacology are eligible to be enrolled, but require permission from the Graduate coordinator of their own home department as well as the Pharmacology Graduate Coordinator.

PHAC 5627 Pharmacology Special Topics

CREDIT HOURS: 3
See PHAC 5626.

PHAC 5628 Pharmacology Special Topics

CREDIT HOURS: 3
See PHAC 5626

PHAC 9000 MSc Thesis

CREDIT HOURS: 0

PHAC 9530 PhD Thesis

CREDIT HOURS: 0

Pharmacy

Location:
Building/Room: Burbidge Building
Street Address 1: 5968 College Street
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2378
Fax: (902) 494-1396
Website: www.dal.ca/Pharmacy
Email Address: pharmacy@dal.ca

Introduction

The goal of the Master of Science degree in Pharmaceutical Sciences program is to educate students to become high quality research-based scientists who can contribute to drug discovery and development in academia and the pharmaceutical industry.

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. More specifically, the admission requirements and standards will be as follows:

a. Any international student, as applicable, will be required to demonstrate an ability to communicate and write in English (minimum acceptable score of 92 for the TOEFL internet-based test, or 7 for the IELTS).
b. At least two letters of support.
c. Appropriate academic background. Students will be considered for acceptance into the Master of Science in Pharmaceutical Sciences via:
   - a completed BSc (Pharm) or PharmD degree with a suitable letter of recommendation from a faculty member with first-hand knowledge of the potential students academic abilities.
   - a completed BSc (honors) degree (or equivalent demonstrated research experience) in a related scientific field, not limited to: pharmacology, biochemistry, chemistry, microbiology, chemical or biochemical engineering, with a suitable letter of recommendation from a faculty member with first-hand knowledge of the potential students academic abilities (e.g. thesis supervisor).
   - a completed MD, DVSc, DDS, or equivalent with demonstrated research experience with a suitable letter of recommendation from a faculty member with first-hand knowledge of the potential students academic abilities (e.g. thesis supervisor).

Students without these prerequisites, that wish to be accepted into the program, may enroll in specific courses at Dalhousie in consultation with a potential graduate supervisor, in order to demonstrate their ability and aptitude. Subsequent entry into the MSc (Pharmaceutical Sciences) in a later academic year will be dependent upon satisfactory performance in the chosen courses and is not guaranteed.

General Regulations

All graduate students are required to carry out novel, original research. In addition, all graduate students are required, as part of their training, to present and participate in graduate student seminars, and to attend invited speaker seminars. The learning outcomes of this program are as follows:

a. Students will be competent in performing general laboratory techniques as well as techniques specific to their chosen area of research.
b. Students will be able to develop and execute a research project.
c. Students will develop scientific writing skills through the writing of a thesis and scientific paper(s) that result from their research.
d. Students will develop oral presentation skills through their participation in the seminar series and thesis committee meetings.
e. Students will develop the ability and confidence to clearly and succinctly communicate the results of their research to the scientific community.
f. Students will develop clinical thinking skills required of a researcher.

Staff

Director of College

Mansour, S. A., BSc (Pharm), MBA (Dalhousie), PhC

Associate Director Research

Sketris, I. S., BSc (Pharm) (Toronto), PharmD (Minn), MPA (HSA) (Dalhousie)

Graduate Coordinator

Jakeman, D. L., BSc, PhD (Sheffield)

Professors

Jakeman, D. L., BSc, PhD (Sheffield). Applications of enzymes and carbohydrates, protein engineering, medicinal chemistry
Jurgens, T., BSc (Pharm), MSc (Dalhousie), PhD (Miss)
Yeung, P. K. F., BSc (Pharm), MSc (Man), PhD (Saskatchewan). Pharmacokinetics, Drug Metabolism, and Biomarker Assessment

Associate Professors

Agu, R., BPharm, MPharm (Pharmacology) (Univ Nigeria), MPharm (Pharmaceutics), PhD (Biopharmaceutics) (Katholieke Universiteit, Belgium)
Goralski, K., BSc (Biochem/Micro), PhD (Pharmacology and Therapeutics) (Manitoba)
Massoud, E., MB, BCh, MSc (Cairo), FRCSC (Royal College), major appointment in Surgery, Faculty of Medicine

Master of Science (MSc) Degree

Full-time Program

The Master of Science in Pharmaceutical Sciences program will normally be completed in two years of full-time study. Candidates must satisfactorily complete PHAR 5001.03: Pharmaceutical Sciences "From Drug Discovery to Therapeutics" and a minimum of two of the elective courses. Candidates will be permitted to select alternative courses with the permission of the Graduate Coordinator and Research Supervisor. In addition, all students will be required to take the Integrated Health Research Training Program (www.ihrtp.ca). There will be no credit provided for this seminar series but there will be a notation on the student's transcription following successful completion. Following completion of these courses, the students will complete PHAR 9000.00, their MSc thesis. The program will be structured using a combination of courses and thesis-based research, with a supervisor and supervisory committee overseeing progress. Financial support is available for all students accepted into the program, either from the student's supervisor, funding within and available to the College of Pharmacy, or a combination of these sources.

Part-time Program

The full-time MSc course requirements and thesis regulations apply. The thesis must be supervised by a member of the College of Pharmacy.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

A core graduate course (5001) and advanced courses (6000) are offered. The core course constitutes the main framework of a student's formal course work, and is designed to be broad-based but at an advanced level. It is intended to help the student gain a wide understanding in several major areas of the pharmaceutical sciences and thus students are strongly encouraged to take some courses outside their area of specialization. Specialized courses provide the opportunity for in-depth study of selected topics which are more closely related to the student's research area.

Course Descriptions

PHAR 5001 Pharmaceutical Sciences “From Drug Discovery to Therapeutics”

CREDIT HOURS: 3
This course discusses the fundamental sciences involved in the discovery and development of new drugs. It presents an overview of the techniques used in each scientific field and the important role each plays in the drug discovery process.
FORMAT: Lecture| Tutorial| Seminar| Discussion
PREREQUISITE: CHEM 3601.03 and BIOC 3200.03 (all grade B or higher) or B.Sc (Pharm) or by instructor's consent

PHAR 6010 The Chemistry and Pharmacology of Bioactive Compounds from Plants

CREDIT HOURS: 3
The chemistry and pharmacology of medicinally important natural health products (NHPs) will be explored. Emphasis will be on factors that affect content of products and the impact on efficacy of NHPs.
FORMAT: Lecture| Discussion
PREREQUISITE: PHAR 5001.03 or by instructor's consent

PHAR 6030 Drug Transporters in Pharmacology and Therapeutics

CREDIT HOURS: 3
Drug transporters exist in every organ in the body and can affect therapeutic responses to medications. Through a combination of lectures and student presentations the course will cover the major drug transporter families and examine the clinical importance of drug transporters with respect to drug absorption, distribution, elimination, efficacy and toxicity.
FORMAT: Lecture| Discussion
PREREQUISITE: PHAR 5001 or PHAC 5406 and PHAC 5409 or PHYL 5323 or equivalent. Consent from the course instructor will be required for those students without these prerequisites

PHAR 6040 Pharmacokinetics, Metabolism and Biomarker for Preclinical and Clinical Drug Development

CREDIT HOURS: 3
The course provides lectures and laboratory experience in the concepts and techniques involved in pharmacokinetics, metabolism and biomarker science research for preclinical and clinical drug development.
FORMAT: Lecture| Lab| Seminar
PREREQUISITE: PHYL 3320.03; PHYL 3120.03; BIOC 3200.03; CHEM 3202.03; MICI 3115.03; FOSC 3010.03; CHEE 2420.03; BIOE 3241.03; BIOL 3050.03; or consent of instructor

PHAR 6050 Biopharmaceutical Aspects of Preclinical Drug Development

CREDIT HOURS: 3
The course will cover biopharmaceutical aspects of preclinical drug development including basic and advanced concepts in drug delivery using in vitro, in vivo and in silico approaches.
FORMAT: Lecture| Discussion
PREREQUISITE: Undergraduate courses in any of the following disciplines: Pharmaceutics, Phamacology, Physiology, Biochemistry, Physical chemistry or other related courses

PHAR 6080 Chemical Biology: Understanding Biological Processes using Chemical Approaches

CREDIT HOURS: 3
This course discusses the use of chemical methods and techniques to probe biological systems. Examples will include the use of bi-functional molecules for delivery into cell systems to probe cellular function, approaches for affinity-based protein profiling and the use of chemical synthesis to identify potent enzyme inhibitors.
FORMAT: Lecture| Tutorial| Seminar| Discussion
PREREQUISITE: CHEM 3601.03 and BIOC 3200.03 (all grade B or higher) or B.Sc (Pharm) or by instructor's consent

PHAR 9000X/Y MSC Thesis

CREDIT HOURS: 0
A research thesis (PHAR 9000.00) comprising publishable work by the student will be carried out under the direct supervision of one of the faculty members of the College of Pharmacy (the principal supervisor) with expertise in the pharmaceutical sciences, subject to the regulations of the Faculty of Graduate Studies. The principal supervisor will be appointed to the College of Pharmacy and have earned a Ph.D. or have equivalent research experience, as judged by the faculty members of the College of Pharmacy, and be a member of the Faculty of Graduate Studies at Dalhousie University.

Philosophy

Location:
Building/Room:
Street Address 1: 6135 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3810
Fax: (902) 494-3518
Website: www.philosophy.dal.ca
Email Address: dalphil@dal.ca

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Application Deadline: January 1st for admission with financial support.

Staff

Chair of Department

MacIntosh, D.

Graduate Coordinator

Hymers, M.

Professors Emeriti

Campbell, R. M., BA (Harvard), PhD (Cornell). Interests: Moral theory, epistemology, feminist theory, and philosophy of biology
Sherwin, S. B., BA (York), PhD (Stanford), FRSC, University Research Professor. Interests: Feminist theory, bioethics, ethics

Professors

Hymers, M., BSc, MA (Dalhousie), PhD (Alberta). Interests: Epistemology, philosophy of language, Wittgenstein, Munro Professor in Metaphysics
MacIntosh, D., BA (Hons) (Queens), MA (Waterloo), PhD (Toronto). Interests: Philosophy of language and science, meta-ethics, decision theory, action theory, metaphysics
Schotch, P. K., PhD (Waterloo), Munro Chair in Metaphysics (ret.). Interests: Philosophy of logic and its applications to economic and moral philosophy

Associate Professors

Abramson, D., BA (Hons) (Toronto), MSc, PhD, (Indiana). Interests: Philosophy of computing, philosophy of cognitive science, and philosophy of mind
Borgerson, K., BA (Saskatchewan), MA, PhD (Toronto). Interests: Philosophy of medicine, bioethics, philosophy of science, feminist philosophy
Jeffers, C., BA (Hons) (York), PhD (Northwestern). Interests: Africana Philosophy, Philosophy of Race, Ethics, Social and Political Philosophy
Meynell, L., BA (Hons) (York), MA (Calgary), PhD (Western). Interests: Philosophy of science, epistemology, feminist philosophy, and aesthetics
Scherkoske, G., BA (Hons) (Clark), MA (Simon Fraser and California), PhD (Cambridge). Interests: Moral and political philosophy, practical reasoning and history of philosophy

Assistant Professors

Boyd, K., BA (Toronto), MA (Alberta), PhD (Toronto)

Kapusta, S., MA (Western), PhD (Imperial College, UK), PhD (Frankfurt AM Main, Germany), PhD (Western)

Cross-listed Faculty

McOuat, G., BA, MA, PhD (Toronto)

Adjunct (FGS)

Barresi, J., BS (Brown), MA (Southern California), MS, PhD (Wisconsin)
Brett, N. C., BA (New Hampshire), MA, PhD (Waterloo)
Burns, S. A. M., BA (Hons) (Acadia), MA (Alberta), PhD (London)
Campbell, R. M., BA (Harvard), PhD (Cornell)
Fenton, A., BA Hons (Acadia), MA (Dalhousie), PhD (Calgary)
Gannett, L., BSc, MA, PhD (Western)
Glazebrook, P., BA (Alta), MA, PhD (Toronto)
Kernohan, A., MA (Dalhousie), PhD (Toronto)
Maitzen, S. A., BA (Northwestern), MA, PhD (Cornell)
Schellenberg, J., BA, MA (Calgary), DPhil (Oxford)
Sherwin, S. B., BA (York), PhD (Stanford) FRSC
Vinci, T., BA (Toronto), PhD (Pittsburgh)
Watkins, M., BA, MA (Tennessee), PhD (Ohio State)
Wein, S., BA Hons, MA, PhD (Waterloo)

Cross-Appointments

Baylis, F., BA (McGill), MA, PhD (Western), FRSC, cross appointment with the Faculty of Medicine. Canada Research Chair in Bioethics and Philosophy
Diamond, E., BA (Vind), MA (Dalhousie), PhD (Northwestern), cross appointment with the Department of Classics

Master of Arts (MA)

For minimum time required to complete this program, see the Faculty of Graduate Studies Regulation 1.3.1 in this calendar

One Year

For students with an Honours BA or equivalent in philosophy. Requirements include 18 credit hours (of which at least nine credit hours are Seminar Courses) and a thesis.

Two Year

For those with an honours degree in a related field. Requirements include 24 credi hours in the first year, 18 credit hours (of which at least nine credit hours are Seminar Courses) in the second year, and a thesis.

Part-Time

A part-time MA over a longer period is available for fully qualified students.

Doctor of Philosophy (PhD)

For students with an MA in philosophy.

For minimum time required to complete this program, see the Faculty of Graduate Studies regulations. Doctoral students are required to take 18 credit hours including at least four Seminars (see “Course Descriptions” below) beyond the requirements for the MA. The program includes four comprehensive examinations in the second year. Where a student’s thesis research demands it, reading knowledge will be required in one language other than English in which a significant body of philosophical

literature exists. Completion of the program requires original research on a project of substantial dimensions, culminating in the submission and oral defence of a thesis. This research should be in an area already well-established as a specialty by members of the department, such as, epistemology, ethics, bioethics, philosophy of mind, feminist philosophy, political and social philosophy, philosophy of language, or logic. Doctoral students are expected to present two papers at Departmental colloquia as part of their program of studies.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

The Philosophy Department offers three kinds of graduate courses: General, Seminar, and Directed Study. *General* courses survey a wide range of topics and are designed to acquaint students with the major theories and developments in a field. They are suitable for those who have not specialized in the field as an undergraduate. *Seminar* courses, which assume some previous exposure to the subject, are central to the graduate program. Students in the MA program must take a minimum of nine credit hours as part of their total (18 credit hours). Students in the PhD program must take at least 12 credit hours as part of their total (18 credit hours). These Seminars are designed to deepen the student's understanding of an area by focusing on a specific theme or problem. *Directed Study* courses are developed jointly by a student and the instructor in special cases to suit individual interests and needs. For example, a student with no previous training in modern symbolic logic would complete a directed study course. This may include attending a course that provides a comprehensive introduction to the subject and completing some additional work. These courses are subject to departmental approval.

NOTE: The courses listed are half-year, unless otherwise indicated, and not all are given in any one year. Instructors in seminar courses are likely to vary from year to year. Consult the department for further information.

Course Descriptions

PHIL 5051 Epistemology

CREDIT HOURS: 3
A study of fundamental issues in the theory of knowledge. The course examines skepticism, and investigates the nature of knowledge, belief, meaning, evidence, and truth. Questions are raised about perception and memory and their relation to knowledge as are questions about our knowledge of ourselves and other people.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3051.03

PHIL 5055 Topics in Epistemology

CREDIT HOURS: 3
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.
FORMAT: Seminar
CROSS-LISTING: PHIL 4055.03

PHIL 5070 Topics in Philosophical Psychology

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in the philosophy of psychology 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
CROSS-LISTING: PHIL 4070.03

PHIL 5105 Ethics

CREDIT HOURS: 3
A systematic study of the foundation of morality, including readings from central sources in both classical and contemporary moral theory.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3105.03
EXCLUSIONS: PHIL 3100.06

PHIL 5110 History of Ethics: Plato to Epicurus

CREDIT HOURS: 3
In this course we will carefully read a number of seminal works in the history of Western Moral Philosophy covering Plato, Aristotle, Stoicism and Epicureanism.
CROSS-LISTING: PHIL 3110.03

PHIL 5111 History of Ethics: Kant's Moral Theory

CREDIT HOURS: 3
In this course we will look closely at one of the most seminal thinkers in the history of Western Moral Philosophy. The course will explore Kant's own writing, some of his most important predecessors, and contemporary commentators. The course will aim to develop a plausible understanding of Kantian ethics - including both its normative and meta-ethical commitments. A primary concern will be the relevance of Kant's views for contemporary moral reflection.
CROSS-LISTING: PHIL 3115.03

PHIL 5115 Topics in Ethics I

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in ethical 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.
FORMAT: Seminar
CROSS-LISTING: PHIL 4115.03

PHIL 5120 Theory of Rational Decision

CREDIT HOURS: 3
A study of foundational problems in contemporary theory of rational decision and its philosophical applications, drawing on work by philosophers, psychologists, economists and mathematicians.
FORMAT: Seminar
CROSS-LISTING: PHIL 4120.03

PHIL 5125 Topics in Ethics II

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in ethics 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
CROSS-LISTING: PHIL 4125.03

PHIL 5140 Logic: Logical Theory I

CREDIT HOURS: 3
An introduction to metalogic, with special attention to the soundness and completeness of formal systems, and to the philosophical evaluation of non-classical logics.
FORMAT: Lecture| Discussion
PREREQUISITE: PHIL 2130.03 or equivalent
CROSS-LISTING: PHIL 3140.03

PHIL 5150 Contemporary Metaethics

CREDIT HOURS: 3
This seminar course surveys contemporary work in metaethics – the branch of moral philosophy concerned with the metaphysical, epistemological, semantic and psychological commitments of moral discourse and practice.
FORMAT: Seminar
CROSS-LISTING: PHIL 4150.03

PHIL 5165 Logic: Logical Theory II

CREDIT HOURS: 3
Devoted primarily to the study of formal semantics and its relation to symbolic language.
FORMAT: Lecture| Discussion
PREREQUISITE: PHIL 2130.03, PHIL 2140.03, PHIL 3140.03 or permission of the instructor

PHIL 5170 Contemporary Feminist Theories

CREDIT HOURS: 3
Contemporary feminism is not a single theory but comprises multiple theoretical perspectives, reflecting both a diversity in women's experience of subordination and a diversity of interests 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.
FORMAT: Lecture| Discussion
CROSS-LISTING: GWST 3500.03, PHIL 3170.03

PHIL 5190 Topics in the History of Philosophy I: Wittgenstein

CREDIT HOURS: 3
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.
FORMAT: Seminar
CROSS-LISTING: PHIL 4190.03

PHIL 5191 Topics in the History of Philosophy II

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Descartes or Spinoza) 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
CROSS-LISTING: PHIL 4191.03

PHIL 5192 Topics in the History of Philosophy III

CREDIT HOURS: 3
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.
FORMAT: Seminar
CROSS-LISTING: PHIL 4192.03

PHIL 5200 Topics in Normative Theory

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in Normative Theory (e.g. Environmental Justice, Meta-Ethics, Peace and War, Evolutionary Ethics) 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
CROSS-LISTING: PHIL 4200.03

PHIL 5211 Philosophy of Law

CREDIT HOURS: 3
Is coercion central to law? How are law and morality related? What justification can be given for punishment? What is the appropriate scope of individual liberty? These and other issues relating to the analysis and evaluation of law will be considered. The course will examine the competing claims of the Positivist, Realist, and Natural Law accounts of law before turning to some normative issues concerning the justification of legal practice.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3211.03

PHIL 5220 Contemporary Philosophical Issues

CREDIT HOURS: 3
Intensive study of a few topics which are currently being debated and may fall outside of or cut across standard classification of areas of interest. Examples are: evolution and value, philosophical accounts of "race" and culture, artificial intelligence, theories of causation, supervenience.
FORMAT: Seminar
CROSS-LISTING: PHIL 4220.03

PHIL 5300 Philosophy of Language

CREDIT HOURS: 3
How is it possible for this string of marks to ask you a question? What is it for a word to have a meaning? Is the meaning of a word an idea that you associate with it? Is it the objects n the world that it picks out? Is it an abstract "object" of some kind? What is the relationship between language and the world? Between words and sentences? Between what I mean and what I say? Between saying and acting? Between what I say and what you understand? Between meaning and linguistic use? Between meaning and behaviour? Between meaning and truth? Between the literal and the metaphorical? Is there any fact of the matter about what a linguistic expression means? Is there any such thing as linguistic meaning at all? This introduction to some major themes in the Philosophy of Language will explore answers to such questions as these, focusing on the work of such figures as Locke, Frege, Russell, Wittgenstein, Carnap, Quine, Chomsky, Austin, Langton, Saul, Searle, Hesse and Davidson.
FORMAT: Lecture| Discussion
PREREQUISITE: Two previous classes in philosophy including one logic course, half or full-year
CROSS-LISTING: PHIL 3300.03

PHIL 5420 Philosophy of Biology

CREDIT HOURS: 3
This course provides an up-to-date examination of the central issues in the philosophy of biology. Topics typically include: How far can the Darwinian paradigm be taken to explain adaptive complexity? Is the 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
CROSS-LISTING: BIOL 3580.03, PHIL 3420.03

PHIL 5445 Philosophy of Mind: The Mind-Body Problem

CREDIT HOURS: 3
This course will critically examine philosophical and scientific articles, and possibly short works of fiction, which explore various theories, problems and arguments regarding the status of minds in the physical 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 courses in philosophy
CROSS-LISTING: PHIL 3445.03
EXCLUSIONS: PHIL 5440.03

PHIL 5450 Philosophy of Emotions

CREDIT HOURS: 3
We will concentrate on the resurgence 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, Amelie Rorty and Ronald De Sousa have argued that rationality requires emotions. Other philosophers have argued that we need a renewed assessment of the epistemic importance of emotion in revealing power and value. Topics will include emotional rationality; emotion and value; first person authority; cognitive, social constructivist and psycho-evolutionary approaches; emotion and feminist epistemology; emotion, power and racial construction.
FORMAT: Lecture| Discussion
PREREQUISITE: Two previous courses in philosophy

CROSS-LISTING: PHIL 3450.03

PHIL 5470 Contemporary Liberalism and Democracy

CREDIT HOURS: 3
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.
FORMAT: Seminar
CROSS-LISTING: POLI 4479.03/5479.03, ECON 4446.03/5446.03, PHIL 4470.03

PHIL 5476 Liberalism and Global Justice

CREDIT HOURS: 3
This is a course in normative political theory. We will critically examine some recent normative political theory, and then examine the prospects and perils of attempts by recent liberal theory to articulate a principled vision of global justice. We will consider Rawls' original bounded 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 well examine specific issues of applied political justice (namely, human rights and immigration) as well as issues of economic and social justice and poverty.
FORMAT: Lecture| Discussion
PREREQUISITE: 2 courses in Philosophy or Political Science or permission of instructor
CROSS-LISTING: PHIL 3476.03, POLI 3476.03, POLI 5476.03

PHIL 5500 Topics in Feminist Philosophy

CREDIT HOURS: 3
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.
FORMAT: Seminar
CROSS-LISTING: GWST 5500.03, PHIL 4500.03

PHIL 5510 Topics in Philosophy of Language

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in the Philosophy of Language 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
CROSS-LISTING: PHIL 4510.03

PHIL 5520 Philosophy of Social Science

CREDIT HOURS: 3
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.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3520.03, POLI 3496.03

PHIL 5530 Freedom, Action, and Responsibility

CREDIT HOURS: 3
An investigation of the nature of action, seeking criteria for individuating, describing, and explaining actions. Topics may include the roles of volitions, intentions, motives, and reasons in actions; responsibility for actions and the concept of free action.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3530.03

PHIL 5630 History of Philosophy: Kant

CREDIT HOURS: 3
In this course we study Kant’s theoretical philosophy, centering on the two editions of the Critique of Pure Reason, the Prolegomena and some of the earlier writings, including the 1768 (pre-critical) writing, Regions of Space.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3630.03

PHIL 5635 History of Philosophy: 19th-Century Philosophy

CREDIT HOURS: 3
This course will study the major figures in 19th-century philosophy between Kant and Russell: Fichte, 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, Feuerbach, Darwin, Freud, Wollstonecraft, Frege). We shall trace the main lines of development in epistemology and metaphysics as well as in ethics and political philosophy.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3635.03

PHIL 5640 History of Philosophy: Twentieth-Century Philosophy

CREDIT HOURS: 3
The Twentieth Century has been a period of revolutionary change in Anglophone philosophy. This course surveys the most influential figures, including Wittgenstein, Quine, Moore and Austin.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3640.03

PHIL 5660 Postmodern Philosophy

CREDIT HOURS: 3
Modern philosophy is a philosophical perspective in which individuals and their conscious thoughts are paramount. Postmodern philosophy rejects this perspective, replacing it with one in which language and society are paramount. We shall study this perspective in the writings of post-Wittgenstein philosophers like Rorty in the English-speaking world as well as those like Derrida , Irigaray and Habermas on the Continent.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3660.03

PHIL 5670 Philosophy of Science

CREDIT HOURS: 3
This course offers an advanced survey of issues in the philosophy of science. Topics typically include: The demarcation between science and pseudo-sciences; scientific method and explanation; metaphysical assumptions of science and the role of values in scientific method and practice. Particular attention will be paid to key episodes in 20th Century philosophy of science. No scientific background is presupposed.
FORMAT: Lecture| Discussion
PREREQUISITE: At least two previous courses in philosophy, including one half-or full-year logic course such as PHIL 2660.03
CROSS-LISTING: PHIL 3670.03

PHIL 5680 Topics in the Philosophy of Science

CREDIT HOURS: 3
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
CROSS-LISTING: PHIL 4680.03

PHIL 5700 Philosophy of Race

CREDIT HOURS: 3
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 thing races are and what counts as racism.
PREREQUISITE: At least two previous credits in Philosophy or permission of instructor
CROSS-LISTING: PHIL 4700

PHIL 5801 Topics in Ethics and Health Care

CREDIT HOURS: 3
In this seminar course, students focus on a particular topic in Ethics and Health Care 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: Graduate student or permission of the instructor.
CROSS-LISTING: PHIL 4801.03, BIOT 5801.03

PHIL 5851 Metaphysics

CREDIT HOURS: 3
A study of topics such as the nature of substance and change, body and mind, cause and effect, and the concept of existence.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 3851.03

PHIL 5855 Topics in Metaphysics

CREDIT HOURS: 3
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
CROSS-LISTING: PHIL 4855.03

PHIL 9000 MA Thesis

CREDIT HOURS: 0

PHIL 9530 PhD Thesis

CREDIT HOURS: 0

Physics and Atmospheric Science

Location:
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Street Address 1:
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2337
Fax: (902) 494-5191
Website: www.physics.dal.ca
Email Address: physics@dal.ca

Introduction

The Department of Physics and Atmospheric Science offers Masters and Doctoral degree programs in physics, as well as Masters, Doctoral and Certificate programs in medical physics.

Research in physics has an interdisciplinary approach with major activities in: Atmospheric Science, Biophysics, Condensed Matter Physics, Materials Science, Surface Science, Photonics, and Computational Physics and involves collaborations with other units such as Biomedical Engineering, Chemistry, Mathematics, Medicine, and Oceanography, as well as government and industrial laboratories. Research facilities include a large array of sample preparation and analytical tools as well as extensive computational facilities.

Research avenues in medical physics include precision radiotherapy and radiosurgical techniques in the treatment of cancer patients, image guidance, and innovation in magnetic resonance and nuclear medicine imaging. Graduate students may conduct their work in state-of-the art hospital treatment and imaging facilities and within dedicated laboratories. Coursework in medical physics meet the standards defined by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP).

The most up-to-date information about our graduate programs, admission requirements, academic regulations, graduate courses and research activities is available at our website www.physics.dal.ca

Staff

Chairperson of Department

Rotermund, H. H. (902) 494-2342

Graduate Coordinator

Monchesky, T. L. (902) 494-3582 theodore.monchesky@dal.ca

Coordinator, Atmospheric Science

Martin, R. (902) 494-3915

Coordinator, Diploma in Meteorology

Folkins, I. (902) 494-1292

Coordinator, Co-op Program

Labrie, D. (902) 494-2322

Professors Emeriti

Jericho, M. H., BSc, MSc (Dalhousie), PhD (Cantab), FRSC
Kreuzer, H. J., MSc, DSc (Bonn), FRSC, A.C. Fales Professor of Theoretical Physics
Stroink, G., BSc, MSc (Delft), PhD (McGill), PEng

Professors

Dahn, J. R., BSc (Dalhousie), MSc, PhD (UBC), FRSC, NSERC/3M Canada Inc. Industrial Research Chair, Canada Research Chair in Materials for Batteries and Fuel Cells, cross appointment with Chemistry, cross appointment with Process Engineering and Applied Science
Drummond, J. R., BA, MA, PhD (Oxford), FRSC-Canada Research Chair, Remote Sounding of Atmospheres
Dunlap, R. A., BS (Worcester), AM (Dartmouth), PhD (Clark) - Research
Geldart, D. J. W., BSc (Acadia), PhD (McMaster), FRSC - Research
Hall, K. C., MSc, PhD (Toronto), Canada Research Chair in Ultra Fast Science
Hill, I. G., BSc, PhD (Queen's)
Martin, R. V., BS (Cornell), MSc (Oxford), MS, PhD (Harvard), cross appointment with Environmental Programs, Chemistry
Monchesky, T. L., BASc (Toronto), PhD (Simon Fraser)
Rotermund, H. H., PhD (Berlin), George Munro Professor of Physics
Rutenberg, A. D., BSc (Toronto), PhD (Princeton)
White, M. A., BSc (UWO), PhD (McMaster), FRSC, University Research Professor, primary appointment with Chemistry
Zwanziger, J. W., BA (Chicago), PhD (Cornell), Canada Research Chair in NMR Studies of Materials, primary appointment with Chemistry

Associate Professors

Duck, T., BSc, PhD (York)
Folkins, I., BSc (Dalhousie), MSc, PhD (Toronto)
Hewitt, K., BSc (Toronto), PhD (Simon Fraser), PPHYS
Kreplak, L., MSc (Supelec), PhD (Univ Paris XI)
Kyriakidis, J., BSc, MSc (Dalhousie), PhD (Basel)
Labrie, D., BSc (Montreal), MSc, PhD (McMaster)
Maksym, G. N., PhD (McGill), primary appointment in the School of Biomedical Engineering
Robar, J., MSc (McGill), PhD (UBC), primary appointment with Radiation Oncology

Assistant Professors

Beyea, S., PhD (UNB), National Research Council of Canada
Chang, R. Y. W., BASc, MASc, PhD (Toronto)
Lesins, G. B., PhD (Toronto)
Wells, S. M., BSc (Western), PhD (Toronto), joint appointment with Biomedical Engineering

Instructor

Payne, S. H., BSc, PhD (Canterbury)

Adjunct (FGS)

Azzouz, M., PhD (J. F., France), Physics and Astronomy, Laurentian University
Bennett, C., PhD (Waterloo), Physics, Acadia University
Bonev, S. A., MSc (Dalhousie), PhD (Cornell)
Bowen, C., PhD (UWO) Institute for Biodiagnostics, NRC
Grabtschak, S., PhD (UPEI)
Hornridge, D., PhD (Saskatchewan), Physics, Mount Allison University
Kanungo, R., PhD (Calcutta Univ), Astronomy and Physics, Saint Mary's University
Pierce, J., BS (Northeastern), PhD (Carnegie Mellon)
Ritchie, H. C., MSc, PhD (McGill), Meteorological Service of Canada-Atlantic
Robertson, M., PhD (Waterloo), Physics, Acadia University
Sarty, A., PhD (Saskatchewan), Astronomy and Physics, Saint Mary's University

Postdoctoral Fellows/Research Associates

Croft, B., PhD (Dalhousie)
Geddes, J. (Toronto)
Hall, D., PhD (Ottawa)
Ma, X., PhD (Florida State)
Sanderson, R., PhD (Dalhousie)
Snider, G., PhD (McGill)
Stevens, D., PhD (Dalhousie)
Tikhomirov, A., D.Sci. (Institute of Atmospheric Optics, St. Petersburg)
Tsehtik, Y., MSc (Mozhaisky Military Space Engineering University)
Van Donkelaar, A., PhD (Dalhousie)
Xia, J., PhD (Sun Yat-sen)

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. An MSc is the normal admission requirement for the PhD program. It is recommended that all international students provide the Department with an official copy of the Advanced Graduate Record Examination in Physics. In some cases this will be made a precondition to consideration of the student's application for admission.

Master of Science (MSc)

For minimum time required to complete this program, see the Faculty of Graduate Studies Regulation 1.3.1.

At least 12 credit hours are normally required.

Research, preparation, and oral defense of a thesis are required.

Doctor of Philosophy (PhD)

For minimum time required to complete this program, see the Faculty of Graduate Studies regulations.

At least nine credit hours are normally required and additional courses may be specified by supervisory committees.

A preliminary oral examination must be completed successfully.

Research and the preparation and oral defense of a thesis are required.

The PhD degree will be granted primarily on the basis of the candidate’s ability to carry through original investigation. Part of the evidence of this will be acceptance of scientific material for publication in refereed journals and the preparation of a satisfactory thesis.

Medical Physics

The Medical Physics MSc and PhD programs in the Department of Physics and Atmospheric Science aim to provide complete didactic education in medical physics with a strong focus on research. Graduates will be prepared to enter clinical residency training programs in medical physics or to pursue research and academic careers in the field. The specific objectives of the MSc and PhD programs in Medical Physics are:

1. Through comprehensive coursework, to provide broad-based educational foundations in physics as applied to medicine that meet or exceed standards set by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP, www.campep.org). This training will prepare graduates for subsequent career development in clinical medical physics or related research.
2. To provide rich and in-depth experiences conducting innovative research and development, ultimately preparing students to become independent and motivated researchers. The academic plan allows for focus on thesis research following coursework. Thesis research provides the skills, knowledge and capacity for independent thought required to pursue further research, but also transferrable, analytic approaches to solving problems.
3. To provide a clear understanding of the possible career options as well as corresponding requirements, knowledge of professional aspects of medical physics, ethics and effective interpersonal communication.
4. To allow graduates to be highly competitive for entry into clinical residency training programs in Medical Physics. While the approach is to defer clinical training to the Residency stage, students have options of pursuing research that is immediately translatable and highly relevant to clinical service.

Certificate Program in Medical Physics

The Certificate program in Medical Physics is designed to provide one year of didactic coursework to candidates who hold a PhD in physics, in an area other than medical physics. The curriculum addresses CAMPEP standards.

Description of Facilities

In completing their thesis research, graduate students in Medical Physics access advanced platforms for medical imaging, delivery of radiation therapy and radiosurgery, and associated clinical and experimental apparata. Resources at Capital Health include seven state-of-the-art clinical linear accelerators, image-guidance and robotics systems, brachytherapy afterloaders, grid computing resources, various radiation detectors as well as CT, PET/CT, and MRI imaging systems.

Admission Requirements

For the MSc degree in Medical Physics the requirements are:

1. Completion of a four-year Bachelor degree (for MSc) in Physics or Engineering Physics granted by a university in recognized standing;
2. A minimum cGPA of 3.0; and
3. Where required, English proficiency as evidenced by internet-based TOEFL score of 92, written TOEFL score of 580 or IELTS score of 7.0.

For the PhD degree in Medical Physics the requirements are:

1. Completion of a first class thesis-based Masters degree or equivalent (for PhD) in physics or medical physics granted by a university in recognized standing;
2. A minimum cGPA of 3.0; and
3. Where required, English proficiency as evidenced by internet-based TOEFL score of 92, written TOEFL score of 580 or IELTS score of 7.0.

For the Certificate program in Medical Physics the requirements are:

1. Completion of a PhD in physics granted by a university in recognized standing. Normally the specialization of the PhD will be in a branch of physics other than medical physics.

Requirements

Degree requirements

The MSc program is a 2-year program. Graduation requirements are:

1. Completion of core medical physics graduate courses:
   PHYC 6400: Medical Imaging Physics (Part I)
   PHYC 6410: Medical Imaging Physics (Part II)
   PHYC 6421: Radiological Physics
   PHYC 6423: Radiation Therapy Physics
   PHYC 6424: Special Topics in Medical Physics
   PHYC 6430: Radiation Biology
   PHYC 6431: Radiation Safety and Protection in Medicine
   PHYC 6450: Computational Methods in Medical Physics
2. Completion of research-based MSc thesis (PHYC 9000); and
3. Successful thesis defense.

The PhD program is nominally a 4-year program. Graduation requirements are:

1. Completion of core medical physics graduate courses:
   PHYC 6400: Medical Imaging Physics (Part I)
   PHYC 6410: Medical Imaging Physics (Part II)
   PHYC 6421: Radiological Physics
   PHYC 6423: Radiation Therapy Physics
   PHYC 6424: Special Topics in Medical Physics
   PHYC 6430: Radiation Biology
   PHYC 6431: Radiation Safety and Protection in Medicine
   PHYC 6450: Computational Methods in Medical Physics
2. Completion of PHYC 9520: Preliminary Doctoral Examination;
3. Completion of research-based PhD thesis (PHYC 9530); and
4. Successful thesis defense.

Certificate requirements

The Certificate program is a 1-year program. Graduation requirements are:

1. Completion of core medical physics graduate courses:
   PHYC 6400: Medical Imaging Physics (Part I)
   PHYC 6410: Medical Imaging Physics (Part II)
   PHYC 6421: Radiological Physics
   PHYC 6423: Radiation Therapy Physics
   PHYC 6424: Special Topics in Medical Physics
   PHYC 6430: Radiation Biology
   PHYC 6431: Radiation Safety and Protection in Medicine
   PHYC 6450: Computational Methods in Medical Physics

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

5000-level courses are fourth-year undergraduate courses which may be taken for graduate credit in certain circumstances. They are normally taken by new graduate students having background deficiencies in specific areas. 6000-level courses are full graduate courses.

All graduate students are required to attend and participate in regular departmental seminars.

A selection of the following graduate courses will be offered subject to demand.

Course Descriptions

PHYC 5100 Electromagnetism

CREDIT HOURS: 3
Topics will normally include electrostatics and magnetostatics, boundary value problems, fields in matter, time-dependent phenomena. Maxwell's equations, electromagnetic waves, radiation.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 2510.03, 4160.03; MATH 3110.03/3120.03; or the permission of the instructor

PHYC 5151 Quantum Physics II

CREDIT HOURS: 3
This course is a continuation of PHYC 3640.03. Topics include: time-independent perturbation theory, the variational principle, the WKB approximation, time-dependent perturbation theory, scattering, Born approximation.
PREREQUISITE: PHYC 3640.03

PHYC 5152 Quantum Physics III

CREDIT HOURS: 3
Topics covered can include scattering theory, symmetries, relativistic quantum mechanics, second quantization, many-body systems and quantum applications in materials science.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 5151.03

PHYC 5160 Mathematical Methods of Physics

CREDIT HOURS: 3
Topics discussed include: complex variable theory, Fourier and Laplace transform techniques, special functions, partial differential equations.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

PREREQUISITE: PHYC 2140.03, MATH 3120.03 or permission of the instructor

PHYC 5170 Topics in Mathematical Physics

CREDIT HOURS: 3
This course is a continuation of PHYC 5160.03 and deals with special topics in mathematical physics selected from areas such as the Green's function technique for solving ordinary and partial differential equations, scattering theory and phase shift analysis, diffraction theory, group theory, tensor analysis, and general relativity.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 5160.03, or permission of the instructor

PHYC 5180 Nuclear and Particle Physics

CREDIT HOURS: 3
This is an introductory course in nuclear physics. Topics discussed include: nucleon-nucleon interactions, nuclear structure, gamma transitions, alpha decay, beta decay, nuclear reactions and elementary particle physics.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 3640.03 or permission of the instructor

PHYC 5220 Microcomputer Based Instrumentation

CREDIT HOURS: 3
Subject material: instrument design, analog to digital and digital to analog techniques, custom interfacing to sensors, algorithms, parallel and serial output data links, software testing and debugging, hardware testing and debugging, research project.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 3810.03 or permission of the instructor

PHYC 5230 Introduction to Solid State Physics

CREDIT HOURS: 3
An introduction to the basic concepts of solid state physics which are related to the periodic nature of the crystalline lattice. Topics include crystal structure, X-ray diffraction, phonons and lattice vibrations, the free electron theory of metals, and energy bands.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 3640.03, PHYC 3210.03, or permission of the instructor

PHYC 5311 Fluid Dynamics

CREDIT HOURS: 3
An introduction to the theory of fluid dynamics with some emphasis on geophysically important aspects. Topics include kinematics, equations of motion, viscous flow, potential flow and basic aerodynamics.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: Permission of the instructor
CROSS-LISTING: OCEA 5311.03

PHYC 5330 Crystallography and Physical Properties

CREDIT HOURS: 3
The course covers an introduction to space groups, single crystal diffraction, powder x-ray and neutron diffraction as well as Rietveld profile refinement methods. The impact of structure on physical properties of solids will be examined. There will be hands-on experimental activities in addition to lectures.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 3140.03 or permission of the instructor

PHYC 5411 Atmospheric Dynamics I

CREDIT HOURS: 3
The basic laws of fluid dynamics are applied to studies of atmospheric motion, including the atmospheric boundary layer and synoptic scale weather disturbances (the familiar highs and lows on weather maps). Emphasis will be placed on the blend of mathematical theory and physical reasoning which leads to the best understanding of the dominant physical mechanisms.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: Permission of the instructor
CROSS-LISTING: OCEA 5411.03

PHYC 5412 Atmospheric Dynamics II

CREDIT HOURS: 3
The approach is the same as for PHYC 5411.03, with emphasis on synoptic-scale wave phenomena, frontal motions, and the global circulation. Additional topics including tropical meteorology, middle atmospheric dynamics, severe storms, mesoscale meteorology and numerical weather prediction may be included.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 5411.03, or permission of the instructor
CROSS-LISTING: OCEA 5412.03

PHYC 5460 Advanced Optics

CREDIT HOURS: 3
This course covers a selection of topics in advanced optics, that may include: a quantum treatment of light-matter interactions, strong field effects, quantum optics,

nonlinear optics, optical resonators, laser physics, laser dynamics, and photonic devices.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: PHYC 4460.03

PHYC 5505 Atmospheric Physics

CREDIT HOURS: 3
Moist thermodynamics is applied to a variety of atmospheric phenomenon. These include aerosols, cloud droplets, precipitation formation, convection, supercells, hurricanes, lightning, and the boundary layer. We also discuss the radar equation and the interpretation of radar images.
FORMAT: Lecture
PREREQUISITE: PHYC 5520 or permission of the instructor
CROSS-LISTING: OCEA 5505.03, PHYC 4505.03, OCEA 4505.03

PHYC 5520 Introduction to Atmospheric Science

CREDIT HOURS: 3
This general overview of the atmosphere provides the student with an understanding of the composition and thermal structure of the atmosphere, air mass 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.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: At least one 3rd year physics course or permission of the instructor
CROSS-LISTING: OCEA 5520.03

PHYC 5540 Synoptic Meteorology I

CREDIT HOURS: 3
This course introduces the practical skills of meteorological observation and analysis. Emphasis is on developing skills in drawing and interpreting weather maps, and on studying the three-dimensional structure of weather systems. Satellite and radar remote sensing of the atmosphere is also introduced. Case studies of atmospheric systems and processes are carried out during the tutorial-laboratory period.
FORMAT: Lecture| Lab| Tutorial
LECTURE HOURS PER WEEK: 2
PREREQUISITE: At least 1 third-year physics course
CROSS-LISTING: OCEA 5541.03, PHYC 4540.03

PHYC 5550 Synoptic Meteorology II

CREDIT HOURS: 3
This course extends the analysis and diagnosis of atmospheric dynamics and weather processes introduced in PHYC 4540.03. Emphasis is on the practical application of meteorological theory, particularly in the area of diagnosing the cases of weather events. Modern computer and statistical methods are discussed, and students receive an introduction to weather forecasting.
FORMAT: Lecture| Lab| Tutorial
LECTURE HOURS PER WEEK: 2
PREREQUISITE: PHYC 5540.03
CROSS-LISTING: OCEA 5550.03, PHYC 4550.03

PHYC 5555 Advances in Solar, Thermoelectric and Energy Harvesting Materials

CREDIT HOURS: 3
Materials and technologies for sustainable energy production and storage will be introduced. Topics include state-of-the art and emerging photovoltiac solar cells, materials and applications of thermoelectric materials, heat storage in phase change materials and materials and systems for energy harvesting.
PREREQUISITE: CHEM 3303 or CHEM 3305 or CHEM 5303 or PHYC 4230 or MATL 3500 or permission of the instructor

PHYC 5570 Light Scattering, Radiative Transfer, and Remote Sensing

CREDIT HOURS: 3
The equations of radiative transfer are developed and applied to the interaction of solar and terrestrial radiation with molecules, aerosols, and clouds in the atmosphere. Emphasized topics include satellite remote sensing, scattering and absorption, and the Earth radiation budget.
CROSS-LISTING: OCEA 5570.03

PHYC 5595 Atmospheric Chemistry

CREDIT HOURS: 3
A fundamental introduction to the physical and chemical processes determining the composition of the atmosphere and its implications for climate, ecosystems, and human welfare. Origin of the atmosphere.Nitrogen, oxygen, carbon, sulfur cycles. Climate and the greenhouse effect. Atmospheric transport and turbulence. Stratospheric ozone. Oxidizing power of the atmosphere. Regional air pollution: aerosols, smog, acid rain.
FORMAT: Lecture
CROSS-LISTING: OCEA 5595.03, PHYC 4595.03, OCEA 4595.03

PHYC 5650 General Relativity

CREDIT HOURS: 3
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 Schwarzchild Solution, gravitational collapse, black holes, and cosmology.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: MATH 3050.06 or permission of the instructor
CROSS-LISTING: MATH 5650.03

PHYC 5660 Cosmology

CREDIT HOURS: 3
A self-contained introduction to cosmology will be given and no prior knowledge of differential geometry of general relativity will be assumed (although some knowledge or 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
LECTURE HOURS PER WEEK: 3
PREREQUISITE: Permission of the instructor
CROSS-LISTING: MATH 5410.03

PHYC 6121 Quantum Theory

CREDIT HOURS: 3
Selected topics in quantum mechanics: field theoretic and computational techniques.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 4151.03 and 4152.03, or permission of the instructor

PHYC 6201 Solid State Physics

CREDIT HOURS: 3
Topics covered include crystal structures, reciprocal lattices, space groups, x-ray scattering, Debye scattering formalism, lattice vibrations, phonon dispersion, specific heat of solids, electronic structure, free electron model and nearly-free electron model.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 4151.03 and 4230.03, or permission of the instructor

PHYC 6202 Solid State Physics II

CREDIT HOURS: 3
This course is a continuation of PHYC 6201.03 and covers the physical properties of solids at a more advanced level.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 6202.03

PHYC 6225 Topics in Condensed Matter Physics

CREDIT HOURS: 1.5
This course explores current research topics in condensed matter research. Topics vary according to student interests and the current literature, but could include graphene, topological insulators, organic electronics, dilute magnetic semiconductors and new-high Tc superconductors.
FORMAT: Lecture
PREREQUISITE: PHYC 5230 or permission of the instructor

PHYC 6230 Nanophotonics: Principles and Applications

CREDIT HOURS: 3
Introduction to a multidisciplinary field covering the following topics: near-field interactions and microscopy, quantum-confined materials, plasmonics, photonic crystals, nanoparticles, nanofabrication and characterization, applications of nanophotonics, sensors, nano-biophotonics, nanoparticles in light-activated therapy and optical imaging modalities.
FORMAT: Lecture
PREREQUISITE: Ant of the following: PHYC 3540, ECED 3300, ECED 4421, MICI/BIOL 3024, or permission of the instructor

PHYC 6250 Experimental Techniques in Material Science

CREDIT HOURS: 3
An introduction to six experimental techniques used in materials science will be given. Examples of techniques that may be covered include x-ray diffraction, x-ray photoelectron spectroscopy, Raman spectroscopy, Mössbauer spectroscopy, neutron diffraction, nuclear magnetic resonance.
FORMAT: Lecture
PREREQUISITE: PHYC 3640.03, 3210.03, 4230.03, or permission of the instructor

PHYC 6261 Statistical Mechanics I

CREDIT HOURS: 3
Statistical mechanics describes the equilibrium properties of systems. Really it is about how to model properties of soft-systems in the face of fluctuations. We will start with a review of the basic formalism, then discuss mean-field theories, critical phenomenon, diffusion, and stochastic models. Depending on interest and time, we may also discuss opological defects, non-equilibrium phenomenon, and computational techniques. Physical examples and simple models will be discussed throughout the course.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 3210.03 and 4151.03, or permission of the instructor

PHYC 6301 Electrodynamics I

CREDIT HOURS: 3
Topics will normally include: boundary-value methods for problems in electrostatics and magnetostatics, multipolar expansions for the electrostatic and magnetostatic fields, Maxwell equations, plane electromagnetic waves and wave propagation in a variety of media, reflection and transmission of electromagnetic waves at an interface, simple radiating systems, elementary Mie scattering theory.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: PHYC 4110.03, or permission of the instructor

PHYC 6400 Med. Img. Physics (Part I)

CREDIT HOURS: 3
This course is the first of a two-part Medical Imaging Physics course. In this course students become familiar with the fundamental science of medical imaging systems. Topics covered include linear systems, signal and noise transfer theories, medical imaging processing, and the physics and instrumentation of nuclear medicine imaging.
FORMAT: Lecture
COREQUISITE: PHYC 6421.03 or MEDP 6421.03
CROSS-LISTING: MEDP 6400.03

PHYC 6401 Fundamentals on Nonlinear Optics

CREDIT HOURS: 3
Introduction covering the following topics: nonlinear refractive index, nonlinear wave equations, some indifference frequency generation, second harmonic generation, optical solitons and their propagation in nonlinear fibres, resonant matter interaction, self-induced transparency, electromagnetically induced transparency, quantum theory of nonlinear optical susceptibility.
PREREQUISITE: ECED 3300 and ECED 4502 or equivalent; ENGM 2062 recommended; or instructor approval
CROSS-LISTING: ECED 6400.03

PHYC 6410 Medical Imaging Physics (Part II)

CREDIT HOURS: 3
This course is the second of a two-part Medical Imaging Physics course covering the underlying physics of x-ray production and imaging, mammography, computed tomography, and ultrasound. MRI is covered in detail, including physical mechanisms, methods of encoding, pulse sequences, artefacts, functional imaging, parallel acquisition, and compressed sensing.
PREREQUISITE: PHYC 6400.03
CROSS-LISTING: MEDP 6410.03
RESTRICTIONS: Graduate students

PHYC 6421 Radiological Physics

CREDIT HOURS: 3
The material in this course is designed to teach a graduate in physics (or engineering, with strong physics and math) the basics of radiological physics and dosimetry. Quantities and units are introduced early so that radioactive decay and radiation interactions can then be discussed, with emphasis on energy transfer and dose deposition. Exponential attenuation under both narrow and broad-beam conditions must be understood before a student can go on a shielding design in a health physics course.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: MEDP 6421.03

PHYC 6423 Radiation Therapy Physics

CREDIT HOURS: 4
The course covers ionizing radiation generation and use in radiation therapy to cause controlled biological effects in cancer patients. Topics include external beam radiation therapy, brachytherapy, treatment planning, radiation therapy devices, special techniques in radiotherapy, radiation therapy with neutrons, protons, and heavy ions.
FORMAT: Lecture
PREREQUISITE: PHYC 6421.03 or MEDP 6421.03
CROSS-LISTING: MEDP 6423.04

PHYC 6424 Special Topics in Medical Physics

CREDIT HOURS: 3
This course covers topics in Medical Physics that are not covered in other courses, including: orientation and introduction to the hospital environment; electrical, chemical, biological, and radiation safety; introduction to medical linear accelerators; professional ethics; conflict of interest; scientific misconduct; clinical research; anatomy and physiology; statistics; and scientific communications.
FORMAT: Lecture| Seminar
CROSS-LISTING: MEDP 6424.03

PHYC 6430 Radiation Biology

CREDIT HOURS: 3
Radiobiology topics include: basic physical and chemical mechanisms, cellular radiation biology, mechanisms of cancer induction, the effects of radiation on normal tissues and malignant cells, and competing treatment modalities. Radiation protection and health physics topics include: risk versus benefit, radiation shielding properties and design, and radiation monitoring of personnel.
FORMAT: Lecture
PREREQUISITE: Permission of instructor
CROSS-LISTING: MEDP 6430.03

PHYC 6431 Radiation Safety and Protection in Medicine

CREDIT HOURS: 3
This course is concerned with the hazards of ionizing and non-ionizing radiations and with safe handling and use of radiation sources. Covered are: basic principles; safety codes; laws and regulations; organization; shielding design; and practical safety measures and procedures.
FORMAT: Lecture
PREREQUISITE: (PHYC 6421.03 or MEDP 6421.03) and (PHYC 6430.03 or MEDP 6430.03)
CROSS-LISTING: MEDP 6431.03

PHYC 6440 Magnetic Resonance Imaging (MRI) Physics

CREDIT HOURS: 3
The physics principles involved with Magnetic Resonance Imaging (MRI) will be introduced. Topics such as elementary NMR signal formation and detection, nuclear interactions that produce image contrast/artifacts, introductory spin manipulation, MRI hardware, and advanced techniques in signal excitation, manipulation and

reception will be discussed.
FORMAT: Lecture
PREREQUISITE: Permission of instructor

PHYC 6450 Computational Methods in Medical Physics

CREDIT HOURS: 3
This course offers an introduction to established and emerging computational methods in radiation therapy physics, with emphasis on modeling of radiation dose deposition. Topics include empirical, analytic and Monte Carlo methods for dose calculation, as well as image co-registration and treatment planning. Weekly lecture are followed by practical laboratory assignments.
FORMAT: Lecture| Lab
PREREQUISITE: Permission of instructor
CROSS-LISTING: MEDP 6450.03
ASSESSMENT METHOD: Assignments (100%)

PHYC 6576 Topics in Atmospheric Physics

CREDIT HOURS: 3
This course will focus on current research topics in atmospheric science. Fundamental theories of atmospheric science will be applied to selected topics.
FORMAT: Seminar| Discussion
PREREQUISITE: Permission of Instructor

PHYC 6580 Cloud Physics

CREDIT HOURS: 3
A detailed examination of the behaviour of condensed water in the atmosphere. Topics include nucleation, hydrodynamics of cloud and precipitation particles, ice physics, mechanisms of precipitation formation, electrical and radiative properties. Cloud dynamics will include effects of latent heating feedback, thunderstorm structure, precipitation efficiency, mixed-phased storms and cloud models.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: Permission of the instructor
CROSS-LISTING: OCEA 5580.03

PHYC 6585 Advanced Remote Sensing

CREDIT HOURS: 3
Topics involving the remote sensing of the atmosphere and surface using space and ground-based instrumentation and radiative transfer theory will be covered.
FORMAT: Lecture
PREREQUISITE: Permission of Instructor

PHYC 6600X/Y Topics in Physics

CREDIT HOURS: 3
Topics selected will depend on the current interests of the instructor and the students.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 2
PREREQUISITE: Permission of the instructor

PHYC 6601 Topics in Physics

CREDIT HOURS: 3
Topics selected will depend on the current interests of the instructor and the students.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 2
PREREQUISITE: Permission of the instructor

PHYC 6602 Topics in Physics

CREDIT HOURS: 3
Topics selected will depend on the current interests of the instructor and the students.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 2
PREREQUISITE: Permission of the instructor

PHYC 9000 MSc Thesis

CREDIT HOURS: 0

PHYC 9520 Prelim Doctoral Exam

CREDIT HOURS: 0

PHYC 9530 PhD Thesis

CREDIT HOURS: 0

Physiology and Biophysics

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Staff

Head of Department

Morgunov, N.

Graduate Coordinator

Rose, R. A.

Professors

Barnes, S. A., PhD (Berkeley). Retinal neurobiology; ion channel function in synaptic communication; novel neuromodulators and neural messengers
Brown, R. E., BSc (Victoria), MA, PhD (Dalhousie), major appointment in Department of Psychology and Neuroscience. Olfaction; hormones, parental behaviours; learning and memory; developmental psychobiology; psychopharmacology
Chauhan, B., PhD (Wales), major appointment Department of Ophthalmology and Visual Sciences. Experimental models of optic nerve and retinal damage, visual function in health and disease, structural and functional assessment of glaucoma, risk factors for the progression of glaucoma
Cowley, E. A., BSc (London), PhD (Leicester). Oxidative stress in lung disease. Role of K^+ channels in transeptithelial secretion
Croll, R. P., BSc (Tufts), PhD (McGill). Physiology and functional anatomy of invertebrate nervous systems; analyses of motor program generation; regeneration, development, and evolution of identified neurons
Fine, A., AB (Harvard), VMD, PhD (Penn). Neural plasticity; learning and memory, development and regeneration; optical monitoring of neural activity and plasticity; neural transplantation
French, A. S., MSc, PhD (Essex). Sensory transduction and adaptation; epithelial ion transport; ion channel biophysics
Lehmann, C., MD, PhD (Humboldt-Univ, Germany), FRCDC (Dalhousie), major appointment with Department of Anesthesia, Pain Management and Perioperative Medicine
Linsdell, P., BSc (London), PhD (Leicester). Ion channel biophysics; chloride channel structure and function; epithelial transport; cystic fibrosis
Meinertzhagen, I. A., BSc (Aberdeen), PhD (St. Andrews), major appointment in Department of Psychology and Neuroscience. Neurobiology of simple nervous systems, particularly the visual system in Drosophila: neural development and plasticity
Murphy, P. R., MSc, PhD (Dalhousie), FGF. Growth factors; gliomas; lymphomas; gene therapy; antisense
Torkkeli, P. H., BSc, MSc, LcSc (Oulu), PhD (Alta). Mechanosensitive, voltage- and ligand-gated ion channels in mechanosensory neurons, central control of mechanosensation
Wang, J., BS (Nanjing Medical College), MA (Nanjing Railway Medical College), MA, PhD (SUNY), major appointment in School of Human Communication Disorders. Central auditory and cochlear physiology/pathology

Associate Professors

Anini, Y., PhD (Paris, France), Prohormones processing. Role of new enteric peptides and adipokines in the regulation of pancreatic secretions and adipogenesis. Hormonal regulation of energy homeostasis. Type 2 diabetes. Obesity
Chappe, V., MSc, PhD (Marseille, France). Structure, function, recycling and regulation of the CFTR chloride channel; Cystic Fibrosis causing mutations; second messengers; protein kinases; protein interactions; receptors and signalling pathways
Dong, X., PhD (Univ Sci Tech, China). Ion channel biophysics; lysosomal ion channels in endocytosis, phagocytosis, autophagy, calcium signaling, and iron homeostasis; lysosomal ion channels in lysosomal storage diseases, neurodegenerative diseases, and ischemia/stroke
Krueger, S., PhD (Zurich). Synaptic physiology; development and plasticity of synapses in the central nervous system; regulation of neurotransmitter release
Rose, R. A., PhD (Calgary). Cardiac electrophysiology; cardiac arrhythmias; ion channel function in isolated heart cells; pacemaker and cardiac conduction system
Tremblay, F., BSc, PhD (Montréal), major appointment, Department of Ophthalmology and Visual Sciences. Neurobiology of vertebrate retina, neuroprotection

Assistant Professor

Quinn, T. A., PhD (Columbia, New York). Cardiac mechanics, electrophysiology, and mechano electric, coupling; cardiac arrhythmogenesis and disease; optimisation of device-based therapies; *in vivo* and isolated heart/tissue/cell structure-function studies; computational modelling

Adjunct (FGS)

Baratte, J., MSc, PhD (Univ Pierre et Marie Curie, Paris)

Information on research interests in the Department and openings for graduate and post-PhD or post-MD study should be requested from the Graduate Coordinator of the Department.

Admission Requirements

General requirements for admission to the Faculty of Graduate Studies are given in the Faculty Regulations section of this calendar. A paper-based TOEFL score of at least 600 (computer-based TOEFL score of at least 250) is required of applicants whose native language is not English (see Faculty of Graduate Studies regulations). We also accept IELTS Academic score of 7.5.

General Regulations

The Department accepts applicants with degrees in physiology, biology, (bio)physics, chemistry and related biomedical sciences. Applicants with an average GPA of ≥ 3.7 over the last two years of their undergraduate program or over their entire undergraduate career will be considered for admission. Applicants with a GPA <3.7 may be considered in some circumstances. Entering graduate students are expected to acquire a firm understanding of the basic principles of physiology at the systems, cellular and molecular levels that will provide a solid foundation for career development. Students who have not completed advanced undergraduate or graduate level courses in these subjects may be required to take appropriate courses from the listings below or from the graduate listings of other Departments. Advanced knowledge within a specialty is developed by formal courses and/or guided study via directed reading courses arranged for each student through consultation with a supervisory committee. Thesis supervisory committees consisting of the research supervisor and at least two members of the Faculty of Graduate Studies knowledgeable in the field are appointed to guide course selection and to oversee the research of graduate candidates. MSc students may elect to transfer to the PhD program after completion of the first year of study, pending approval of the supervisory committee. Entering PhD candidates must have demonstrated the ability to carry out research of high quality. A Comprehensive Examination in areas relevant to the general field of the thesis research (see Faculty of Graduate Studies regulations and below) is required in the PhD program. All graduate students participate in the Physiology seminar series (PHYL 5517.03). There may also be opportunities to give lectures and to supervise laboratory components of non-medical undergraduate courses.

Master of Science (MSc)

For the minimum time required to complete this program, see the Faculty of Graduate Studies regulations. However, students should expect to spend two years working towards the MSc Degree.

Students must complete enough graduate level courses to equal a total of nine credit hours plus a research thesis. A thesis, reporting original research must be submitted and defended orally. A detailed description of examination procedures and possible outcomes is available from the Faculty of Graduate Studies.

Physiology - PHYL 5517.03: Physiology and Biophysics Graduate Seminar is a mandatory component of the MSc program.

Doctor of Philosophy (PhD)

For the minimum time required to complete this program, see the Faculty of Graduate Studies regulations. Students should expect to spend a minimum of four years working towards the PhD degree.

A comprehensive examination in subjects relevant to the general field of research is required. The comprehensive examination consists of (1) a written paper, (2) an oral synopsis of the paper, and (3) oral examination of the student on matters related to the topic of the paper. The comprehensive examination must be completed within two years of entering the PhD program. Students must satisfy the examining committee in all three areas in order to pass the examination. The topic cannot be changed without full agreement of both committees.

A thesis, reporting original research must be submitted and defended orally. The PhD thesis examination will follow the rules and regulations of the Faculty of Graduate Studies.

Physiology - PHYL 5517.03: Physiology and Biophysics Graduate Seminar is a mandatory component of the PhD program.

Teaching Requirements

Teaching undergraduate physiology, in laboratories, tutorials, or reviews is considered an important part of graduate training. Students may have the opportunity to perform a minimum amount of undergraduate teaching, regardless of the source of their financial support.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Most courses normally require a minimum enrolment of four students. If less students are interested, it is left to the discretion of the instructor to offer the course in a different format or not offer the course for that year.

Course Descriptions NESC

NESC 6100 Principles of Neuroscience

CREDIT HOURS: 6
The first term will focus on cellular and molecular neurobiology and will cover topics such as membrane potentials, synaptic transmission, second messengers, trophic factors, cell differentiation and neurodegeneration. The second term will focus on systems and behavioural neurobiology and will cover topics such as visual and somatosensory systems, motor program generation, autonomic and neuroendocrine functions, motivation, learning, circadian rhythms and sleep/wake cycles and cognitive neuroscience. Evaluation will be based on quizzes, several oral presentations prepared throughout the year, and grant proposals.

NESC 6101 Principles of Neuroscience: Cellular and Molecular Neuroscience

CREDIT HOURS: 3
Neuroscience 6101.03 and 6102.03 are Neuroscience 6100X/Y.06 divided into terms A and B for suitable incorporation into non-Neuroscience programs. Please see course description of NESC 6100X/Y.06.

NESC 6102 Principles of Neuroscience: Systems and Behavioral Neuroscience

CREDIT HOURS: 3
Neuroscience 6101.03 and 6102.03 are Neuroscience 6100X/Y.06 divided into terms A and B for suitable incorporation into non-Neuroscience programs. Please see course description of NESC 6100X/Y.06.

Course Descriptions PHYL

PHYL 5504 Advanced Topics in Respiration

CREDIT HOURS: 3
This course is directed to students interested in increasing their understanding of aspects of pulmonary biology and pathologies. Examples of typical topics which will be examined in depth include epithelial transport, airway smooth muscle, pulmonary function testing, gas exchange, and the effects of exercise on the respiratory system.
FORMAT: Lecture| Tutorial
PREREQUISITE: PHYS 2032.03 or PHYS 2044.03 or equivalent plus permission of the course coordinator

PHYL 5508X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 3
These courses allow the Department to provide a more specialized instruction on specific topics to graduate students with particular interests. Class format is variable and may include seminars, lectures, literature searching, evaluation of papers, etc. There is usually a high degree of one-on-one interaction. The courses are organized on a year-to-year basis in accordance with student interest and faculty expertise. Since different subjects may be covered each year, each course in the series has a separate number.
NOTE: Course Details listed here also apply to PHYL 5509/PHYL 5510.
PREREQUISITE: Permission of the Director

PHYL 5509X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 3
See PHYL 5508.

PHYL 5510X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 3
See PHYL 5508.

PHYL 5513 Endocrine Physiology

CREDIT HOURS: 3
Offered every second year, or on demand.This course provides an in-depth survey of Endocrinology with emphasis on recent developments. This course focuses on modern technologies involved in the study of the physiology and molecular endocrinology of a number of hormonally-regulated systems. The overall objective of the course is to become familiar with a diverse selection of topics in hormone signaling. Topics include: mechanisms of hormone and neuro-peptides synthesis, secretion and action; signal transduction and transcriptional regulation. Seminars will deal with fundamental as well as advanced aspects of these topics derived from reading very recent review articles and research papers. Endocrine disorders will be addressed throughout the course. Students will be expected to make presentations based upon appropriate literature listed by the teaching faculty.DIRECTOR(S): Y. Anini
PREREQUISITE: PHYS 3520.03 completed or concomitant, or equivalent, or permission of director

PHYL 5517X/Y Physiology and Biophysics Graduate Seminar

CREDIT HOURS: 3
A mandatory course that all graduate students must complete in order to graduate. Satisfactory performance in the course components is required throughout the degree programs in order for the student to be permitted to register for the course in their final year. The main objectives of the course are to assimilate and evaluate scientific information presented by others. There may also be opportunities to give lectures to non-medical undergraduate students and to supervise the laboratory components of non-medical undergraduate courses as Teaching Assistants.There are five components to the course:1. The Physiology and Biophysics Departmental Seminar Series. There are several seminars per year and attendance is mandatory for all graduate students. Students are often given the opportunity to meet informally with guest speakers. Graduate students are also expected to attend relevant seminars in other Faculty of Medicine and University Departments.2. Graduate Student Research Day of the Department of Physiology and Biophysics. Students must present their work, either orally or in poster format at the Annual Graduate Student Research Day.3. Graduate Student Research Day of the Faculty of Medicine. MSc students are required to present a poster at the annual Graduate Student Research Day of the Faculty of Medicine in their second year of study (and annually thereafter for as long as they are in the program). PhD students must participate in the Graduate Student Research Day of the Faculty of Medicine in their second year of study and yearly thereafter. If a student for valid reasons cannot meet the date of Graduate Student Research Day of the Faculty of Medicine, presentation of a poster at a national or international conference is considered as equivalent.4. PhD students must present at least one Departmental Seminar over the course of their programs. Each student seminar is monitored by a faculty committee selected by the Graduate Education Committee to ensure that the students receive oral and written feedback on their presentation. 5. Participation as Teaching Assistants in the laboratory components of non-medical undergraduate Physiology courses may be required. In addition, there may be opportunities for one-on-one tutoring of undergraduate students.DIRECTOR(S): R. Rose

PHYL 5519 Molecular Physiology of Ion Channels

CREDIT HOURS: 3
This course focuses on the molecular properties of ion channels, and includes an overview of the techniques used to study ion channel structure and function, ion permeation and selectivity, channel gating and modulation, the mechanisms by which channels are affected by drugs and toxins, and genetic diseases causing channel dysfunction.DIRECTOR(S): P. Linsdell
FORMAT: Lecture
PREREQUISITE: PHYL 3320.03 or equivalent plus permission of the course director

PHYL 5568 Advanced Cardiovascular Physiology

CREDIT HOURS: 3
This course provides an in-depth survey of cardiovascular physiology with a focus on discussion of current research in the field. Topics include cardiac anatomy/ultrastructure, cardiac pump-function, cardiac electrophysiology, excitation-contraction coupling, cardiac mechanics and regulation of the vasculature. Cardiac diseases will be addressed. DIRECTOR: R. A. Rose
PREREQUISITE: One of PHYL 3320, PHYL 3520, PHYL 4680, or equivalent, and permission of course director
CROSS-LISTING: BMNG 5270.03

PHYL 5608X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 6
These courses allow the Department to provide more specialized instruction on specific topics to graduate students with particular interests. Class format is variable and may include seminars, lectures, literature searching, evaluation of papers, etc. There is usually a high degree of one-on-one interaction. The courses are organized on a year-to-year basis in accordance with student interest and faculty expertise. Since different subjects may be covered each year, each course in the series has a separate number.
NOTE: Course Details listed here also apply to PHYL 5609/PHYL 5610.
PREREQUISITE: Permission of the Director

PHYL 5609X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 6
See PHYL 5608.

PHYL 5610X/Y Directed Readings in Physiology and Biophysics

CREDIT HOURS: 6
See PHYL 5608.

PHYL 9000 MSc Thesis

CREDIT HOURS: 0
MSc students should register for this “course” each year.

PHYL 9530 PhD Thesis

CREDIT HOURS: 0

PhD students should register for this “course” each year.

Physiotherapy

Location:
Building/Room: Forrest Building
Street Address 1: 4th Floor
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2524
Fax: (902) 494-1941
Website: www.physiotherapy.dal.ca
Email Address: physiotherapy@dal.ca

Introduction

The School of Physiotherapy offers two Masters level graduate programs:

The **Master of Science (Physiotherapy)** degree provides the professional education required to obtain a license to practice physiotherapy. The profession of Physiotherapy (or Physical Therapy) offers a varied, interesting and worthwhile career in a variety of settings. Upon graduation, physiotherapists may work in hospital based departments rotating through various areas of interest prior to becoming more deeply involved in any specific area, or, opportunities are increasingly available in rehabilitation centres, extended care units, special schools, local government agencies, industrial health units, sports clubs and private clinics.

The **Master of Science (Rehabilitation Research)** degree provides the skills and knowledge to design and implement research in diverse areas of rehabilitation science, and requires the completion and defense of a thesis. Graduates may hold careers in academia, government, the private sector, or self-employment.

Staff

Director

Fenety, A., BSc (UNB), DPT (Manitoba), MSc PT (Alta), PhD (Dalhousie)

MSc PT Graduate Coordinator

Kelm, C., BSc (PT), Dip (PT), MSc (Physiol) (Saskatchewan)

MScRR (PT) Graduate Coordinator

Boe, S., BPhEd (Brock), MPT, PhD (Western)

Professor Emeritus

Walker, J., Cert. Phys. Ther. (NZ), DipTP, BPT, MA (Manitoba), PhD (McMaster)

Professors

Kelm, C., BSc (PT), Dip (PT), MSc (Physiol) (Saskatchewan)
Kozey, C. L., BPE (UNB), MSc (Waterloo), PhD (Dalhousie)
MacKay-Lyons, M., BSc (PT) (Toronto), MScPT (USC), PhD (Dalhousie)

Associate Professors

Boe, S., BPhEd (Brock), MPT, PhD (Western)
Curwin, S., Dip PT, BSc PT, MSc (Dalhousie), PhD (USC)
Harman, K., BScPT (Toronto), MSc (Ottawa), PhD (Carleton)

Assistant Professors

Dechman, G., BScPT (Queen's), PhD (McGill)
Earl, M., BScPT (UWO), BSc, MSc, PhD (Waterloo)
Fenety, A., BSc (UNB), DPT (Manitoba), MSc (Alta), PhD (Dalhousie)
King, C., BSc (PT) (Dalhousie), MSc PT (Queen's)
Rutherford, D., BSc (UWO), BSc PT (Toronto), MSc, PhD (Dalhousie)

Cross Listed Faculty

Blanchard, C., BA (UPEI), MSc, PhD (Alberta)
Keats, M., BA (Calgary), MSc (Alberta), PhD (Calgary)
MacKenzie, D., BSc (Saskatchewan), BSc (OT) (Alberta), MA (Ed) (MSVU)
Moreside, J., BSc (OT/PT) (UBC), MHK (Windsor), PhD (Waterloo)
Westwood, D., BSc, MA, PhD (Waterloo)
Wong, I., BSc (Acadia), MD (Dalhousie), FRCS (C) (McMaster), Dip Sports Medicine (SCOI)

Adjunct (FGS)

Bardouille, T., BSc (Queen's), MSc (Dalhousie), PhD (Toronto)
Bassett, R., BA (Hons), MA (NZ), PhD (UBC)
Butler, H., BSc, MSc, PhD (Dalhousie)
Connell, K., BScPT (Dalhousie), MHSA (Alta)
Jardine, W., BScPT, MScPT (Dalhousie), Dip Osteopathy
MacDonald, E. A., MD, FRCPC
Makrides, L., MCSP, BPT (Saskatchewan), MSc (Ottawa), PhD (McMaster)
McPhee, J., BSc, MSV, BSc (PT), PhD (Pharm) (Dalhousie)
Ploughman, M., BSc PT (Dalhousie), MSc, PhD (Memorial)
Rennie, S., DipPT, BPT, MSc, PhD (Alberta)
Walker, J., Cert Phys Ther (NZ), DipTP, BPT, MA (Manitoba), PhD (McMaster)

Lecturer

Creaser, G., BScPT (Dalhousie), MEd (MSVU)

Instructors

Kelly, B., BSc, PT, MSc (Dalhousie)
Walker, N., BSc (PT) (Dalhousie), MSc (Queen's)

Academic Coordinator of Clinical Education

Renz, R., BS (Hobart College, NY), Cert Phys Ther (NY), MMSc (Emory Univ, GA)

Provincial Clinical Coordinators

Caldwell, B., Prince Edward Island
Furlong, K., Newfoundland and Labrador

Master of Science (Physiotherapy) (MSc Physiotherapy)

The MSc (Physiotherapy) entry to practice program is full-time and offered over a continuous 25-month period. The curriculum prepares students with the professional education and experience necessary to apply for the national licensing examination. The School of Physiotherapy at Dalhousie is the only school serving Atlantic Canada; as such, a provincial quota system is in place with a specified number of seats allocated annually for residents of New Brunswick, Prince Edward Island, Newfoundland and Nova Scotia. A small number of seats are open to non-residents. Therefore, admission is offered on a competitive basis and enrolment is limited.

Admission Requirements

- Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.
- A four-year undergraduate degree or equivalent in any field of study from Dalhousie University or from a recognized academic institution with a minimum grade point average of 3.3 or letter grade of B+ in the last 60 undergraduate credit hours. Degrees that have a focus in Neuroscience, Psychology, Kinesiology, Human Movement Science, Exercise Science, Human Physiology, Health Promotion, Ergonomics and Anatomy are favorable backgrounds for the study of Physiotherapy.
- The following courses or their equivalents are prerequisites for admission:
    - Physics (six credit hours) or Physics (three credit hours) and Introduction to Biomechanics
    - Biology (either (i) three credit hours of Animal or Cell Biology at second year level or higher, or (ii) six credit hours of introductory biology [equivalent to BIOL 1010.03: Principles of Biology Part I and BIOL 1011.03: Principles of Biology Part II])
    - Psychology (six credit hours)
    - Statistics (three credit hours)
    - Human Physiology (either (i) six credit hours of human physiology at the first year level, plus three credit hours at the second year level or higher, or (ii) six credit hours of human physiology, all at a second year level or higher).
    - Human Anatomy (three credit hours, equivalent to ANAT 1010.03: Basic Human Anatomy)
    - Languages and Humanities and/or Social Sciences (six credit hours, e.g. Classics, Contemporary Studies, Theatre, Dance, Music, Languages, Philosophy can include a combination of two 3 credit hour courses).
- Reference Letters - two academic, confidential reference letters.
- 40 hours of community volunteer experience over the last two years
- Clinical Education Requirements - In order to satisfy the requirements for the clinical internship components of the program, students must provide proof of immunization to the Coordinator of Clinical Education for: Diphtheria-Tetanus, Measles, Mumps, Rubella and Hepatitis B. Before students can enter the clinical setting, they must provide verification of a Tuberculosis skin test and serology for Measles, Rubella, Varicella and Hepatitis B. In addition, a recent satisfactory criminal record check, including a vulnerable sector survey, is required prior to our start date in September.
- Affirmative Action - The School of Physiotherapy is committed to increasing the admission of and number of graduates from undergraduated groups; Aboriginal peoples, African Canadians and Persons with (dis)Abilities. Admission prerequisites are required for all applicants; however, applicants who apply under the Affirmative Action Policy are considered on the basis of their qualifications for graduate study in physiotherapy rather than in relation to other applicants. The School of Physiotherapy encourages applicants who wish to apply under this policy to indicate so on the Supplementary Application Form.
- Applicants who meet the above minimum requirements are eligible for interview consideration. The interview score is based on communication and problem-solving analysis (eligibility for interview is based on the GPA). Fulfillment of the minimum requirements does not guarantee an interview.

Deadline for application is January 31.

Physiotherapy Registration

Physiotherapists educated in Canada must be registered with the appropriate regulatory body. The School itself has no jurisdiction in matters related to regulation, and Dalhousie University cannot accept responsibility for changes in regulatory regulations which may occur from time to time.

The degree program at Dalhousie University is designed to fulfill the present registration requirements by the time students graduate. A Physiotherapy Competency Examination was implemented in 1993. Successful completion of the national competency exam is required for registration in all provinces except Quebec. Graduates are strongly advised to seek further information and clarification from the appropriate provincial College of Physiotherapists.

Association Membership

Information regarding membership in various Physiotherapy Associations can be obtained from the following sources:

The Canadian Physiotherapy Association
955 Green Valley Crescent, Suite 270
Ottawa, ON K2C 3V4

The Chartered Society of Physiotherapy
14 Bedford Row
London, WC1R 4ED, England

The American Physical Therapy Association

1111 North Fairfax Street
Alexandria, Virginia, 22314-1488 USA

Accreditation

The MSc (Physiotherapy) program is designed to develop an educational qualification for entry to the physiotherapy profession. Physiotherapy programs are accredited by the Physiotherapy Education Accreditation Canada (PEAC). PEAC is an incorporated body under the Canada Corporations Act and is the accrediting agency for physiotherapy education in Canada. The Dalhousie University, School of Physiotherapy, MSc (Physiotherapy) program is accredited by PEAC.

Practicum/Fieldwork Placements Outside Halifax

Students enrolled in entry-to-practice graduate programs of study in the Faculty of Health Professions are advised that they may have to do some or all of their required clinical education/fieldwork at sites outside Halifax, and hence may 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.

Interprofessional Health Education

Students are required to maintain enrolment in IPHE 5900 for the duration of their studies. Please register in IPHE 5900.00 (section 4). 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.

Master of Science (Rehabilitation Research - Physiotherapy) (MSc)

The Master of Science (Rehabilitation Research -Physiotherapy) is a thesis program designed to provide graduates with skills and knowledge to design and implement research in diverse areas of rehabilitation science; supporting the future of evidence-based practice in our health care system.

The Master of Science (Rehabilitation Research-Physiotherapy) does not prepare graduates to take the physiotherapy licensure exams; applicants who want to study to become physiotherapists need to apply to the MSc (Physiotherapy) program.

Individuals seeking enrichment for their professional development may also apply for admission to single graduate level courses, through the Special Student-Graduate Studies category as detailed in Section 5.7.7.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. In addition, applicants must hold a university degree in Physiotherapy, or in a related area of study.

Application

Applicants must

1. Complete the application form for admission to the Faculty of Graduate Studies
2. Include a one page statement of their experience, their goals and objectives, and the area of physiotherapy research to be studied.
3. Meet the English language competency requirements as outlined by Graduated Studies.
4. Include two academic references. A work reference from someone who may comment objectively on your goals may be included in addition to the two required academic references.

In addition applicants are strongly advised to:

1. Include a copy of a recent paper authored in the area in which the applicant is planning to pursue studies (if available)
2. Submit a recent GRE score
3. Contact potential supervisors to discuss their research interests prior to submitting their application.

Scholarship Deadlines

Applicants with a GPA of 3.7 or higher, who wish to be considered for scholarship funding, are strongly urged to have their applications completed by January 1st.

A limited amount of money is available from the School of Physiotherapy and this will be distributed on a competitive basis. Applicants are encouraged to seek external funding. Further information for sources of funding may be obtained from the Graduate Studies office. In order to qualify for scholarship consideration a student is expected to hold a first-class honours degree in an appropriate field and to enter a full-time graduate program.

Application Inquiries

For more information regarding admission and program requirements, please write to the Graduate Coordinator, School of Physiotherapy, Dalhousie University, Halifax, NS B3H 3J5 or email physiotherapy@dal.ca

Program Requirements

Students registered in the program will be expected to obtain a minimum of 24 credit hours as follows: Thesis - 12 credit hours, Course work - 12 credit hours.

Course Work

Nine credit hours are obtained via required courses. A minimum of an additional three credit hours of elective courses will be selected based on the individual program of study approved by the Supervisory Committee.

Residency

For full-time students, it is expected that upon completion of the course work an additional year will be required to complete the thesis. Part of the residency period may, with permission, include time off campus. There are options to complete the program on a part-time basis.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Master of Science (Physiotherapy) Courses

PHYT 5101.01: Introduction to the Physiotherapy Profession (Module 1)
PHYT 5103.03: Movement and Exercise Science (Module 3)
PHYT 5104.06: Cardiorespiratory Physiotherapy and Health Promotion (Module 4)
PHYT 5105.12: Musculoskeletal Physiotherapy (Module 5)
PHYT 5202X/Y.03: Scientific Inquiry I
ANAT 5217.06: Functional Human Anatomy
PHYT 5460.03: Advanced Exercise Physiology
PHYT 5501.03: Clinical Placement (Cardiorespiratory)
PHYT 5502.03: Clinical Placement (Musculoskeletal)
PHYT 6106.03: Professional, Ethical, and Management Issues in Physiotherapy (Module 6)
PHYT 6107.06: Neurological Physiotherapy Practice for the Entry-Level Clinician (Module 7)
PHYT 6108.12: Integrated Practice in Acute, Rehabilitation and Home/Community Settings (Module 8)
PHYT 6140.06: Neuroscience for Physiotherapy Students
PHYT 6202X/Y.06: Scientific Inquiry II
PHYT 6501.03: Clinical Placement (Neurotherapeutics)
PHYT 6502.03: Clinical Placement (Integrated Practice)
PHYT 6503.03: Senior Clinical Placement

Master of Science (Rehabilitation Research - Physiotherapy) Courses

Required Courses:

- PHYT 5090.03 Foundations Seminar
- PHYT 5590.03 Measurement and Instrumentation (or equivalent as determined by the Supervisory Committee)
- Three credit hours in Research Design and Biostatistics (ie. NURS 5100.03, HINF 6030.03)
- PHYT 9000.00: Thesis

Electives:

PHYT 5010.03: Special Topics in Musculoskeletal II
PHYT 5030.03: Special Topics in Neurology I
PHYT 5040X/Y.03: Graduate Seminar Series: Basic and Applied Aspects of Rehabilitation
PHYT 5050.03: Special Topics in Cardiac Rehabilitation III
PHYT 5070.03: Directed Study
PHYT 5080.03: Directed Study
PHYT 5300.03: Skeletal Muscle Function through Surface Electromyography
PHYT 5572.03: Topics in Human Performance: Motor Control

Course Descriptions

PHYT 5010 Special Topics in Musculoskeletal II

CREDIT HOURS: 3
This course is designed to provide in depth study of the evidence guiding physiotherapy assessments and interventions for the prevention and treatment of designated musculoskeletal impairments. Current theories and practices will be examined using examples such as disorders that are associated with the electronic workplace, arthritic conditions, or low back pain.

PHYT 5020 Introduction to Computers for Data Acquistion and Processing

CREDIT HOURS: 3
This course provides a basic knowledge of data acquisition and processing methods through the use of MatLab® and LabVIEW® technical computing environments. This course is divided into 1 lecture hour and 4 tutorial hours per week and is intended to introduce these programs to individuals who begin their graduate studies with minimal background knowledge in mathematics, computer programming and data management.
FORMAT: Lecture| Tutorial
LECTURE HOURS PER WEEK: 1
TUTORIAL HOURS PER WEEK: 4

PHYT 5030 Special Topics in Neurology I

CREDIT HOURS: 3
In this course, students will conduct a critical analysis of the evidence supporting physiotherapy management of people with functional disabilities arising from diseases or conditions that affect neurological control of movement. The course will emphasize topics such as the sensory-motor and neuromuscular control processes that affect gait, balance and functional abilities of a variety of populations (e.g., aging adults, and people with functional impairments due to Parkinson's, cerebrovascular accident, or arthritic conditions).

PHYT 5040X/Y Graduate Seminar Series: Basic and Applied Aspects of Rehabilitation

CREDIT HOURS: 3
The objective of this seminar is to expose students to topics in rehabilitation; it consists of students and invited guest's presentations of the latest findings in rehabilitation. Seminars will provide knowledge in basic/applied aspects of rehabilitation in and outside physiotherapy while helping students develop the ability to present in an academic/professional setting.
NOTES: PHYT 5040.03 is a three-unit elective (half) credit course encompassing the Fall(X) and Winter (Y) terms; students taking this course must register and complete both the X and Y terms consecutively in their first year of the MSc Rehabilitation Research program to receive course credit.
FORMAT: Seminar
PREREQUISITE: Acceptance into the MSc Rehabilitation Research program

PHYT 5050 Special Topics in Cardiac Rehabilitation III

CREDIT HOURS: 3
Students will conduct an advanced analysis of the theories and tenets underlying physiotherapy management of cardiovascular disorders. Scientific evidence will be applied to support assessment and intervention strategies to address cardio-respiratory function or cardiovascular fitness. Examples will be based on topics such as health-promotion, cardiac rehabilitation, and cardiovascular function following cerebral stroke.

PHYT 5070 Directed Study

CREDIT HOURS: 3
This course explores physiotherapy practice and the physiotherapy profession. Through an understanding of the history and background of the profession and an up-to-date view of current practice, students will form opinions regarding the direction the profession is taking, and vehicles for change that are available. Various aspects of current and past physiotherapy culture, practice, leadership and academia will be discussed. Students will have the opportunity to present their own perspectives and issues.

PHYT 5080 Directed Study

CREDIT HOURS: 3
Individual students work with a designated faculty member to conduct an in-depth examination of a topic that is chosen to address a specific educational need. The content, resources, and evaluation methods are customized to address a specific learning issue that relates to the student's research area.

PHYT 5101 Introduction to the Physiotherapy Profession (Module 1)

CREDIT HOURS: 1
This introductory module will provide the student with an orientation to the entire curriculum by: discussing expectations, evaluation, structure and process; helping to familiarize the student with the healthcare context of the practice of physiotherapy; introduce students to the profession of physiotherapy through discussion and site visits; instructing and providing opportunity to practice interpersonal skills and professional behaviours that will continue to develop throughout the two years and that will prepare graduates to be professionals. Subsequent modules will deepen students understanding and apply in practice many of the concepts presented in this orientation module.
FORMAT: Lecture| Lab| Tutorial| Seminar

PHYT 5103 Movement and Exercise Science (Module 3)

CREDIT HOURS: 3
The purpose of this module is to provide students with an understanding of the theories and principles associated with the study of human movement and exercise science so they can apply these to solve clinical problems encountered in physiotherapy practice. Understanding these concepts as they apply to normal movement and exercise will precede a discussion of clinical problems. The movement and exercise science module will provide the foundation for applying anatomy, biomechanics, and exercise physiology to evaluate motion and exercise therapy.
FORMAT: Lecture| Lab
PREREQUISITE: Successful completion of Year 1 fall term courses/modules

PHYT 5104 Cardiorespiratory Physiotherapy and Health Promotion (Module 4)

CREDIT HOURS: 6
This module provides students with knowledge, skills and behavioural competencies, including clinical reasoning skills, to practice effectively in the cardiorespiratory area of physiotherapy and to consistently integrate evidence based/best practice cardiorespiratory PT into holistic patient care. Overall objectives are also consistent with those outlined for Clinical Practice for cardiorespiratory clinical placements.
FORMAT: Lecture| Lab

PHYT 5105 Musculoskeletal Physiotherapy (Module 5)

CREDIT HOURS: 12
The purpose of this module is to develop the ability to use prospective reasoning to formulate and implement a three phase approach to the management of common musculoskeletal (MSK) dysfunctions: assessment, evaluation, and intervention. This module includes most age groups, and includes MSK dysfunctions related to home, work, leisure, and sport.
FORMAT: Lecture| Lab
PREREQUISITE: Successful completion of Year 1 fall term courses/modules

PHYT 5202X/Y Scientific Inquiry I

CREDIT HOURS: 3
Students will gain an appreciation of the process associated with evidence-based and best practice interventions. Students will be provided with critical appraisal, evaluative, and research skills integrated with, and embedded within, all subsequent course work and clinical experiences. This framework confirms our philosophy that critical appraisal and best practice is core to physiotherapy practice.
FORMAT: Lecture| Lab| Seminar| Discussion
EXCLUSIONS: PHYT 5102.09

PHYT 5300 Skeletal Muscle Function through Surface Electromyography

CREDIT HOURS: 3
Electromyography provides an extracellular view of the processes associated with skeletal muscle activation, and thus an important link to physiology when studying human movement. The objective of this course is to provide the student with the theoretical foundation for EMG studies, practical experience in acquiring EMG data and with an opportunity to critically evaluate the current literature that uses surface EMG to study muscle function on topics such as pathological gait, dynamic stability

of the spine, therapeutic exercise assessment and functional impairments. The course will consist of small group sessions, seminars and laboratory experiences.

PHYT 5460 Advanced Exercise Physiology

CREDIT HOURS: 3
The course consists of lectures, tutorials, student presentations, and class discussion periods. Approximately one-third of the content concern cellular and systems exercise physiology and one-third exercise in individuals with altered physiological state, injuries, and maladies.
FORMAT: Lecture| Tutorial

PHYT 5501 Clinical Placement (Cardiorespiratory)

CREDIT HOURS: 3
The clinical component of the program provides for the integration and application of learning in current academic studies to the clinical environment leading to the development of clinical competence in Cardiorespiratory practice. Each student is required to complete six weeks of full time clinical practice in the cardiorespiratory practice area to gain an understanding of the scope and role of cardiorespiratory physiotherapy practice in tertiary, community and primary healthcare environments.
FORMAT: Lecture| Lab
PREREQUISITE: Successful completion of all year 1 courses/modules

PHYT 5502 Clinical Placement (Musculoskeletal)

CREDIT HOURS: 3
The clinical component of the program provides for the integration and application of learning in current academic studies to the clinical environment leading to the development of clinical competence in musculoskeletal practice. Each student is required to complete six weeks of full time clinical practice with exposure to a variety of practice areas in physiotherapy. It is expected that the student will gain an understanding of the scope and role of musculoskeletal physiotherapy practice in tertiary, community and primary healthcare environments.
FORMAT: Lecture| Lab
PREREQUISITE: Successful completion of all year 1 courses/modules

PHYT 5572 Topics in Human Performance: Motor Control

CREDIT HOURS: 3
This course is intended to be a graduate level seminar which attempts to provide careful examination of published research and other written work in the area of motor control. The first portion of the course will consist of a brief review of the mechanical and physiological foundations of motor control and an illustration of some of the most useful and popular paradigms in the field. The second portion of the course will turn to classic problems and current theoretical and empirical attempts to solve them. The last portion of the course will involve presentations by members of the seminar group. The format of the presentations can vary according to individual and the topic under consideration. Some suggestions would include: 1) a literature review of a specific topic, 2) a grant proposal for a research project and 3) the results of a study conducted during the course.
CROSS-LISTING: KINE 5572.03

PHYT 5590X/Y Measurement and Instrumentation in Human Movement Analysis

CREDIT HOURS: 3
This class will provide students with both a theoretical and practical understanding of the many issues related to instrumentation in human movement studies. Students will be required to apply the fundamentals of measurement therapy to specific instruments. Small experiments will be conduced and students will be required to submit a written report demonstrating their understanding of how particular instruments are used, and how results are interpreted.
CROSS-LISTING: KINE 5590.03

PHYT 6106X/Y Professional, Ethical, and Management Issues in Physiotherapy (Module 6)

CREDIT HOURS: 3
This module builds on professional and communication objectives embedded throughout the program. Emphasis is placed on professional behaviours based on the current ethical and legal framework for practice and the role physiotherapy plays as an integral component of Canadian healthcare. Students will engage in dialogue and debate on issues of healthcare management, reform, and the business of physiotherapy.
FORMAT: Lecture| Seminar| Discussion
PREREQUISITE: Successful completion of all year 1 courses/modules

PHYT 6107 Neurological Physiotherapy Practice for the Entry-Level Clinician (Module 7)

CREDIT HOURS: 6
This academic module gives students the opportunity to acquire knowledge and develop the competencies and professional behaviors in preparation for physiotherapy practice for individuals with neurologic disorders. Neurophysiological concepts and neurotherapeutic approaches to assessment and management of conditions across the lifespan and across the continuum of care are introduced in an integrated manner. Students are required to draw on their knowledge of anatomy, neuroanatomy, physiology, exercise physiology, and therapeutic exercise as they explore topics in neurological physiotherapy. Emphasis is placed on understanding theoretical principles and developing assessment and treatment skills through critical analysis of case studies, laboratory practice, clinical visits, and self-directed learning. The International Classification of Functioning, Disability and Health (ICF) and the Clinical Reasoning Model serve as theoretical frameworks to prepare students for effective practice. This academic module is followed by a six-week clinical placement in neurological physiotherapy.
FORMAT: Lecture| Lab| Seminar| Discussion
COREQUISITE: PHYT 6140
PREREQUISITE: Successful completion of all Year 1 courses/modules

PHYT 6108 Integrated Practice in Acute, Rehabilitation and Home/Community Settings (Module 8)

CREDIT HOURS: 12
This module provides advanced knowledge and expertise in evidence-based assessment and treatment of people with complex conditions affecting cardiopulmonary, musculoskeletal and neurological systems. Emphasis will be placed on cases illustrating co-morbidities and complex psychosocial issues, and on development of clinical reasoning, plus active, sustainable learning skills.
FORMAT: Lecture| Lab| Tutorial| Seminar
PREREQUISITE: PHYT 6501

PHYT 6140 Neuroscience for Physiotherapy Students

CREDIT HOURS: 6

This graduate level course in neuroscience will expose entry-level physiotherapy students to the foundational and advanced neuroanatomical and neurophysiological concepts and knowledge needed for evidence-based practice in neuro-rehabilitation.
FORMAT: Lecture| Lab| Seminar
COREQUISITE: PHYT 6107
PREREQUISITE: Successful completion of all Year 1 course/modules

PHYT 6202X/Y Scientific Inquiry II

CREDIT HOURS: 6
Students are required to successfully complete an independent Major Project. The project is comprised of a series of written components which, when consolidated, will culminate in the completion of a Research Proposal suitable for submission to an Ethical Review Board.
FORMAT: Lecture| Lab| Seminar| Discussion
PREREQUISITE: Successful completion of all Year 1 courses/modules

PHYT 6501 Clinical Placement (Neurotherapeutics)

CREDIT HOURS: 3
The clinical component of the program provides for the integration and application of learning in current academic studies to the clinical environment leading to the development of competence in neurotherapeutics practice. Each student is required to complete six weeks of full time clinical practice with exposure to a variety of practice areas in physiotherapy. It is expected that the student will gain an understanding of the scope and role of neurotherapeutic physiotherapy practice in tertiary, community and primary healthcare environments.
FORMAT: Lecture| Lab
PREREQUISITE: PHYT 6107, PHYT 6140

PHYT 6502 Clinical Placement (Integrated Practice)

CREDIT HOURS: 3
The clinical component of the program provides for the integration and application of learning in current academic studies to the clinical environment leading to the development of clinical competence. The student will gain understanding of the theoretical and practical application of physiotherapy in complex conditions in all practice areas. This builds upon the previous placements in cardiorespiratory, musculoskeletal and neurotherapeutics, and allows the student to assess and treat patients with multiple problems in co-morbidities. This will include the areas of geriatrics, paediatrics, private practice, industry, community practice, innovative practice and/or any area that enhances previous clinical and academic experience. Examples of placements are: -Geriatrics (Assessment, long term care or day hospital)-Home Care or Community Care-Regional Hospital for a mixture of In and Out patient care-Paediatrics-Private Practice
FORMAT: Lecture| Lab
PREREQUISITE: PHYT 6108

PHYT 6503 Senior Clinical Placement

CREDIT HOURS: 3
The clinical component of the program provides for the integration and application of learning in current academic studies to the clinical environment leading to the development of clinical competence. The purpose of the placement is to provide the student with an opportunity to learn consultation skills, to engage in program development and evaluation, and to educate others about the role of physiotherapy. Through working independently and advocating for their professional role, students learn skills that will serve them well as they enter the profession. Examples of placements/liaisons:-Injury Prevention-Chronic disease management-Primary healthcare-Workers Compensation Board
FORMAT: Lecture| Lab
PREREQUISITE: PHYT 6108

PHYT 9000 Thesis

CREDIT HOURS: 0

Planning

Location:
Building/Room:
Street Address 1: 5410 Spring Garden Road
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3260
Fax: (902) 423-6672
Website: www.dal.ca/planning
Email Address: planning.office@dal.ca

Introduction

The School of Planning is the hub of planning education in Atlantic Canada. The School offers two graduate degree programs in planning: the Master of Planning (MPlan), a first professional degree accredited by the Professional Standards Board for the planning profession in Canada and recognized by the Canadian Institute of Planners, and the research-focussed, non-accredited Master of Planning Studies (MPS).

The Master of Planning (MPLAN) program prepares students to become professional planners. Many graduates will work for private firms, for government, or in non-governmental organizations. Others will find that the education provides a solid foundation for careers in multidisciplinary spheres such as environmental protection, transportation planning, community development or urban design. Planning provides knowledge, a skill set, and a way of thinking with broad application. Applicants seeking a first-professional graduate degree in planning should consider the Master of Planning degree program.

The Master of Planning Studies (MPS) is a research-focused graduate degree that provides opportunities for graduate students to conduct advanced research in planning, contribute to the development of knowledge in the field, and complete sophisticated supervised research in the specialized field of study. The MPS program will appeal to highly qualified candidates who would like to pursue graduate thesis research in planning, and obtain specific training in a specialised area within the discipline (e.g. transportation planning, climate change and adaptation planning, urban design, etc.). Applicants must demonstrate capacity for advanced research and present a compelling research topic that matches the research expertise and interests of a faculty member in the School of Planning as part of their application. The Master of Planning Studies is not an accredited professional degree: it does not provide a direct route to the Planning profession for those without professional planning designation.

Planners are involved in activities that shape the future of communities, the quality of the environment, and the character of daily life. In their work for government, planners engage and motivate the public, help to develop a wide range of policies affecting the character and potential of communities, and act as guardians of the environment and of our built heritage. Working as consultants in the private sector, planners undertake a wide variety of tasks ranging from physical design and transportation planning, to creating strategies for sustainable or “smart” development. Planners work throughout the world, from the heart of Canada's towns and cities to the fields and villages of the developing countries.

The School of Planning encourages initiative, resourcefulness, and creative questioning of received doctrine. The curriculum of the School emphasizes: (a) specialized knowledge of theory and practice of planning; (b) up-to-date skills; (c) a sound appreciation of the environmental, social, and economic processes that shape the form and character of communities; (d) the active contribution of students in confronting and resolving contemporary planning problems in local communities; and (e) the development of personal capabilities suited to the leadership roles that planners assume.

Through environmental and community-centered learning, teaching, research and practice, faculty members and students in the School engage in the planning and design of settlements in various scales and contexts. Central to the professional planning program are studio courses (where learning is gained through working on real projects based in the community). Studio course content is delivered in a way that meets academic objectives within the practice of dealing with community planning issues. Thus the studio integrates theory and practice. Students also have opportunities to participate in field trips within the region and to international cities to learn about planning outside of Halifax.

Staff

Professors

Grant, J., BA (UWO), MA (McMaster), MA, PhD (Waterloo), FCIP, LPP
Palermo, F., BArch (Toronto), MArchUD (Harvard), FCIP, FRAIC, LPP

Associate Professors

Habib, M. A., BURP, MURP, (BUET), PhD (Toronto)
Manuel, P., BA (Carleton), MSc (McGill), PhD (Dalhousie), MCIP, LPP
Rapaport, E., BSc (Wisconsin-Madison), MSc, PhD (RIT Stockholm), MCIP, LPP
Zuck, J., BA (Hiram), BDEP (NSCAD), MLA (Univ Pennsylvania), MCIP, LPP, FCSLA

Assistant Professor

Terashima, M., BSc (Michigan State), MSc (UBC), PhD (Dalhousie)

Adjunct (FGS)

Alström-Rapaport, C., BSc, MSc (Wisconsin), PhD (Uppsala)
Busby, P., BA (Dalhousie), MURP (TUNS)
Ruffman, A., BSc (Toronto), MSc (Dalhousie)
Thompson, K., BSc (UPEI), BDes (NSCAD), MPS (Dalhousie)
Whitcomb, C., BA (Guelph), MA (Waterloo)

Cross-appointed Faculty

Beazley, K., major appointment in Resource and Environmental Studies
Boxall, J., major appointment as Map and Geospatial Information Librarian, Killam Library
Rainham, D., major appointment in Environmental Science, Faculty of Science
Wright, T., major appointment in College of Sustainability

Departmental Secretary

Madden, C.

Admission Requirements

Minimum Academic Requirements

The School seeks students with high scholastic standing and demonstrated academic interests or community experience pertinent to planning. All candidates must meet the Admissions Regulations of the Faculty of Graduate Studies (3.0 minimum cumulative GPA in a four year undergraduate degree). In special circumstances where mature applicants are involved, applications supported by significant career experience may be considered.

Master of Planning

Admission to the MPlan program requires an undergraduate degree in any discipline with high scholastic standing. The MPlan is a first professional degree at the graduate level; an undergraduate degree in planning is not required for admission.

Master of Planning Studies

Admission to the MPS program requires one of the following:

- four year undergraduate degree in planning
- four year undergraduate degree in a related discipline (such as engineering, geography, geomatics, environmental sciences, architecture, etc.)
- four year undergraduate degree in any subject with four years of planning work experience to make the candidate eligible for membership in a professional planning institute.

The School may also consider candidates with three year undergraduate degrees in related disciplines who present an extraordinary portfolio of work and have at least four years of responsible planning experience.

Entrance will be limited according to the School's ability to offer appropriate faculty supervision. Only those candidates with research interests compatible with those of faculty members will be eligible for admission. Enrolment may begin in either January or September.

Inquiries

Please contact the School of Planning or go to the School website for an application package and additional information about graduate programs in planning. (The School's telephone number, email address and website are shown at the beginning of this calendar section.) Please contact the Dalhousie University Registrar's Office for information on admission status or registration.

Application Deadlines

There is no cutoff date for the consideration of applications. However, candidates for MPlan should normally submit their application by January 15. Admission is very competitive and some scholarships are only available to highly qualified candidates whose application has been received by the 15th of January.

Students in the Master of Planning begin their courses in September. Only in exceptional circumstances are students permitted to enter the MPlan program at other times.

For the Master of Planning Studies (MPS) admission, applications may be considered at any time but can take at least two months to process. Candidates who apply by January 15 may be considered for some scholarships.

International applicants must ensure that their complete application has arrived by January 15th, to allow sufficient time for visa processing.

Transfer Students

Applicants who have completed part of another graduate planning program may be considered for transfer credit by the Admissions Committee. A transfer student must complete a minimum of 30 credit hours of courses including PLAN 6000: Planning Project and Seminar (independent) within the MPlan program to qualify for the degree.

English Language Competency

Applicants whose native language is not English must meet the Faculty of Graduate Studies requirements for English Language Competency (see FGS calendar section 3.4). Students admitted to the program may be required to take further training in English in Canada, in the summer preceding the start of the program.

Academic Regulations

In addition to the Faculty of Graduate Studies regulations, the following policies apply to the School of Planning.

Readmission

A student who wishes to be readmitted to the program after withdrawing or failing to register for three consecutive terms, must reapply as though he/she were a new applicant to the program.

Transfer credits

A student who wishes the School to consider transfer credits must apply no later than October 1 of the year the student enters the program. Graduate level credits earned outside of a completed degree program may be accepted as electives if (a) the School accepts them as electives relevant to a planning education, and (b) the student earned a grade of B or better.

Master of Planning (MPlan)

The Masters program is a 20-month program with a work term in the summer (third) semester. The program consists of 45 credit hours of required course work, and 15 credit hours of elective course work. The work term is a non-credit co-op academic requirement. The program may also be completed through part-time study over a longer period of time (maximum seven years).

Because of the interactive nature of the core studio and course curriculum, students must be present on campus during the terms they register for required courses, except for the work term.

The required courses provide the fundamental elements of a planning education. They cover planning theory, history, practice, law, and methods, and provide community-based project experience that allows students to understand the institutional, social, and environmental contexts within which planners work. Courses allow students to develop planning skills and knowledge and to apply them to real community problems.

In the second year of the MPlan program, all students take on two major research-based projects: one individual and one team project.

The elective courses enable students to pursue individual interests and areas of specialized knowledge relevant to their studies in planning. Courses offered within the School focus on community design, urban design, environmental planning, land use planning, urban and environmental history, land economics, transportation planning, housing, and land development. Students must take at least half of their elective credit hours from offerings within the School of Planning.

Electives may be taken in other Dalhousie departments, or at other universities in Halifax, with the permission of the Graduate Coordinator. In some cases, elective credit hours may be given for suitable courses taken at other universities in Canada or abroad. Students wishing to take courses outside the School need permission of the Graduate Coordinator.

Work Term

The program includes a work term (during the summer after the first academic year) that provides students with practical experience in planning. The Career Co-ordinator for the Faculty of Architecture and Planning assists students in preparing their search for suitable work term placements; students should note, however, that they are responsible for securing appropriate placements. In recent years, planning students have been employed throughout Atlantic Canada and most other Canadian provinces, and some have chosen to work abroad (e.g., in the United States and Europe). Students are encouraged to begin their search for work-term placements early in their first year of study in the program, and to be prepared to travel outside of the Halifax area to obtain work experience.

Professional Registration

On completion of the MPlan degree, and after obtaining professional work experience, graduates are eligible to apply for full membership in the Canadian Institute of Planners (CIP) (Candidates for membership may have to write an exam to qualify). Foreign applicants are advised to contact national accreditation organizations about requirements for professional registration. Many professional organizations have transfer agreements with CIP to facilitate exchange.

Master of Planning Studies (MPS)

The Master of Planning Studies (MPS) program is a research-oriented graduate degree intended for highly qualified applicants who wish to conduct graduate thesis research in planning. The program consists of 15 credit hours of course work and a thesis. The program may be completed in 12 to 24 months of full-time study, or a longer period of time for part-time study (up to five years).

The curriculum includes compulsory and elective courses. The compulsory courses are PLAN 6505.03: Seminar: Theories, Ideas, Debates in Planning, and PLAN 8000.06: MPS Thesis Proposal. The student selects an additional six credit hours of elective courses based on the needs and interests of the graduate student to support the thesis research focus. One of the elective courses must be a graduate-level research methodology course chosen from the approved list of methodology courses or another methods course with the approval of the thesis supervisor and graduate coordinator.

Students select a thesis topic in consultation with the thesis supervisor. PLAN 9000.00: Master of Planning Studies Thesis is a requirement for the MPS degree. Students must complete a thesis to the satisfaction of the thesis supervisory committee and in accordance with the rules and procedures of the Faculty of Graduate Studies.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Offerings

Some required subjects may be interchanged between academic terms or years, depending on the availability of instructors. Elective courses are not offered every year.

The School attempts to schedule electives to be available at least once within a two year period; when possible. Some courses have enrollment limits or pre-requisites.

Other Electives

Students should discuss their elective choices with their faculty advisor.

Up to half of the elective credits may be taken outside the School. All such choices need the approval of the Graduate Coordinator, and if the course is at another university, a Letter of Permission must be completed before the student enrols in the course.

Up to two senior level (3000, 4000) undergraduate courses may be included in the program if comparable graduate courses are not available. Students need the permission of the Graduate Coordinator to register for undergraduate courses.

No more than two Directed Studies courses may be included in the program. Students need the permission of the Graduate Coordinator to register for a Directed Studies course.

Course Numbers

Graduate courses are at the 5000 level and above. When courses are cross-listed with senior undergraduate courses, graduate students must enroll under the graduate number. In such courses, the assignments and expectations are modified appropriately for graduate work.

Planning Courses

Students in the MPlan program take 60 credit hours, or equivalent, and complete a work term. The distribution of courses throughout the two years of the planning program is outlined below.

Full-time students normally register for 12 to 18 credit hours per semester. Course credit hours are shown after the decimal place in the course number: e.g., ".03" means three credit hours; in a one-semester lecture course, the number of credit hours is roughly equal to the weekly contact hours; there is an expectation of about double that time of work outside course hours. Note that studio courses are six credit hours, though only one semester long.

Required courses: 45 credit hours (11 courses)

- PLAN 5000.06: Planning Studio 1
- PLAN 5035.03: Application of Planning Law
- PLAN 5101.03: History and Philosophy of Planning
- PLAN 5102.03: Planning Practice
- PLAN 5201.00: Work Term (non-credit)
- PLAN 5303.03: Planning Methods A
- PLAN 5304.03: Planning Methods B
- PLAN 5500.06: Planning Studio 2
- PLAN 6000.09: Planning Project and Seminar
- PLAN 6500.06: Integrated Team Project
- PLAN 6505.03: Seminar on Theories, Ideas, and Debates in Planning
- Elective credits: 15 credit hours (five half courses, or equivalent).

Students select 15 credit hours of electives over the course of their studies.

Program of Study for Master of Planning

Year 1 - Term 1 (Fall)

- PLAN 5000.06: Planning Studio 1

- PLAN 5101.03: History and Philosophy of Planning
- PLAN 5102.03: Planning Practice
- PLAN 5303.03: Planning Methods
- electives

Year 1 - Term 2 (Winter)

- PLAN 5035.03: application of Planning Law
- PLAN 5304.03: Planning Research Methods
- PLAN 5500.06: Planning Studio 2
- electives

Year 1 - Term 3 (Summer)

- PLAN 5201.00: Work Term

Year 2 - Term 4 (Fall)

- PLAN 6000.09: Planning Project and Seminar
- electives

Year 2 - Term 5 (Winter)

- PLAN 6500.06: Integrated Team Project
- PLAN 6505.03: Seminar: Theories, Ideas, and Debates in Planning
- electives

Planning Electives

- PLAN 5005.03: Cities and the Environment in History
- PLAN 5012.03: Reading the City
- PLAN 5015.03: Site Infrastructure
- PLAN 5020.03: Landscape Design
- PLAN 5025.03: Representation in Design
- PLAN 5040.03: Reading the Suburbs
- PLAN 5050.03: Topics in Community Design
- PLAN 6101.03: History and Theory of Urban Design
- PLAN 6103.03: Urban Ecology
- PLAN 6105.03: Land Development Economics
- PLAN 6106.03: Transportation Planning
- PLAN 6108.03: History and Theory of Landscape Architecture
- PLAN 6111.03: Housing Theory
- PLAN 6120.03: Citizen Engagement
- PLAN 6125.03: Negotiation and Conflict Management
- PLAN 6150.03: Topics in Planning
- PLAN 6201.03: Directed Studies
- PLAN 6202.03: Directed Studies 2
- PLAN 6250.015 - PLAN 6253.015: Field Trip: Maritimes
- PLAN 6255.015 - PLAN 6258.015: Field Trip: International
- PLAN 6304.015 (to PLAN 6309.015) Mid-term Conference Module
- PLAN 6600.06: Special Project Studio
- PLAN 6601.06: Special Project Studio: Environmental Planning
- PLAN 6602.06: Special Project Studio: Urban Design

Program of Study for Master of Planning Studies

The program consists of 15 credit hours of courses and a thesis.

Compulsory courses: 9 credit hours

- PLAN 6505.03: Seminar in Theories, Ideas and Debates in Planning
- PLAN 8000.06: MPS Thesis Proposal

Elective courses: 6 credit hours

- graduate-level research methodology course
- elective

Approved Research Methodology courses

- PLAN 5303.03: Planning Methods
- PLAN 5304.03: Planning Research Methods
- ENGM 6671.03: Applied Regression Analysis
- CIVL 6139.03: Transport Operations
- INTE 7100.03: Research Methods from management, policy and science
- OCCU 5030.03: Advanced Research Theory and Methods for Occupational Therapy
- ENVI 5001.03: Environmental Assessment
- PLAN 6106.03: Transportation Planning

Other methods courses may be considered depending on the student's research interests and the course offerings at Dalhousie in a given year (alternatives require approval).

Sample Program

Scenario A

	Fall	Winter	Summer
Year 1	Methodology course Elective	PLAN 6505.03: Seminar PLAN 8000.06: Thesis Proposal	PLAN 9000.00: Thesis
Year 2	PLAN 9010.03: Thesis continuation		

Scenario B

	Fall	Winter	Summer
Year 1	Methodology course PLAN 8000.06: Thesis Elective	PLAN 6505.03: Seminar elective [thesis research]	PLAN 9000.00: Thesis
Year 2	PLAN 9010.03: Thesis continuation		

Scenario C

	Fall	Winter	Summer
Year 1	[redacted]	PLAN 6505.03: Seminar Methodology course elective	PLAN 8000.06: Thesis proposal [thesis research]
Year 2	PLAN 9000.00: Thesis	PLAN 9010.03: Thesis continuation	[redacted]

Actual sequencing may change on time of admission and length of time for preparation of a thesis. Students will determine the appropriate sequence for them in consultation with the Supervisor.

Course Descriptions

PLAN 5000 Planning Studio 1

CREDIT HOURS: 6

The studio introduces land planning and development. The course investigates fundamental aspects of planning in community and environmental context in the urban region. Specific community projects are used to explore the procedural, physical, social and polemical context for decision making; to apply skills in information gathering, analysis, and synthesis; to develop communication techniques. The course will concentrate on documenting the existing situation, formulating strategies for intervention, developing concepts and plans, and assessing the consequences of proposed changes.

FORMAT: Seminar| Studio

RESTRICTIONS: Master of Planning students or permission of instructor

PLAN 5005 Cities and the Environment in History

CREDIT HOURS: 3

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 in human settlements through the ages.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 3005.03

PLAN 5012 Reading the City

CREDIT HOURS: 3
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| Seminar
CROSS-LISTING: PLAN 3002.03

PLAN 5015 Site Infrastructure

CREDIT HOURS: 3
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
CROSS-LISTING: PLAN 3015.03

PLAN 5020 Landscape Design

CREDIT HOURS: 3
The 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
CROSS-LISTING: PLAN 3020.03

PLAN 5025 Representation in Design

CREDIT HOURS: 3
The course explores techniques of representation in community design work. It examines design drawing conventions such as orthographic, paraline, and perspective projections. It helps students develop their awareness of design approaches and their skills in design presentation.
FORMAT: Lecture| Lab
CROSS-LISTING: PLAN 3025.03

PLAN 5035 Application of Planning Law

CREDIT HOURS: 3
This course explores the application of planning law in the field of community-planning. It introduces students to the legal processes and statutory requirements for land use planning in Canada, with particular reference to Nova Scotia.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: Master of Planning program
CROSS-LISTING: PLAN 4035.03

PLAN 5040 Reading the Suburbs

CREDIT HOURS: 3
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
LECTURE HOURS PER WEEK: 3
CROSS-LISTING: PLAN 3040.03

PLAN 5050 Topics in Community Design

CREDIT HOURS: 3
This course provides opportunities to examine selected topical issues in community design.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 3050.03

PLAN 5051 Topics in Community Design 2

CREDIT HOURS: 3
This course provides opportunities to examine selected topical issues in community design.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 3051.03

PLAN 5052 Topics in Community Design 3

CREDIT HOURS: 3
This course provides opportunities to examine selected topical issues in community design.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 3052.03

PLAN 5053 Topics in Community Design 4

CREDIT HOURS: 3
This course provides opportunities to examine selected topical issues in community design.

FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 3053.03

PLAN 5101 History and Philosophy of Planning

CREDIT HOURS: 3
The course offers an intensive examination of traditions, ideas, and philosophies that provide an underpinning to contemporary planning. The course traces the historic development of modern planning (since the late 19th century), and examines the philosophical foundations of the planning profession.
FORMAT: Lecture| Seminar
RESTRICTIONS: Master of Planning students or permission of instructor

PLAN 5102 Planning Practice

CREDIT HOURS: 3
The course explores the role of the planner and the planning process through lectures, seminars and case studies. The focus is on understanding the institutional framework for planning, including social, political, and economic dimensions; examining approaches to community involvement, negotiation, and policy formulation; and developing effective communication skills. It will consider significant current issues facing planners (including ethical questions).
FORMAT: Lecture| Seminar
RESTRICTIONS: Master of Planning students, or permission of instructor

PLAN 5104 Planning Law

CREDIT HOURS: 3
The course introduces the legislation, case law, and government authority applicable to planning and development control. Zoning and subdivision controls, development control, expropriation, planning appeals and the process of establishing and implementing plans will be examined. Attention is paid to the roles of all the primary players in planning: private citizens, special interest groups, corporations and municipal, provincial and federal government departments.
FORMAT: Lecture| Seminar
RESTRICTIONS: Master of Planning students, or permission of instructor

PLAN 5201 Work Term

CREDIT HOURS: 0
The work term provides an opportunity for students to integrate practical work experience within the educational environment. A student must complete a work term of not fewer than 15 weeks (at least 500 hours) in an employment placement approved by the School of Planning. The student maintains a work journal during the work term, and prepares a synthesis paper at the end of the work term reflecting on the lessons learned during the work term. The student makes a presentation within the School upon completion of the work.
RESTRICTIONS: Master of Planning students

PLAN 5303 Planning Methods

CREDIT HOURS: 3
The course introduces methods used in planning. This may include spatial analysis, population forecasting, survey methods, computer tools, and other appropriate techniques.
FORMAT: Lecture| Seminar
RESTRICTIONS: Master of Planning students or permission of instructor
EXCLUSIONS: PLAN 5301.015

PLAN 5304 Planning Research Methods

CREDIT HOURS: 3
The course provides an overview of planning and research methods and research design. This includes techniques for qualitative, quantitative, and mixed methods approaches to data collection and analysis. Each student will develop a proposal for conducting an independent planning project.
FORMAT: Lecture| Seminar
RESTRICTIONS: Master of Planning students or permission of instructor
EXCLUSIONS: PLAN 5302.015

PLAN 5500 Planning Studio 2

CREDIT HOURS: 6
The studio continues the lessons of Studio 1. The studio adopts an environmental perspective in approaching planning issues and challenges. The course will concentrate on techniques of evaluating the suitability of land for proposed land uses, and methods of assessing the impacts of proposed planning policies and developments on landscapes.
FORMAT: Seminar| Studio
PREREQUISITE: PLAN 5000
RESTRICTIONS: Master of Planning students or permission of instructor

PLAN 6000 Planning Project and Seminar

CREDIT HOURS: 9
Each student completes an independent planning project under the guidance of a project advisor, and participates in the weekly planning project seminar with the seminar leader. The course provides an opportunity for independent research and analysis in a community-based planning project context. The seminar provides an opportunity for reflection on the connections between theory and practice, and sets challenges and deadlines for project completion. Students present their work at several points during the term. Assessment is based on the project (75%) and seminar participation (25%).
FORMAT: Seminar| Studio
PREREQUISITE: PLAN 5500.06, 5304.03

PLAN 6101 History and Theory of Urban Design

CREDIT HOURS: 3
The 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 specialities.
FORMAT: Lecture| Seminar

CROSS-LISTING: PLAN 4101.03
RESTRICTIONS: Honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6103 Urban Ecology

CREDIT HOURS: 3
More than three-quarters of Canadians, and more than half the world's population, now 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 make urban life possible. Students study their own behaviour 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
CROSS-LISTING: PLAN 3010.03

PLAN 6105 Land Development Economics

CREDIT HOURS: 3
This course applies basic techniques for analyzing the financial feasibility of land development projects. Case studies focus particular attention on methods of financing and organizing real-estate development within the planning framework.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 4105.03
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6106 Transportation Planning

CREDIT HOURS: 3
This course analyses 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 land 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.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 4106.03
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6108 History and Theory of Landscape Architecture

CREDIT HOURS: 3
The 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 and planners.
FORMAT: Lecture| Seminar
CROSS-LISTING: PLAN 4108.03
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6111 Housing Theory

CREDIT HOURS: 3
An introduction to 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
CROSS-LISTING: ARCH 5102.03, PLAN 4111.03
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6120 Citizen Engagement and Consultation: The Opportunities and Challenges of Public Engagement

CREDIT HOURS: 3
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, and the techniques or methods that can be used to more effectively involve individual citizens and stakeholder groups in community decisions.
CROSS-LISTING: PLAN 4120.03, PUAD 6120.03

PLAN 6125 Negotiation and Conflict Management: Personal Practice Foundations

CREDIT HOURS: 3
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.
FORMAT: Lecture
PREREQUISITE: Permission of graduate or undergraduate advisor, and instructor
CROSS-LISTING: PLAN 4125.03, MGMT 4610.03

PLAN 6150 Topics in Planning

CREDIT HOURS: 3
6151.03, 6152.03, 6153.03 This course provides opportunities to examine selected topical issues in planning in a seminar discussion.
FORMAT: Seminar
CROSS-LISTING: PLAN 4150.03
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6201 Directed Studies

CREDIT HOURS: 3
A student wishing to pursue an advanced aspect of planning study for which no suitable course is offered may request a Directed Studies. The course is taken under a School of Planning faculty member.

RESTRICTIONS: Master of Planning students or permission of Director of School of Planning

PLAN 6202 Directed Studies 2

CREDIT HOURS: 3
A student wishing to pursue an advanced aspect of planning study for which no suitable course is offered may request a second Directed Studies course. The course is taken under a School of Planning faculty member. No further directed studies are permitted.
PREREQUISITE: PLAN 6201.03
RESTRICTIONS: Master of Planning students, permission of Director of School of Planning

PLAN 6250 Field trip: Maritimes 1

CREDIT HOURS: 1.5
This intensive course involves a field trip within the Maritimes region to explore the current and historic state of planning in the region.
RESTRICTIONS: Master of Planning students

PLAN 6251 Field Trip: Maritimes 2

CREDIT HOURS: 1.5
This intensive course involves a field trip within the Maritimes region to explore the current and historic state of planning in the region.
RESTRICTIONS: Master of Planning Students

PLAN 6252 Field Trip: Maritimes 3

CREDIT HOURS: 1.5
This intensive course involves a field trip within the Maritimes region to explore the current and historic state of planning in the region.
RESTRICTIONS: Master of Planning Students

PLAN 6253 Field Trip: Maritimes 4

CREDIT HOURS: 1.5
This intensive course involves a field trip within the Maritimes region to explore the current and historic state of planning in the region.
RESTRICTIONS: Master of Planning Students

PLAN 6255 Field trip: International 1

CREDIT HOURS: 1.5
This intensive course involves a field trip to an international city to explore the current and historic state of planning in the city.
RESTRICTIONS: Master of Planning students or permission from the Director of School of Planning

PLAN 6256 Field Trip: International 2

CREDIT HOURS: 1.5
This intensive course involves a field trip to an international city to explore the current and historic state of planning in the city.
RESTRICTIONS: Master of Planning Students, or permission from the Director of School of Planning

PLAN 6257 Field Trip: International 3

CREDIT HOURS: 1.5
This intensive course involves a field trip to an international city to explore the current and historic state of planning in the city.
RESTRICTIONS: Master of Planning Students, or permission from the Director of School of Planning

PLAN 6258 Field Trip: International 4

CREDIT HOURS: 1.5
This intensive course involves a field trip to an international city to explore the current and historic state of planning in the city.
RESTRICTIONS: Master of Planning Students, or permission from the Director of School of Planning

PLAN 6304 Mid-Term Conference Module

CREDIT HOURS: 1.5
In the winter term the School offers an intensive conference module. The module is usually an intensive professional development workshop on an important contemporary planning theme. It brings together students, professional practitioners and high-calibre resource personnel. Students help to organize and run the conference, and complete assignments around the conference theme.
NOTE: Course Details listed here also apply to PLAN 6305/PLAN 6306/PLAN 6307/PLAN 6308/PLAN 6309.
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6305 Mid-Term Conference Module 2

CREDIT HOURS: 1.5
See PLAN 6304.

PLAN 6306 Mid-Term Conference Module 3

CREDIT HOURS: 1.5
See PLAN 6304.

PLAN 6307 Mid-Term Conference Module 4

CREDIT HOURS: 1.5
See PLAN 6304.

PLAN 6308 Mid-Term Conference Module 5

CREDIT HOURS: 1.5

See PLAN 6304.

PLAN 6309 Mid-Term Conference Module 6

CREDIT HOURS: 1.5
See PLAN 6304.

PLAN 6500 Integrative Team Project

CREDIT HOURS: 6
In the final semester, students form small consulting teams to undertake complex planning projects for community, government or corporate clients. Projects and clients are selected by students and represent their wide range of interests. A common thread is the process to develop, document and communicate strategies and methods of implementation.
FORMAT: Studio
PREREQUISITE: PLAN 6000.09

PLAN 6505 Seminar: Theories, Ideas, and Debates in Planning

CREDIT HOURS: 3
The final capstone course provides a venue for debate and discussion about theory, ethics, ideas, and contemporary issues in planning. It considers the relationship between theory and practice, and allows students to reflect on the profession they are about to join.
FORMAT: Lecture| Seminar
PREREQUISITE: PLAN 5500.03
RESTRICTIONS: Restricted to graduate students in the Faculty of Architecture and Planning or permission of the instructor.

PLAN 6600 Special Project Studio

CREDIT HOURS: 6
The studio provides an opportunity for in-depth examination of a community-based planning project.
FORMAT: Seminar| Studio
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 6601 Special Project Studio: Environmental Planning

CREDIT HOURS: 6
The studio provides an opportunity for in-depth examination of a community-based environmental planning project.Note: Graduate students registering for this course need appropriate background in landscape analysis and environment planning.
FORMAT: Lecture| Lab| Studio
PREREQUISITE: PLAN 5500.06 and permission of instructor
CROSS-LISTING: PLAN 4001.06
RESTRICTIONS: Graduate students

PLAN 6602 Special Project Studio: Urban Design

CREDIT HOURS: 6
The studio provides an opportunity for in-depth examination of a community-based urban design project.
FORMAT: Lecture| Lab| Studio
PREREQUISITE: PLAN 5500.06
CROSS-LISTING: PLAN 4002.06
RESTRICTIONS: Graduate students in the Faculty of Architecture and Planning, or permission of instructor.

PLAN 8000 MPS Thesis Proposal

CREDIT HOURS: 6
Under the supervision of the thesis supervisor and thesis committee, a student in the Master of Planning Studies program prepares a thesis proposal that outlines the research question, background literature review and synthesis, approach, methods (of data collection and analysis), ethical implications, and schedule of work. The student gives a public presentation of the thesis proposal, and an oral defence before the thesis committee.
PREREQUISITE: Admission to Master of Planning Studies programme

PLAN 9000 Master of Planning Studies Thesis

CREDIT HOURS: 15
Under the supervision of the thesis supervisor and thesis committee, a student in the Master of Planning studies program prepares a thesis that investigates an original and significant question in planning research. The student gives a public presentation of the thesis research, and an oral defence of the thesis before the thesis committee.
PREREQUISITE: Admission to the Master of Planning Studies programme, PLAN 8000
RESTRICTIONS: Limited to students in the Master of Planning Studies Programme

PLAN 9010 MPS Thesis Continuation

CREDIT HOURS: 0
When a thesis committee grades the course PLAN 9000.15 as "In Progress", the student registers for PLAN 9010.00 each fall and winter semester until the thesis is successfully defended and completed.
PREREQUISITE: Plan 9000 graded as IP
RESTRICTIONS: Limited to students in the Master of Planning Studies programme who have earned IP in Plan 9000.15

Political Science

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Staff

Chairperson of Department

Harvey, F.

Graduate Co-ordinator

Fierlbeck, K.

Professors Emeriti

Boardman, R., BSc, PhD, DSc (London). International organization, European Politics, Environment
Cameron, D. M., BA (Queen's), MA, MPhil, PhD (Toronto). Canadian federalism and intergovernmental relations; Canadian public policy; city government
Eayrs, J. G., BA (Toronto), AM, PhD (Col), FRSC
Stairs, D., BA (Dalhousie), MA (Oxon), PhD (Toronto), FRSC, OC. Canadian foreign policy; foreign policy process
Winham, G. R., BA (Bowdoin), Dip Int Law (Manchester), PhD (N Car), FRSC, Eric Dennis Memorial Professor of Government and Political Science. International relations and diplomatic practice; international political economy; US Foreign policy; Canada-US relations

Professors

Black, D., BA (Trent), MA, PhD (Dalhousie). Canadian and comparative foreign policy; Southern Africa; North-South relations; International Development
Fierlbeck, K., BA (Alta), MA (York), PhD (Cantab). Political theory, health policy and democratic theory
Finbow, R. G., BA (Dalhousie), MA (York), MSc, PhD (London). Comparative politics (Western democracies [Latin America]); Comparative theory; Canadian regionalism
Harvey, F., BA, MA, PhD (McGill). Theories of international relations; International conflict and crises; comparative foreign policy; American foreign policy; Canada - US relations

Associate Professors

Arthur, P., BA (Ghana), MSc (LSE), MA (WLU), PhD (Queen's). Comparative Politics (African Politics), Development, Foreign Policy
Bow, B., BA (UBC), MA (York), PhD (Cornell). International Relations; International Diplomacy and Institutions; International Political Economy; Foreign Policy; Canada-US Relations
Carbert, L., BA (Alta), MA, PhD (York). Political behaviour; Elections; Women and Politics
Denike, M., BA (Simon Fraser), MA (UBC), LLM (Queen's), PhD (York). Western political theory; Human rights; Philosophies of law; Feminist Theory; Queer Theory
Good, K., BA, MA (Man), PhD (Toronto). Urban and suburban governance in Canada, Canadian federalism and multi-level governance, Canadian public policy, race relations in Canada
Hayden, A., BA (McGill), MES (York), PhD (Boston College). Environmental and Climate Politics; Politics of Consumption, Political Economy
Turnbull, L., BA, MA, PhD (Dalhousie). Canadian Politics with specific focus on ethics, parliament, and citizen engagement
Zaiotti, R., BA (Bologna), MA (Oxford), PhD (Toronto). European Union; Internationa Relations Theory; International Security; Border control and Immigration Policy; Transatlantic relations

Cross-listed Faculty

Dodd, S., University of King's College
Kow, S., University of King's College
Robertson N., University of King's College

Adjunct (FGS)

Bail, F., Dalhousie University
Bickerton, J., St. Francis Xavier University
Brown, P., Dalhousie University
Cameron, D., Dalhousie University
El-Masri, S., Dalhousie University
Hansen, K., Dalhousie University
Holloway, S., St. Francis Xavier University
Laursen, F., Dalhousie University
Lehre, E., Dalhousie University
Middlemiss, D., Dalhousie University
Savoie, D., Universite de Moncton
Shaw T., University of Massachusetts
Smith, J., Dalhousie University
Stairs, D., Dalhousie University
Whitman, S., Dalhousie University

Admission Requirements

Applicants must satisfy the minimum requirements set by the Faculty of Graduate Studies.

Successful applicants for the MA program will have an Honours BA in Political Science, or its equivalent, with first-class standing (GPA of 3.70 or higher).

Admission decisions are based on academic transcripts, letters of reference, a sample of written work, statement of research interest submitted by the applicant, and the capacity of the Department to supervise a thesis in the applicant's proposed field of research.

Successful applicants for the PhD program will have an MA in Political Science with first-class standing (GPA of 3.70 or higher). Admission decisions are based on the same considerations that apply to the MA program, but PhD students are admitted only when a faculty member is prepared to supervise the applicant's program, including the proposed thesis topic.

Applicants who do not meet all of the above requirements, but who have superior academic qualifications, may be considered for admission to the MA program.

Applicants whose native language is not English must demonstrate a minimum of 600 for the written TOEFL/100 for the internet based test, or IELTS with an outcome of 7.5.

Master of Arts (MA)

The MA is a one-year (12 month) program consisting of 18 credit hours and a thesis. A candidate for the degree Master of Arts in Political Science will require at least 12 months of full-time study to complete all degree requirements. Courses include at least six of the 18 required credit hours in a core graduate seminar (International Relations, Canadian, Comparative or Theory), three credit hours in another core field, and the remaining graduate courses/credit hours in any field or from courses in other departments (with permission of the instructor).

Doctor of Philosophy (PhD)

The PhD program requires two years of full-time residency, and is expected to be completed within four years. Students must take core courses in at least two of the subfields (international relations, Canadian, Comparative or Theory), along with other graduate courses in political science or in related fields in other departments (with permission of the instructor). The two principal requirements consist of comprehensive examinations in two fields (a major and minor field) and an original thesis. Course work will be required as appropriate to prepare the student for her or his comprehensive examinations. These examinations will include both written and oral components. Before proceeding to the thesis, a student must present and defend a thesis proposal. Also, reading competence in a second language, usually French, must be demonstrated before the student begins work on the thesis. The thesis is written under the direction of a committee comprising of the supervisor and two other members, and may include qualified faculty members from other departments and other universities. The completed thesis is subject to a public, oral defence.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Courses offered by the Department are organized into four fields, as follows:

- Canadian Politics
- Comparative Politics
- Political Theory
- International Relations and Foreign Policy

Each field (with the exception of Political Theory) contains courses offered as core graduate seminars, and courses cross-listed at the upper undergraduate/graduate level. The latter usually contain a majority of fourth year undergraduate students, and graduate students will be required to satisfy appropriately higher standards. In addition, directed reading courses may be arranged on an individual or small group basis with appropriate faculty members. This will often be particularly appropriate in areas closely related to a student's thesis research, in conjunction with the thesis supervisor.

Note: Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Canadian Government and Politics

Core Graduate Seminar:

POLI 5204X/Y.06: Advanced Seminar in Canadian Politics
POLI 5207.03: Advanced Seminar in Canadian Politics

Cross-listed Courses

POLI 5232.03: Urban Governance in Canada
POLI 5234.03: Canadian Urban Politics in Comparative Perspective
POLI 5240.03: Introduction to Public Policy
POLI 5241.03: Introduction to Policy Analysis
POLI 5242.03: Politics of Reason, Passion, and Biology
POLI 5250.03: Canadian Public Administration
POLI 5260.03: The Politics of Health Care

Comparative Politics

Core Graduate Seminar:

POLI 5301.03: Comparative Theory
POLI 5340.03: Approaches to Development

Cross-listed Courses:

POLI 5302.03: Comparative Development Administration
POLI 5303.03: Human Rights and Politics
POLI 5322.03: The EU as a Global Actor
POLI 5325.06: European Politics
POLI 5345.03: Politics of Southern Africa
POLI 5380.03: Politics of Climate Change

Political Theory and Methodology.

Cross-listed Courses:

POLI 5403.03: Human Rights: Philosophical Issues
POLI 5440.03: The Politics of Affect: Theories of Emotion and Political Life
POLI 5479.03: Classical Liberalism and Democracy
POLI 5481.03: Theories of Violence, Persecution and Genocide

International Relations and Foreign Policy

Core Graduate Seminar:

POLI 5523.03: International Relations Theory 1: Order, Conflict and Change
POLI 5524.03: International Relations Theory 2: Cooperation, Institutions and Development

Cross-listed Courses:

POLI 5560.03: Issues in Global Security and Development
POLI 5569.03: Canadian Foreign Policy
POLI 5571X/Y.06: Strategy and Canadian Defence Policy
POLI 5575.03: Nuclear Weapons and Arms Control in World Politics
POLI 5581.03: International Diplomacy: Institutions and Practices
POLI 5587.03: International Political Economy
POLI 5589.03: Politics of the Sea II
POLI 5595.03: Politics of the Sea II

Directed Reading Courses

Graduate students taking directed reading courses register under one of the following designations, depending on whether the course extends for the first term, the second term, or the full academic year:

POLI 5601X/Y.06: Readings in Political Science
POLI 5602.03: Readings in Political Science
POLI 5603.03: Readings in Political Science

Thesis

Students register for the thesis under the appropriate designation, as follows:

POLI 9000.00: MA Thesis
POLI 9530.00: PhD Thesis

Course Descriptions

POLI 5204X/Y Advanced Seminar in Canadian Politics

CREDIT HOURS: 6
This senior seminar will take an in-depth and critical look at the major issues and institutions in Canadian politics and government. Topics include: the concentration of power; parliamentary governance: constitutional politics; party and electoral systems; and, the role of the mass media and pressure groups.
NOTES: 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: Permission of the instructor.

POLI 5207 Advanced Seminar in Canadian Politics

CREDIT HOURS: 3
This senior seminar will take an in-depth and critical look at the major issues and institutions in Canadian politics and government. Topics include: the concentration of power; parliamentary governance: constitutional politics; party and electoral systems; and, the role of the mass media and pressure groups.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4207.03
EXCLUSIONS: POLI 4204.06, POLI 4207.03

POLI 5232 Urban Governance in Canada

CREDIT HOURS: 3
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.
FORMAT: Seminar
PREREQUISITE: Permission of the Instructor
CROSS-LISTING: POLI 4232.03

POLI 5234 Canadian Urban Politics in Comparative Perspective

CREDIT HOURS: 3
This course examines the politics and governance of Canadian cities from a comparative perspective. More specifically, the course uses comparative method in three ways: it asks what one can learn from comparing Canadian cities with each other (subnational comparisons), what cross-national comparisons of Canadian cities can teach as well as compares Canadian cities implicitly with other cities by applying to Canadian cities theories of urban politics and development that have been developed elsewhere. 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.
FORMAT: Seminar
PREREQUISITE: Permission of the Instructor
CROSS-LISTING: POLI 4234 03

POLI 5240 Introduction to Public Policy

CREDIT HOURS: 3
A comprehensive examination of the three critical questions. 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 in policy advocacy both inside and outside government. The first section of the course examines policy definitions and professional policy making approaches in the 21st century. The second section considers the role of the state in the 21st century, and the policy competencies that analysts must have if that role is to be carried out effectively. Section three explores vertical, horizontal and external policy relationships, both as determinants 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 blend of theory and practice 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 in policy processes in the future. CROSS-LISTED: POLI 4240.03/PUAD 5120.03
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.

POLI 5241 Introduction to Policy Analysis

CREDIT HOURS: 3
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; and 4) the analyst's responsibilities to government and to the public in determining what information should reach decision-makers. Approved with Canadian Studies.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: PUAD 5121.03

POLI 5242 Political Behaviour: Reason, Passion, Biology

CREDIT HOURS: 3
Does reason or passion drive politicians and citizens to act as they do? Or does the dichotomy between the mind and the heart disguise a more fundamental biological basis to political behavior? Do these approaches leave 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 on practice. Although this material is inherently global and comparative, we principally want to investigate how it applies to Canada.
CROSS-LISTING: POLI 4242.03

POLI 5250 Canadian Public Administration

CREDIT HOURS: 3

This course examines the organization and management of the executive-bureaucratic structures of government for the formation and management of public policy and public services. It considers the design and operation of the cabinet system and ministerial portfolios; relations between ministers and the career 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 restraints, increased demands for quality services and public participation, and greater effectiveness in securing results.
FORMAT: Lecture| Discussion
CROSS-LISTING: POLI 4250.03

POLI 5260 The Politics of Health Care

CREDIT HOURS: 3
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 federalism, funding, and governance.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4260.03

POLI 5301 Comparative Theory

CREDIT HOURS: 3
This course examines two levels of theory utilized in the study of politics in different nations: 1) the major paradigms or approaches to comparative political analysis, characterized by rationalist, structuralist and culturalist approaches to methodology and knowledge, and differentiated by “orthodox” and “radical” and post-modern worldviews; and 2) selected theoretical tools used to analyze themes like the political system, the nature of the state, institutions, group and class politics, social, corporatism and elitism, political culture and ideology, democratic and revolutionary regime change, political development and economic dependency, social movements and feminism, etc. The list of topics is subject to revision depending on the students' backgrounds and interests.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.

POLI 5302 Comparative Development Administration

CREDIT HOURS: 3
Some analytical and normative issues of public administration in developing countries are examined including 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 resources management, aspects of state economic management with Japanese and South Korean case studies; and institutional aspects of aid administration with CIDA and World Bank cases.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4302.03

POLI 5303 Human Rights and Politics

CREDIT HOURS: 3
This course will examine the evolving place of human rights in politics, both comparative and international. 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; genocide; humanitarian intervention, and the responsibility to protect; 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:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4303.03

POLI 5322 The EU as a Global Actor

CREDIT HOURS: 3
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 area of external economic relations (first pillar) and the Common Foreign and Security Policy (second pillar) and analyses of the main achievements in both areas. Specific topics to be selected for analyses during the second part will include the EU and the WTO, the EU and the US, the EU and 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 Defense Policy.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4322.03

POLI 5325X/Y European Politics

CREDIT HOURS: 6
The comparative study of politics in European countries gives a useful perspective on Canadian politics. Focusing primarily on western Europe, this course examines party politics, government institutions, contemporary public policy issues, and related topics in selected European states. Discussion of the politics of the European Union is an integral part of the course.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4325.06

POLI 5340 Approaches to Development

CREDIT HOURS: 3
A survey of theories of and policies about dependence, underdevelopment and peripheral social formations. Particular emphasis on modernization, materialist, and

alternative modes of analysis, and on orthodox and radical strategies of development. Topics treated include social contradictions (e.g. class, race and ethnicity), debt, structural adjustment, human development, human security, gender, technology, civil society, informal sectors, democratization and ecology.
FORMAT:
PREREQUISITE: Permission of the instructor.

POLI 5345 Politics of Southern Africa

CREDIT HOURS: 3
This course focuses on political change in the Southern African region since the end of colonialism. It compares the experience of the various countries in the region to development and security pressures related to the legacies of colonialism, persistent economic problems and recent structural adjustments, environmental degradations and threats, ethnic, class and gender cleavages, strategic and social problems related to first apartheid and later post-apartheid transitions, issues of governance and regional conflict as well as more positive trends that towards abatements in civil wars and a surge of democratization. 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.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4345.03

POLI 5355 Comparative Perspectives on the Development State

CREDIT HOURS: 3
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/Southeast Asian economies have been transformed vis-a-vis Latin America and Africa. The course compares the "developmental state" model across the developing world, by briefly focusing on three distinct cases - South Africa, Malaysia and Brazil - as "upwardly mobile" late industrialisers.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: Poli 3355

POLI 5380 Politics of Climate Change

CREDIT HOURS: 3
This course examines interactions between politics and a changing climate. Topics include: the role of science and economics in climate politics; the new ‘climate capitalism’ and non-capitalist alternatives; Canada’s difficulties in addressing climate change; climate politics at the personal level; international climate negotiations; and climate as a security issue.
FORMAT: Seminar
PREREQUISITE: POLI 3385.03 or POLI 3585.03 highly recommended, but not required or Permission of the Instructor
CROSS-LISTING: POLI 4380.03

POLI 5403 Human Rights: Philosophical Issues

CREDIT HOURS: 3
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 the present. It covers the shift from natural law to natural right, the emergence of states’ rights to sovereign governance, and the development of specific classes of rights (including freedom of conscience, property rights, women’s rights, cultural rights, animal rights, and socioeconomic rights).
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4403.03, PHIL 3470.03

POLI 5440 The Politics of Affect: Theories of Emotion and Political Life

CREDIT HOURS: 3
This course draws on recent developments in the burgeoning of 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; sensorial responses 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 emotions such as fear, disgust, and distain, and compassion in social conflict, and in the formative approaches to retribution and reconciliation.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor
CROSS-LISTING: POLI 4440.03

POLI 5476 Liberalism and Global Justice

CREDIT HOURS: 3
This is a course in normative political theory. We will critically examine some recent normative political theory, and then examine the prospects and perils of attempts by recent liberal theory to articulate a principled vision of global justice. We will consider Rawls' original bounded 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 (namely, human rights and immigration) as well as issues of economic and social justice and poverty.
FORMAT: Lecture| Discussion
CROSS-LISTING: PHIL 5212.03, PHIL 3476.03, POLI 3476.03

POLI 5479 Classical Liberalism and Democracy

CREDIT HOURS: 3
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.
FORMAT: Seminar

CROSS-LISTING: PHIL 4470.03/5470.03, POLI 4479.03, ECON 4446.03/5446.03

POLI 5481 Theories of Violence, Persecution and Genocide

CREDIT HOURS: 3
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 instigation and exacerbation of persecution and genocide. Attending to the role of the state and state policies in the history of violence, it will examine the discourses and practices that have both fuelled and justified the colonization of native peoples, enslavement of racial groups, the holocaust, and ethnic cleansing in 20th century genocides. We will also consider the recent attempts of the international community to prevent, deter, and curb genocidal outbreaks, and the theoretical assumptions about human behaviour that underpin them.
CROSS-LISTING: POLI 4481.03

POLI 5512 The Politics of North America

CREDIT HOURS: 3
North America has become increasingly integrated over the last thirty years--economically, demographically, and even politically. This course will review the history of regional integration in North America, and consider a number of contemporary policy controversies. It bridges sub-disciplinary boundaries by looking at both domestic policy-making (Comparative Politics) and at bargaining between the three countries (International Relations).
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.

POLI 5523 International Relations Theory 1: Order, Conflict and Change

CREDIT HOURS: 3
Explores classic and contemporary debates in International Relations theory, with particular attention to the nature of international order, the bases for war and peace, and the question of transformational change.
FORMAT: Seminar
PREREQUISITE: Permission of the Instructor
EXCLUSIONS: POLI 4523.03

POLI 5524 International Relations Theory 2: Cooperation, Institutions and Development

CREDIT HOURS: 3
Explores classic and contemporary debates in International Relations theory, with particular attention to the bases for international cooperation, the role of law and institutions, and the foundations of political economy.
FORMAT: Seminar
PREREQUISITE: Permission of the Instructor
CROSS-LISTING: POLI 4524.03
EXCLUSIONS: POLI 5520.06

POLI 5550 Japanese Foreign Policy

CREDIT HOURS: 3
This course focuses on the course of Japan's foreign policy since 1945, and the factors that have shaped its approaches to regional and international issues. Topics are studied in the contexts of Japanese history, cultural traditions, its economy, and domestic politics.
FORMAT: Seminar
CROSS-LISTING: POLI 3550.03

POLI 5560 Issues in Global Security and Development

CREDIT HOURS: 3
Security and development are indissolubly linked: development is compromised when security remains problematic, while a secure environment requires some form of sustainable development. Two of the principle manifestations of this ‘security-development nexus’ have been intrastate wars and collapsed states. In 2011 for example, none of the states emerging from civil war had reached any of the Millennium Development Goals set by the United Nations. Moreover, the security-development relationship conditions our capacity to develop effective policies on how and whether to intervene in 'fragile' or 'collapsed' states where the security environment is highly problematic, and our capacity to contribute to the economic and human development of these countries. This course aims, first, to give students a broad understanding of the various dimensions of the security-development nexus; and second, to address significant practical implications of this nexus. An important portion of the course will examine specific case studies, and feature keynote practitioners who are grappling with these concepts in everyday situations in the field.
FORMAT: Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 3560.03

POLI 5565 Contemporary Security Studies

CREDIT HOURS: 3
The course examines developments in the theory and practice of international security since the end of the Cold War. The first part reviews the concept of security and the main theoretical approaches that inform the contemporary security debate. The second part analyzes some of the key contemporary issues in world politics and their relation with international security.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 3565.03

POLI 5569 Canadian Foreign Policy

CREDIT HOURS: 3
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 ‘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 context; and key themes and issues in Canadian foreign policy.
FORMAT: Seminar

PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4569.03
EXCLUSIONS: POLI 5570.06

POLI 5571X/Y Strategy and Canadian Defence Policy

CREDIT HOURS: 6
This seminar examines the substance, processes, recurring themes, and major international and domestic determinants of post-World War II Canadian defence policies. It explores several major policy "milestones" (e.g. Canadian Forces' role in the Persian Gulf conflict), and various persistent themes (the "Commitment-capability gap"; efforts to "democratize" defence policy reviews) and current issues (e.g. the implications of recent human rights challenges to traditional military professionalism; Canada's role in the Afghanistan conflict) of Canadian defence.
NOTES: 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: Permission of the instructor.
CROSS-LISTING: POLI 3571.X/Y.06

POLI 5575 Nuclear Weapons and Arms Control in World Politics

CREDIT HOURS: 3
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.
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4575.03

POLI 5581 International Diplomacy: Institutions and Practices

CREDIT HOURS: 3
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-US Free Trade Agreement and NAFTA, and the Kyoto Protocol. Students participate in a negotiation-simulation exercise and write a paper on a particular case.
FORMAT:
PREREQUISITE: Permission of the instructor.
EXCLUSIONS: POLI 4581.03

POLI 5587 International Political Economy

CREDIT HOURS: 3
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 labour" 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.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4587.03

POLI 5589 Politics of the Sea II

CREDIT HOURS: 3
The 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 oceans policies and institutions.
FORMAT:
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: MARA 5589.03, POLI 4590.03

POLI 5595 Politics of the Sea II

CREDIT HOURS: 3
This course examines Ocean Governance in the context of global developments from UNCLOS/UNCED to Integrated Ocean and Coastal Management with a particular focus on issues of Oceans and Zones of Peace, the Economics of the Common Heritage and Institutional Requirements necessary to govern oceans equitably and in a sustainable manner. The course will be delivered in a seminar format and students will be required to deliver presentations, participate in simulation exercises and submit a term paper.
FORMAT: Lecture| Seminar
PREREQUISITE: Permission of the instructor.
CROSS-LISTING: POLI 4590

POLI 5601X/Y Readings in Political Science

CREDIT HOURS: 6

POLI 5602X/Y Readings in Political Science

CREDIT HOURS: 3

POLI 5603X/Y Readings in Political Science
CREDIT HOURS: 3

POLI 5656X/Y Oil, Natural Gas and Government: The Political Economy of Regulation
CREDIT HOURS: 3
Given that oil and natural gas activities are vital both for internal Canadian energy consumption and for an increasing fraction of Canadian energy exports to the United States, the conjoint management of these activities by the private and public sectors is of considerable importance. This course is designed to give students interested in issues related to oil and natural gas, natural resource exploitation, and public policy and administration, an understanding of how oil and gas activities are manager.
FORMAT: Seminar
CROSS-LISTING: POLI 4656.03

POLI 9000 MA Thesis
CREDIT HOURS: 0

POLI 9530 PhD Thesis
CREDIT HOURS: 0

Process Engineering and Applied Science

- **Biological Engineering**
- **Chemical Engineering**
- **Food Science**
- **Materials Engineering**

Staff

Department Head

Kuzak, S., BEng, MEng (McGill), PhD (Dalhousie), PEng

Graduate Coordinator

Gibson, M., BA (Sheffield Hallam), MSc, PhD (Strathclyde)

Graduate Secretary

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Professors Emeriti

Caley, W. F., BSc (Eng), MSc (Eng) (Queen's), PhD (Toronto), PEng. Ceramic and metal matrix composites, pyrometallurgy, slag/refractory reactions in steelmaking, nickel and aluminum powder metallurgy
Chen, B. H., BSc (Nat. Taiwan), MEng, PhD (McGill), PEng
Ghaly, A. E., BSc, MSc (Alexandria), PhD (McGill), PEng. Environmental Biotechnology, Industrial ecology, bioremediation, phytoremediation, fermentation technology, energy conversion
Hancock, H. A., BASc, MASc, PhD (Toronto), PEng
McMillan, A. F., BSc, MSc (Queen's), PhD (MIT), PEng
Watts, K. C., BSA, MSc, PhD, PEng. Biodiesel fuel, aquacultural engineering, agricultural machinery design, blood flow modeling

Professors

Amyotte, P. R., BEng (RMC), MSc (Eng) (Queen's), PhD (TUNS), PEng. Industrial safety and loss management, dust explosions
Bishop, D. P., MASc, PhD (TUNS). Aluminum powder metallurgy, alloy development, metal matrix composites, powder forging, mechanical testing, structure automotive components
Budge, S., BSc (Acadia), PhD (Memorial). Marine lipids, trophic studies, fish nutrition, lipid oxidation
Farhat, Z., BASc, MASc, PhD (Windsor). Tribology, nanocrystalline and composite coatings, wear testing, curring tools, fuel cell materials
Gill, T. A., BSc, MSc (Guelph), PhD (UBC). Food proteins and enzymes, seafood quality, safety, preservation, antimicrobial peptides and marine toxins
Paulson, A. T., BSc (Agr), MSc, PhD (UBC). Food chemistry, physico-chemical properties, polymers, emulsions and gels, dielectric methods, thermal processing, packaging and HACCP
Pegg, M. J., BSc, PhD (Leeds), PEng. Combustion, safety and loss prevention
Plucknett, K. P., BSc, PhD (Warwick). Structural and functional ceramics, intermetallics, fibre-reinforced composites, electron microscopy, material processing, mechanical properties, biopolymers
Speers, R. A., BSc (Agr), MSc, PhD (UBC)
Truelstrup Hansen, L., Cand. Brom., PhD (Roy Vet Agr Univ Denmark). Food microbiology, food safety, Biofilms, probiotic bacteria, bacterial stress responses, food preservation, food biotechnology, HACCP
Yemenidjian, N. B., BEng, PhD (Concordia), PEng. Electronic materials, hard materials, ceramics and glasses

Associate Professors

Brooks, M. S., BTech (Hons) (Massey), PhD (Cambridge), PEng. Bioprocess Engineering, Biochemical Engineering, Biotechnology, Drug Delivery, Pharmaceutical Processing, Food Engineering, Waste Utilization
Ghanem, A., BSc (UNB), PhD (Cornell), PEng. Tissue engineering, drug delivery, bioprocessing, toxicology
Gibson, M., BA (Sheffield Hallam), MSc, PhD (Strathclyde). Ambient indoor and occupational air pollution monitoring, modeling and exposure assessment. Source-receptor modeling, aerosol characterization, trace reactive gas analysis
Jamieson, R. C., BEng, MASc (TUNS), PhD, PEng (Guelph). Contaminant fate and transport, watershed assessment, water quality modeling, ecological engineering
Kuzak, S., BEng, MEng (McGill), PhD (Dalhousie), PEng
Mazzanti, G., BEng (America), MASc, PhD (Guelph). Food processing, food engineering, crystallization of lipids under shear flow, synchrotron x-ray diffraction, NMR, thermal and dehydration

Assistant Professors

Donaldson, A., BASc, PhD (Ottawa). Multifluid process design, multiphase flow, computational fluid dynamics, oscillating reactor technology
Haelssig, J., BASc, PhD (Ottawa). Multiphase CFD, process intensification, multicomponent phase change, hybrid separation processes, biofuels
Jarjoura, G., BEng (TUNS), MASc, PhD (Dalhousie). Material degradation, impedance spectroscopy, hydrogen absorbing materials
Kermanshahi-pour, A., BSc (Mashhad), MSc (Western), PhD (McGill), PDF (Yale). Microalgae integrated biorefinery, carbon dioxide sequestration, Bioenergy, Biofuel, Biodegradation pathway of contaminants, Bioremediation of contaminants
MacIntosh, A., BEng (St. Mary's), MASc, PhD (Dalhousie). Fermentation, Bioprowess Engineering, Non-linear Modeling, Carbon Dioxide Fate Generation and Transport

Adjunct (FGS)

Al Taweel, A. M., BSc (Alexandria), MSc, PhD (Colorado), PEng. Mixing and separation, multi-phase CFD pollution prevention
Armenta, R., BEng (Sonora Institute of Technology), MSc, PhD (Autonomous Metropolitan Univ). Microbial oils and high-value products through fermentation with algae, including work on fermentation optimization, downstream processing and genetics
Bezanson, G., BSc (Mt. A), MSc (Dalhousie), PhD (Carlton)
Blouin, S., BASc (Laval), MASc (Ecole Polytechniques), PhD (Queen's)
Clyburne, J., BSc (Acadia Univ), PhD (Dalhousie)
Conlon, M., BSc (Flinders Univ), PhD (Univ of Adelaide). Modulating the gut microbiota through the use of pre and probiotics to enable prevention and/or treatment of colorectal disease
Craig, **S. E.,** BSc, PhD (Strathclyde). Ocean colour, bio-optics, phytoplankton ecology
Donaldson, I., BSc (Univ of Michigan), MSc (Worcester Polytechnic Institute)
Gillis, M., BSc, MSc (UNB), PhD (Sasckatchewan)
Gordon, R., BSc, MSc (McGill), PhD (Guelph), PEng, PAg
Hart, W., BA (Ohio Wesleyan), PhD (Dalhousie)
Jin, Y., BSc (Yangzhou), MSc, PhD (Dalhousie)
Kalmokoff, M., BSc (Guelph), MSc (Saskatchewan), PhD (Queen's). Food microbiology, biofilms, bacteriocins, listeria, intestinal microbiology
Khan, F., BSc (Aligarh Muslim Univ), MSc (Univ of Roorkee), PhD (Pondicherry Univ)
Lake, J., BSc, PhD (Dalhousie)
MacKinnon, S., BSc (UNB), MSc (Dalhousie), PhD (Ottawa)
Madani, A., BSc (Pahlavi Univ), MSc (UBC), PhD (Washington State Univ)
Miadonye, A., BSc (Univ of Southbank), PhD (Loughborough Univ)
Newling, B., BA, PhD (Cambridge Univ)
Pink, D., BSc, PhD
Sullivan-Ritter, J., BSc, PhD (Dalhousie)

Wilkie, K., BEng (Royal Military College of Canada), MEng (NS Technical College), PhD (TUNS)
Wright, B., BDs (Univ of London), MSc (Indiana Univ), MD (Dalhousie), FRCPC, General Pathology (Dalhousie and the Royal College of Physicians and Surgeons)
Yost, C., BSc (Univ of Victoria), PhD (Calgary)

Biological Engineering Program

Graduate SecretarGraduate Secretaryy
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Website: engineering.dal.ca/DEPARTMENTS/PEAS-Graduate_Progra.php

Introduction

Biological Engineering applies natural science and engineering principles to the biological world. As such, Biological Engineering addresses a wide range of problems relating to the environment, food and other biomaterial production and processing, renewable energy and reusable resources. Emphasis is placed on optimizing design performance in dealing with biological materials and systems while preserving sustainability and protection of the environment.

The Biological Engineering program has focused research in Environmental Engineering and Biosystems Engineering. Research projects therefore encompass both specific environmental concerns and the sustainable utilization of natural resources.

The Department has co-operative projects with faculty members in other Universities both locally and internationally. Opportunities exist to participate in these research projects, which provide wider experience and, in which a specific component leads to a Master's or Doctorate degree. See section on Engineering for details of Master's and Doctoral programs.

*Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions BIOE

BIOE 6000 Small Watershed Hydrology

CREDIT HOURS: 3
Following an overview of the nature of hydrologic data and models, emphasis is placed on deterministic mathematical modelling of component processes and the synthesis of complete hydrographs. Components examined include precipitation, infiltration, evapotranspiration, surface and subsurface flow. The structure and application of selected current models are presented.
PREREQUISITE: A first course in engineering hydrology and microcomputer experience

BIOE 6010 Non-Point Source Pollution Control

CREDIT HOURS: 3
Course content initially deals with variants of the empirical USLE approach to soil erosion estimation and control on land surfaces through application of the RUSLE model. Theoretical and quasi-process concepts quantifying soil detachment, transport and deposition in interrill and rill runoff under rainfall and snowmelt leads to consideration of the dependent modelling of the form and movement of land applied nutrients and pesticides. Models used include COSSEM, ANSWERSPS, CREAMS and SWAT. Emphasis is placed on model application to assess measures to protect surface water, groundwater and aquatic life resources.
PREREQUISITE: At least one credit in engineering hydrology and microcomputer experience.

BIOE 6200 Advances in Waste Handling and Disposal

CREDIT HOURS: 3
Current methods of handling and disposal of wastes are discussed. Physical, chemical and biological properties of various types of waste materials as related to practical design problems are studied. Technological advances in holding tanks, lagoon design, pumping and agitation equipment, solid-liquid separation systems and land disposal equipment are introduced.

BIOE 6210 Advanced Biochemical Engineering

CREDIT HOURS: 3

This course deals with advances in microbial fermentation and enzymatic reactions in biological reactors. Topics covered include: microbial and enzyme kinetics, system parameters, reactor design and scale-up, media and air sterilization, measurements and control, and recovery of fermentation products.

BIOE 6230 Biological Treatments of Wastes

CREDIT HOURS: 3

The physical, chemical and biological properties of various wastes as related to the design of biological treatment processes are discussed. Fundamental microbiology and factors affecting the growth and survival of microorganisms in biological systems are studied. Engineering fundamentals of various biological processes are presented. Treatment systems such as aerobic and anaerobic lagoons, oxidation ponds, oxidizing ditches and composting are introduced.

BIOE 6240 Biomass Energy

CREDIT HOURS: 3

The source and amount of energy consumed in various agricultural operations will be studied. Renewable energy sources will be identified and their technical feasibility will be investigated. Technological advances in biochemical and thermochemical conversion systems will be included and the impact of these conversion systems on the environment will be studied.

BIOE 6300 Instrumentation for Agricultural Engineering Research

CREDIT HOURS: 3

The objective of this course is to integrate basic instrumentation and control components with a microcomputer. Primary elements which sense parameters of interest to Agricultural Engineers (e.g. humidity, temperature, pressure, flow, displacement, velocity and acceleration) are discussed with emphasis on the interfacing to a microcomputer. Topics covered in lectures and weekly laboratories include signal conditioning, digital to analog conversion, analog to digital conversion, voltage to frequency conversion, on-off control, and PID control. Students study the fundamentals through the breadboarding of a basic data acquisition and control system and by applying it to practical problems.

BIOE 6350 Advanced Instrumentation

CREDIT HOURS: 3

This course covers topics in microprocessor based measurement, computation, communications and control. Subject matter is covered in relation to the use of embedded microcontrollers. Development systems for both hardware and software emulation are utilized in weekly laboratory exercises and a term project. Topics covered include: assembly language programming, C programming using a “small C” environment, high speed data acquisition and data storage, computer to computer communications and interfacing of various sensor types and control hardware.

BIOE 6410 Advanced Food Engineering I

CREDIT HOURS: 3

The theoretical and practical aspects of food rheology and separation processes will be studied. These include: rheological characteristics of fluid and powdered foods, psychorheology, food extrusion, drying, freeze concentration, evaporation, membrane separation, and extraction. Emphasis will be place on recent research in these areas. The principles of process design will be incorporated in the design of various food processing plants.

BIOE 6420 Advanced Food Engineering II

CREDIT HOURS: 3

This course will deal with the concept of reaction kinetics in foods, thermal processing, and production/processing of food products. The concept of reaction kinetics will be applied to problems of storage stability and thermal processing calculations. Detailed coverage will be given to topics such as aseptic packaging, microwave sterilization, food irradiation, fouling of heat transfer equipment by fluid foods. Emphasis will be given on recent research in these areas.

BIOE 6510 Analytical Modelling in Farm Machinery

CREDIT HOURS: 3

This course investigates existing models that relate to some aspects of the operation or use of machinery on the farm. These models describe: material flow into, through, and out of farm machinery; forces on implements as they interact with the soil, etc.; heat and mass flow in grain dryers; optimum planning models, etc.

BIOE 6610 Applied Solar Energy

CREDIT HOURS: 3

The course covers the following topics: solar radiation measurement and methods of estimating the availability of solar energy for flat-plate solar collectors; flat-plate solar collectors design and methods of testing their performance; energy storage; procedures for solar heating systems design including computer simulations; and design of monitoring systems for the evaluation of the performance of solar heating systems and their components. Topics in any given year will depend on the interests of students.

BIOE 6700 Directed Studies I

CREDIT HOURS: 3

This course is available to graduate students enrolled in a MASc or MEng degree program in Biological Engineering wishing to gain knowledge in a specific area or areas related to, but distinct from their research topic, and in which no graduate level course is offered. The student will be involved in tutorials, laboratory and individual studies. The study will be presented in a report which uses thesis style format. Only one directed studies course can be used for credit for each degree.

BIOE 7700 Directed Studies II

CREDIT HOURS: 3

This course is available to graduate students enrolled in a PhD program in Biological Engineering wishing to gain knowledge in a specific area or areas related to, but distinct from their research topic, and in which no graduate level course is offered. The student will be involved in tutorials, laboratory and individual studies. The study will be presented in a report which uses thesis style format. Only one directed studies course can be used for credit for each degree.

BIOE 8500 MEng Project

CREDIT HOURS: 0

A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

BIOE 9000 MASc Thesis
CREDIT HOURS: 0

BIOE 9530 PhD Thesis
CREDIT HOURS: 0

Course Descriptions PEAS 6710
PEAS 6710 Graduate Research Symposium I
CREDIT HOURS: 0
All students enrolled in the MASc, MEng and MS degree programs are required to participate in this course. The course is designed to provide students with the opportunity and experience of interacting with their peers, faculty and profession. There will be an annual research symposium which will include guest speakers and/or panel discussion on topical issues presented by scholars from industry, government and academia and oral and poster presentations by students. One 30 minute oral presentation and one poster presentation must be given by the students at the department symposia during the student tenure. Students will be evaluated on quality of handouts, organization and preparation of material, presentation skills, technical content, knowledge of the subject, critical judgment of reference material and ability to answer questions. Graded pass/fail.
NOTES: This course is to replace Graduate Seminar I in all programs.

Course Descriptions PEAS 7710
PEAS 7710 Graduate Research Symposium II
CREDIT HOURS: 0
All students enrolled in the Ph.D degree program are required to participate in this course. The course is designed to provide students with the opportunity and experience of interacting with their peers, faculty and profession. There will be an annual research symposium which will include guest speakers and/or panel discussions on topical issues presented by scholars from industry, government and academia and oral and poster presentations by students. Two 30 minute oral presentations and two poster presentations must be given by the student at the department symposia during the student tenure. Students will be evaluated on quality of handouts, organization and preparation of material, presentation skills, technical content, knowledge of the subject, critical judgement of reference material and ability to answer questions. Graded pass/fail.
NOTES: This course is to replace Graduate Seminar II in all programs.

Chemical Engineering Program

Graduate Secretary
Telephone: (902) 494-4597
Email: peasgrad@dal.ca
Website: engineering.dal.ca/DEPARTMENTS/PEAS-Graduate_Progra.php

Introduction

The Chemical Engineering program prepares students for careers in the chemical and process industries and in a variety of related fields. These encompass, 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.

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.

*Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Courses
Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions CHEE

CHEE 6000 Special Topics in Chemical Engineering I

CREDIT HOURS: 3

This course is available to graduate students (pursuing a MASc degree) wishing to gain knowledge in a specific area for which no graduate level courses are offered. The proposed course would involve a directed study for which the student(s) would be given credit. Students wishing to take the course would be assigned a suitable course advisor most familiar with the specific area of interest. Students would be required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study), in an organized publication format.

PREREQUISITE: Instructor's permission

CHEE 6701 Loss Prevention and Risk Assessment

CREDIT HOURS: 3

Loss prevention and risk assessment techniques applicable to the process industries are covered in this course. The concepts of management control of loss and inherently safer plant design are introduced. Key elements of a successful fire and explosion loss control program are identified. Risk assessment is addressed by examining the steps required to proceed from the setting of risk assessment objectives to risk monitoring. The hazard identification step is emphasized.

PREREQUISITE: Graduate students in Faculty of Engineering

EXCLUSIONS: CHEE 4773.03

CHEE 6707 Applied Thermodynamics

CREDIT HOURS: 3

An analytical study of Chemical Engineering processes from the standpoint of quantitative chemical thermodynamics will be made. The approach to the main problem of reactions and phase equilibria and the treatment of non-ideal solutions is based on Gibb's methods and the chemical potential. Most of the student's time spent on this course will be used solving both theoretical and numerical problems.

CHEE 6714 Polymer Science

CREDIT HOURS: 3

This course examines the fundamental concepts of polymer science: mechanism and kinetics of polymerization reactions, rheological and mechanical properties of polymers, correlation of physical properties with molecular structure, molecular weight distribution, solution properties of polymers, polymer chain configuration, thermodynamics of polymer solutions, amorphous and crystalline state and viscoelasticity.

CHEE 6726 Mass Transfer Topics

CREDIT HOURS: 3

Topics are to be selected from the following fields: diffusion in both reacting and non-reacting systems, the equation of change, mass transfer with laminar or turbulent flow, unsteady-state diffusion, and mass transfer in packed beds.

CHEE 6730 Kinetics and Catalyses

CREDIT HOURS: 3

A general study of the current ideas of homogeneous and heterogeneous catalyses of chemical reactions will be made. In the field of homogeneous catalyses reactions: acid base catalyses, ion catalyses, enzyme catalyses, chain reactions and polymerization will be considered. In the field of heterogeneous catalyses, a study of the rates and extent of chemisorption will be made leading to an examination of the rate determining steps for gaseous reactions. Studies of some important industrial reactions will be made.

CHEE 6732 Transport Phenomena

CREDIT HOURS: 3

Mechanisms of transport processes, differential balances, equations of change for isothermal and non-isothermal systems, use of the equations of change to set up flow problems of interest to Chemical Engineers, interphase transport in isothermal systems, analogies.

CHEE 6734 Chemical Reactor Design

CREDIT HOURS: 3

The effect of non-ideal flow on the design of tubular, packed bed and continuous-stirred tank reactors, combined mass and energy transfer in chemical reactor analysis and design. Design of heterogeneous catalytic and non-catalytic reactors will be investigated using industrial case studies.

CHEE 6736 Computer Application in Chemical Engineering

CREDIT HOURS: 3

Mathematical modeling of steady and unsteady chemical process operations and the use of digital computers for the design and simulation of individual processing units. Synthesis of units into a combined processing plant. (It is recommended that students take ENGM 6653.03 – Numerical Analysis I prior to this class).

CHEE 6737 Chemical Process Control

CREDIT HOURS: 3

Dynamics modeling of chemical processes. Analysis and simulation of analog and digital control systems.

CHEE 6742 Chemical Process Optimization

CREDIT HOURS: 3

The course deals with the study and application of optimization techniques to chemical engineering problems. Topics include: problem formulation, analytical and numerical techniques for optimization, linear programming, non-linear programming and dynamic programming. Application areas include: heat transfer and energy conservation, separation processes, fluid flow systems, chemical reactors, and process plants.

FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 2
LAB HOURS PER WEEK: 3

CHEE 6743 Process Synthesis

CREDIT HOURS: 3
This course aims at developing abilities in the design and modification process plants (e.g. chemical, biochemical, utilities, pulp and paper, petroleum, petrochemical, metals, and food processing) in order to render them more cost effective, energy-efficient and environmentally friendly. Systematic procedures are used for the analysis of processing stages and their integration into efficient plants. Heavy emphasis is placed on the use of computer-aided techniques for evaluating the interaction between processing requirements, utility needs and associated capital and operating costs.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 2
LAB HOURS PER WEEK: 3

CHEE 6744 Radiative Heat Transfer

CREDIT HOURS: 3
The principles of thermal radiation are explained and the concepts of view factors and exchange areas are introduced by examining direct radiative transfer. Radiative exchange within enclosures, containing either non-absorbing or absorbing media are examined. Various radiative heat transfer applications are discussed in detail. These include: electric furnaces, fuel-fired furnaces and solar radiation. The methods of measurements of radiation and temperature are studied.
FORMAT: Lecture| Lab
LECTURE HOURS PER WEEK: 2
LAB HOURS PER WEEK: 3
PREREQUISITE: Background in heat transfer and mathematics

CHEE 6750 Combustion Phenomena

CREDIT HOURS: 3
Mathematical formulations of combustion phenomena and their physical significance will be emphasized. Application of the conservation equations for multicomponent reacting flows by means of the Schwab-Zeldovich formulation will be demonstrated. The general Rankine-Hugoniot relations will be developed to calculate properties across a shock front. Laminar and diffusion flames will be studied. Chemical reactions in boundary layers will be examined and turbulent combustion phenomena will be analyzed.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3

CHEE 6751 Dust Explosion Risk Reduction

CREDIT HOURS: 3
Reasons for the occurrence and severity of industrial dust explosions are explored using the explosion pentagon as a structure for analysis. Fundamental concepts of dust explosions are covered along with applicable prevention and mitigation methods. Emphasis is placed on promoting a scientifically rigorous approach to dust explosion risk reduction.

CHEE 6755 Colloids and Interfaces in Petroleum Engineering

CREDIT HOURS: 3
This course examines the fundamental principles in colloidal and interfacial systems, with particular emphasis on their applications in petroleum engineering. The first part of the course covers the theories of colloidal stability, interfaces, and surfactant solutions. These principles are then applied to analyze drilling-fluid design and enhanced oil recovery.
FORMAT: Lecture| Tutorial
PREREQUISITE: CHEE 3530 or permission of instructor

CHEE 6800 Chemical Engineering in Biological Systems

CREDIT HOURS: 3
This course deals with the application of chemical engineering principles (stoichiometry, kinetics, transport phenomena) to analyze biological systems such as cells, organs and organ systems. Applications include implants and medical devices, drug delivery systems, cell culture processes, diagnostics, immobilized enzymes and pharmacokinetics.
FORMAT: Lecture
PREREQUISITE: CHEE 3634, CHEE 4726 or permission of instructor

CHEE 7000 Special Topics in Chemical Engineering II

CREDIT HOURS: 3
This course is available to Graduate Students (pursuing a PhD degree) wishing to gain knowledge in a specific area for which no graduate level course is offered. Students will be assigned a course supervisor most familiar with the specific area of interest. Students will be required to present the work of one term consisting of at least 90 hours in the form of directed research, tutorials and individual study, in an organized publication format.
PREREQUISITE: Instructor's permission

CHEE 8500 MEng Project

CREDIT HOURS: 0
A Master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

CHEE 8891 Co-op Work-Term I

CREDIT HOURS: 0

CHEE 8892 Co-op Work-Term II

CREDIT HOURS: 0

CHEE 8893 Co-op Work-Term III
CREDIT HOURS: 0

CHEE 8894 Co-op Work-Term IV
CREDIT HOURS: 0

CHEE 9000 Master's Thesis
CREDIT HOURS: 0

CHEE 9530 PhD Thesis
CREDIT HOURS: 0

Course Descriptions PEAS 6710
PEAS 6710 Graduate Research Symposium I
CREDIT HOURS: 0
All students enrolled in the MASc, MEng and MS degree programs are required to participate in this course. The course is designed to provide students with the opportunity and experience of interacting with their peers, faculty and profession. There will be an annual research symposium which will include guest speakers and/or panel discussion on topical issues presented by scholars from industry, government and academia and oral and poster presentations by students. One 30 minute oral presentation and one poster presentation must be given by the students at the department symposia during the student tenure. Students will be evaluated on quality of handouts, organization and preparation of material, presentation skills, technical content, knowledge of the subject, critical judgment of reference material and ability to answer questions. Graded pass/fail.
NOTES: This course is to replace Graduate Seminar I in all programs.

Course Descriptions PEAS 7710
PEAS 7710 Graduate Research Symposium II
CREDIT HOURS: 0
All students enrolled in the Ph.D degree program are required to participate in this course. The course is designed to provide students with the opportunity and experience of interacting with their peers, faculty and profession. There will be an annual research symposium which will include guest speakers and/or panel discussions on topical issues presented by scholars from industry, government and academia and oral and poster presentations by students. Two 30 minute oral presentations and two poster presentations must be given by the student at the department symposia during the student tenure. Students will be evaluated on quality of handouts, organization and preparation of material, presentation skills, technical content, knowledge of the subject, critical judgement of reference material and ability to answer questions. Graded pass/fail.
NOTES: This course is to replace Graduate Seminar II in all programs.

Food Science Program

Graduate Secretary

Telephone: (902) 494-4597
Email: peasgrad@dal.ca
Website: http://engineering.dal.ca/DEPARTMENTS/PEAS-Graduate_Progra.php

Introduction

Food Science programs in North America largely evolved from the dairy science programs that were common, particularly in agricultural colleges, during the early to mid portion of the 20th century. Food Science emerged as a discipline including not only dairy science, but also meat, cereal, and seafood science, the study of fruit and vegetable products, and the like. Today, Food Science is rarely viewed as commodity-based and researchers in the field are multi-disciplinary in their background and approach to problem solving. Food Science students at the undergraduate level usually have had training in basic sciences such as physics, mathematics, physical chemistry, organic chemistry, and biochemistry, biology, microbiology, etc. Research at the graduate level applies the principles derived from these basic sciences to complex food systems. Food researchers are concerned about the functionality of food ingredients, the preservation of quality and delivery of nutrients through the food supply. They are interested in innovative new technologies used to process and protect foods from degradation. A great deal of activity is currently under way in university, government and industrial food research facilities to ensure the safety of the food supply and particular attention is being paid to new and emerging food borne pathogens such as *E. coli* 0157:H7.

Food scientists and engineers may become involved in food research, quality assurance, process, or product development within the food industry. Alternatively, they may be employed by governmental agencies such as Agriculture and Agri-Food Canada, Health Canada, Canadian Food Inspection Agency, Fisheries and Oceans or

provincial agencies which serve the public and industries related to food. These are only a few examples of the many opportunities available for food science graduates.

The graduate degree programs share some facilities with the Canadian Institute of Fisheries Technology, a specialized resource centre for graduate education and research in food science and food process engineering with emphasis on seafoods. Graduate degrees are awarded in Food Science and Technology at the Master and Doctoral levels. The Program offers graduate level course work and research opportunities related to food process technology, food microbiology, edible oils, engineering design, post-mortem biochemistry of muscle foods, proteins and enzymes, food rheology, and beverage science. A wide range of food processing equipment, a pilot plant, and well-equipped laboratories offer unique opportunities for graduate training and research. Students with degrees in food science, engineering, chemistry/biochemistry, microbiology or biology are invited to apply. Details of the academic programs are given in the section "Graduate Programs in Engineering." Research programs and equipment are described under "Canadian Institute of Fisheries Technology".

*Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

FOSC 6324 Fish/Food Processing I

CREDIT HOURS: 3
This course consists of lectures, labs and pilot plant experiments emphasizing the chemistry of seafoods particularly in processing and handling. Postmortem biochemistry and spoilage due to species differences is covered in detail as well as low temperature preservation. Effects of processing on fat, protein and edibility are examined. Other topics include the effect of enzymes on food quality, seafood toxins, heavy metals, chemistry of seafood colours, and seafood safety.

FOSC 6325 Fish/Food Processing II

CREDIT HOURS: 3
This course will examine various unit operations in food processing. Topics examined will include low temperature processes (chilling and freezing); thermal processing including commercial blanching, pasteurization and sterilization; drying and non-thermal processes including high pressure processes and irradiation. The unit operations of various food and seafood commodities will be examined in detail.
PREREQUISITE: Permission of instructor
CROSS-LISTING: FOSC 4070

FOSC 6328 Advanced Food Chemistry

CREDIT HOURS: 3
This course is designed to cover advanced topics in food chemistry with emphasis on their relationships to fundamental principles. The course consists of lectures and laboratory projects, and incorporates the following topics: water relations, carbohydrates, amino acids, peptides, proteins, lipids, additives, colloids, phytosystems and post-harvest physiology.
CROSS-LISTING: FOSC 3010

FOSC 6329 Chemistry of Fats, Oils and Lipids

CREDIT HOURS: 3
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, amino acids, fatty alcohols, sterols 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.
CROSS-LISTING: FOSC 4020

FOSC 6330 Fish/Food Process Engineering

CREDIT HOURS: 3
Emphasis is placed on sound principles in the design and operation of equipment commonly used in factories for the manufacture of food products and by-products. The main elements are thermal principles, psychometry, steam utilization, refrigeration, fans and ducts, and pumps and piping. Measures to reduce waste and pollution and especially the abatement of odour nuisance from the food processing factory are reviewed.

FOSC 6331 Food Proteins and Enzymes

CREDIT HOURS: 3
This course is designed to provide a comprehensive overview of the significance and function of proteins as structural and biochemical entities within food systems. The first component of this course centers on the identification and biochemical significance of protein systems in food, the physico-chemical and degradative interaction of proteins with other food components and their overall impact on nutritive properties. The second component focuses on the fundamental properties of

enzymes in food systems. In addition, mechanisms and roles of enzymes in food processing operations, and the utilization of enzymes in the food industry, are presented.

FOSC 6333 Industrial Rheology

CREDIT HOURS: 3
This course deals with rheological principles of fluid materials employed in the food, mineral and chemical process industries. Rheometric techniques including co-axial, cone and plate, capillary and in-line rheometers are examined. The behaviour of flocculent and non-flocculent suspensions is discussed in light of present rheological theories. The viscoelastic properties of selected colloidal, polymer and biological systems will also be examined.

FOSC 6334 Food Microbiology

CREDIT HOURS: 3
This course is intended for students with an interest in aspects of the microbiological quality and safety of the food supply. Topics include the occurrence and significance of food borne pathogens and spoilage organisms, the control of microorganisms in foods and the industrial use of microorganisms for the manufacture of foods, beverages and food ingredients. Material will be covered from both a theoretical and practical perspective.

FOSC 6336 Advanced Food Hygiene and Public Health

CREDIT HOURS: 3
This course deals with aspects of food hygiene, sanitation technology, water and environmental microbiology, water treatment microbiology and epidemiology of food and waterborne pathogens. The laws and regulations governing food production in Canada at provincial and federal levels will be discussed. Current issues in public health in relation to the safety of our water and food supply will be covered. Lecture and laboratory periods will explore these topics from a theoretical and practical perspective.

FOSC 6351 Directed Studies I

CREDIT HOURS: 3
This course allows students pursuing an MSc degree to gain knowledge in a specific area in which no graduate level course is offered. The course involves a directed research or design project for which the student will be given credit. Students are assigned a suitable area of interest and are required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study), in a written report.

FOSC 6381 Advanced Brewing Science

CREDIT HOURS: 3
This course will examine the unit operations employed during the production of malt and beer. Brewing, fermentation and packaging aspects of beer production as well as brewing quality assurance, colloidal stability and haze development will be discussed.
FORMAT: Lecture| Lab| Tutorial
CROSS-LISTING: FOSC 4081.03

FOSC 7351 Directed Studies II

CREDIT HOURS: 3
This course allows students pursuing a PhD degree to gain knowledge in a specific area in which no graduate level course is offered. The course involves a directed research or design project for which the student will be given credit. Students are assigned a suitable area of interest and are required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study) in a written report.

FOSC 9000 Master's Thesis

CREDIT HOURS: 0

FOSC 9530 PhD Thesis

CREDIT HOURS: 0

Materials Engineering Program

Graduate Secretary
Telephone: (902) 494-4597
Email: peasgrad@dal.ca
Website: engineering.dal.ca/DEPARTMENTS/PEAS-Graduate_Progra.php

Introduction

Students that complete graduate-level degrees in Materials Engineering readily find challenging, rewarding, and lucrative employment in industry, academe and government organizations. This is undermined by the strong research record of the Materials Engineering faculty wherein a mix of fundamental research coupled with work of direct commercial relevance is conducted in collaboration with industry. The Program offers opportunities for study in fields ranging from materials production (extraction from ores) to the design, development, and processing of advanced materials from these basic building blocks. Topics of current research include powder metallurgy processing of light metals, intermetallics, and cermet materials, corrosion, electronic materials development, synthesis of intermetallic compounds, ceramic processes and properties, as well as composite materials synthesis. These research projects are funded by national and international granting agencies, industry, and government organizations.

The program presents an outstanding environment for students to conduct graduate level studies given the inherent diversity of scientific expertise, specialized infrastructure, modern materials characterization tools, and established links with large multi-national industrial partners that exist. To this end, the program ultimately

enables researchers to develop new materials or processing technologies in a forum known to closely replicate industrial practice, characterize the material attributes of the synthesized products in great detail, and then apply the knowledge learned in actual manufacturing scenarios.

The program houses modern, well-equipped laboratories for materials extraction, synthesis and characterization. Facilities include state-of-the-art equipment such as an analytical cold field emission scanning electron microscope, a focused ion beam milling system, a 50-ton high temperature controlled-atmosphere hot press, powder-presses, controlled-atmosphere muffle, tube, and induction furnaces, as well as an array of thermal analysis tools, piezoelectric characterization facilities and systems for directional solidification and single crystal preparation. In total, over $4M worth of new infrastructure has been commissioned within the program in the last four years alone. Students also have access to excellent computer facilities and many benefit from the services offered by the Minerals Engineering Centre, which is affiliated with the Materials Engineering Program. The Centre provides research, analytical and advisory services to industries, universities and government bodies.

Graduate programs are available leading to the degrees of Master of Engineering (MEng), requiring advanced course work, Master of Applied Science (MASc) requiring advanced course work and a research thesis, and Doctor of Philosophy (PhD), requiring a major research thesis and advanced course work. A Combined Bachelor of Engineering/Master of Applied Science (BEng/MASc) degree is also offered. The decision to select the Combined BEng/MASc, option may be made at the end of the common first two academic terms in Materials Engineering.

*Not all courses are offered every year. Please consult the current timetable for this year's offerings.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

MATL 6010 Introduction to Transmission Electron Microscopy

CREDIT HOURS: 3

This course will deal with transmission electron microscopy including the basic principles and methods of operation of the electron microscope, the elements of electron optics, and the kinematical theory of electron diffraction and image formation. Replica methods, extraction and thin film techniques and applications of transmission electron microscopy to the study of metallic and non-metallic solids will be discussed. Laboratory work will provide students with a working knowledge of the transmission electron microscope.

MATL 6011 Introduction to the SEM and Microprobe

CREDIT HOURS: 3

This course will deal with scanning electron microscopy and with electron microprobe analysis. The electron optics of the scanning electron microscope and of the electron beam microprobe will be discussed. Electron/ specimen interactions will be studied including the excitation and absorption of X-rays. Correction techniques necessary for quantitative microanalysis and applications of the microprobe to the solution of materials problems will be discussed. Laboratory work will give students a working familiarity with the scanning electron microscope.A laboratory fee is applicable to this course.

MATL 6014 Welding Metallurgy

CREDIT HOURS: 3

This course will cover the effect of mass and heat flow, for the various joining processes, on the metallurgical properties of the parent and weld metal. The processes will include brazing, soldering, solid phase welding and fusion welding for the major classifications of metals such as carbon and alloy steels and non-ferrous metals. This course will include laboratory periods designed to reinforce the lecture material.

MATL 6015 High Temperature Metallurgical Operations Part I

CREDIT HOURS: 3

The course will consist of a review of metallurgical thermodynamics, with reference to various metallurgical operations. It will also include reference to slag theory, as well as experimental techniques used in high temperature metallurgical research.

MATL 6016 High Temperature Metallurgical Operations Part II

CREDIT HOURS: 3

The course will consist of a survey of the factors which affect the kinetics of high temperature heterogeneous processes and their effect on the rate of various pyrometallurgical operations.

MATL 6017 Hydrometallurgical Operations

CREDIT HOURS: 3

New developments in the leaching, solution purification, and recovery of metals will be studied as they apply to the extraction of metals from various feed materials by hydrometallurgical processes.

MATL 6018 Structural Physical Metallurgy
CREDIT HOURS: 3
An advanced study of certain topics such as solidification, imperfections in crystals, recovery, recrystallization and grain growth, and solid state transformations. The course content will be adapted to the interest of the student as far as possible. Weekly seminars will be held.

MATL 6019 Selected Topics in Extractive Metallurgy
CREDIT HOURS: 3
This course is given by a visiting professor. The topic of the lectures is in the field of specialization of the lecturer.

MATL 6020 Selected Topics in Physical Metallurgy
CREDIT HOURS: 3
This course is given by a visiting professor. The topics of the lectures is in the field of specialization of the lecturer.

MATL 6021 Selected Topics in Mineral Processing
CREDIT HOURS: 3
This course is given by a visiting professor. The topic of the lectures is in the field of specialization of the lecturer.

MATL 6022 Directed Studies in Metallurgical Engineering
CREDIT HOURS: 3
This course is available to graduate students enrolled in a Masters program in Metallurgical Engineering wishing to gain knowledge in a specific area for which no graduate level course is offered. Students are assigned an advisor and are required to present a formal report at the end of the course.A maximum of one Directed Studies course may be taken for credit in a Masters degree program.

MATL 6030 Fracture of Metallic Materials
CREDIT HOURS: 3
This course will cover the failure of metals under ductile and brittle fracture, creep rupture and fatigue conditions. Fracture mechanics concepts will be used to quantify fracture parameters in the presence of pre-existing flaws or propagating cracks. The interaction between the various failure mechanisms, including high temperature oxidation and sulphidation, will also be discussed.
PREREQUISITE: MATL 3500.03 or MATL 3620.03 or equivalent

MATL 6040 Advanced Process Metallurgy
CREDIT HOURS: 3
Chemical and electrochemical processes for the extraction and refining of materials are examined in terms of chemical thermodynamics and kinetics. Selected topics will be discussed related to the behaviour of metallic, ceramic, glass and metal slag systems at high temperatures. The thermodynamic and transport properties will be discussed for a number of systems such as alloys, oxides, carbides and silicides.

MATL 6805 Electrochemical Processing of Materials
CREDIT HOURS: 3
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 brief overview on the development of electrochemical sensors and devices using solid state electrolytes is presented. Surface modification by electrochemical means is also discussed.
CROSS-LISTING: MATL 4805.03

MATL 6806 Particulates in Material Eng
CREDIT HOURS: 3
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.
CROSS-LISTING: MATL 4806.03

MATL 7022 Directed Studies in Metallurgical Engineering
CREDIT HOURS: 3
This course is available to graduate students enrolled in a PhD Program in Metallurgical Engineering wishing to gain knowledge in a specific area for which no graduate level course is offered. Students are assigned an advisor and are required to present a formal report at the end of the course.A maximum of two Directed Studies courses may be taken for credit in a PhD Program.

MATL 8500 MEng Project
CREDIT HOURS: 0
A master of Engineering candidate will be required to submit a project satisfactory to the Faculties of Graduate Studies and Engineering and to make a successful oral presentation of the work.

MATL 8891 Co-op Work Term I
CREDIT HOURS: 0

MATL 8892 Co-op Work Term II
CREDIT HOURS: 0

MATL 8893 Co-op Work Term III

CREDIT HOURS: 0

MATL 8894 Co-op Work Term IV
CREDIT HOURS: 0

MATL 9000 Master's Thesis/Project
CREDIT HOURS: 0

MATL 9530 PhD Thesis
CREDIT HOURS: 0

Psychology and Neuroscience

Location:
Building/Room: Life Sciences Centre
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Staff

Chairperson of Department

Perrot, T.

Graduate Coordinator

Eskes, G.

Professors Emeriti

LoLordo, V. M., AB (Brown), PhD (Penn). Learning, animal behaviour
Mitchell, D. E., BSc, MASc (Melb), PhD (Berkeley). Visual system development, visual perception

Professors

Adamo, S., BSc (Toronto), PhD (McGill), Faculty of Science Killam Professor in Psychology. Cephalopod behaviour, invertebrate behavioural physiology, comparative psychoneuroimmunology, ecoimmunology
Brown, R. E., BSc (Victoria), MA, PhD (Dalhousie). Behavioural endocrinology, developmental psychobiology, drugs and behaviour, behaviour of transgenic and mutant mice, animal behaviour, memory
Bryson, S. E., BA (Guelph), PhD (McGill), major appointment in Pediatrics. Autism and related developmental disorders, developmental neuropsychology, development of attention, emotion and cognition
Chambers, C. T., BSc (Dalhousie), MA, PhD (UBC), joint appointment in Pediatrics. Pediatric (child health) psychology with a focus on pediatric pain, including family influences, developmental issues related to pain measurement, and sleep disturbances and pain
Corkum, P., BSc (Dalhousie), MA, PhD (OISE at Toronto). Sleep and childhood psychopathology, attention, behaviour and academic disorders in children, psychosocial interventions, school psychology, eHealth
Deacon, S. H., BSc (UPEI), PhD (Oxon). Developmental psychology, literacy development, bilingualism, reading difficulties
Duffy, K., BA (St. Thomas), PhD (McMaster). Function, organization, and development of the mammalian visual system; impact of sensory experience on neural network development and plasticity
Eskes, G. A., BA, PhD (Berkeley), Graduate Coordinator, joint appointment in Psychiatry. Clinical and cognitive neuropsychology, cognitive rehabilitation, disorders of attention, memory and executive function, sleep disorders, aging, stroke, dementia, cognition and emotion, functional brain imaging
Finley, G. A., BSc, MD (Dalhousie), FRCPC, major appointment in Anaesthesia. Pediatric pain (measurement and management), audible alarm signals, perioperative anxiety, awareness and memory
Kay-Raining Bird, E., BA (Queen's), MSc (Columbia), PhD (Wisconsin-Madison), major appointment in the School of Human Communication Disorders. Child language development and disorders, Down syndrome, autism, language assessment and intervention, literacy
Kiefte, M., BA (Memorial), MSc, PhD (Alberta), major appointment in the School of Human Communication Disorders. Speech perception, psychoacoustics, speech production, stuttering
Klein, R. M., BA (SUNY), MA, PhD (Oregon), FRSC, University Research Professor. Attention and its disorders, cognitive neuroscience, applied cognitive psychology
McMullen, P., BSc, MSc (Toronto), PhD (Waterloo). Visual cognition, cognitive neuropsychology
Meinertzhagen, I. A., BSc (Aberdeen), PhD, DSc (St. Andrews), University Research Professor. Structure and development of simple nervous systems
Moore, C. L., BA, PhD (Cantab). The development of commonsense psychology and the understanding of intentionality
Perrot, T. S., BSc, PhD (Western). Molecular mechanisms of sexual differentiation of rat brain; developmental programming of adult stress responding: sex and sex steroid modulation of adult stress responding
Phillips, D. P., BSc, PhD (Monash). Auditory perception and psychophysics, auditory neuroscience
Pohlmann-Eden, B., MD, PhD (Univ of Heidelberg), major appointment in Neurology. Clinical epileptogenesis, new-onset epilepsy, cognition and psychiatric comorbidity in epilepsy, advanced neuroimaging, ischemia-related seizures, mechanisms of pharmacoresistance, knowledge transfer, medical education, didactic tools

in medicine
Rusak, B., BA (Toronto), PhD (Berkeley), FRSC, joint appointment in Psychiatry. Sleep and circadian rhythms: mechanisms, functions and clinical implications
Semba, K., BEd, MA (Tokyo), PhD (Rutgers), major appointment in Medical Neuroscience. Neurobehavioural and physiological impacts of chronic sleep restriction, role of astrocytes in sleep/wake regulation, circadian control of sleep and waking
Smith, I. M., BA (Dalhousie), MSc (Brown), PhD (Dalhousie), Joan and Jack Craig Chair in Autism Research; major appointment in Pediatrics. Autism spectrum disorder, developmental disabilities, intervention research
Stewart, S., BSc (Dalhousie), PhD (McGill), joint appointment in Psychiatry. Anxiety, substance abuse, cognitive psychophysiology, comorbidity, motives
Taylor-Helmick, T. L., BA (Calgary), MSc, PhD (Dalhousie). Human memory, especially our ability to intentionally forget irrelevant or outdated information, attentional mechanisms that enable remembering and forgetting, inhibitory mechanisms in attention and memory
Ungar, M., BA, BSW, MSW (McGill), PhD (Wilfrid Laurier), major appointment in the School of Social Work. Qualitative methods, resilience, adolescent mental health, family therapy, ecological social work, program evaluation, cross-cultural research, delinquency, child development, social constructionism
Westwood, D. A., BSc, MA, PhD (Waterloo), major appointment in the School of Health and Human Performance. Cognitive neuroscience, sensory control of skilled action, functional neuroimaging

Associate Professors

Abbass, A., BSc (Ottawa), MD (Dalhousie), FRCPC (Toronto), major appointment in Psychiatry. Emotion physiology, short-term dynamic psychotherapy, psychotherapy integration, anxiety, depression, somatization
Barrett, S. P., BA (St. FX), PhD (McGill), Clinical PhD Program Director of Training. Addiction, polysubstance use, alcohol, tobacco, gambling, psychiatric comorbidity, human psychopharmacology
Boe, S., BPhEd (Brock), PhD, MPT (Western), major appointment in the School of Physiotherapy. Central and peripheral nervous system adaptations and functional outcomes in neurorehabilitation, cortical contributions to balance control, electrophysiology, functional neuroimaging
Crowder, N. A., BSc, PhD (Alberta). Using visual neurophysiology and psychophysics to investigate the following topics: adaptation and plasticity of visual information processing in the cortex, contrast coding, motion detection, speed discrimination
Fisk, J., BSc, MA, PhD (Western), major appointment in Psychiatry. Neuropsychology, cognitive neuroscience and neuroimaging; aging, multiple sclerosis, dementia and neurodegenerative disorders: assessment, diagnosis, epidemiology, risk factors, health-related quality of life, treatment effectiveness, health policy
Good, K., BSc (UNB), MSc, PhD (UBC), major appointment in Psychiatry. Olfactory and cognitive function in patients with psychotic disorders, and olfactory fMRI
Jacques, S., BA (McGill), MA, PhD (Toronto). Socio-emotional and socio-cognitive development, cognitive development
Johnson, S., BA (Kalamazoo), MSc, PhD (Victoria). Clinical and cognitive neuropsychology, social cognition, neurodevelopmental and neurodegenerative disorders
Newman, A. J., BA (Winnipeg), MSc, PhD (Oregon). Neuroplasticity and language processing: neural bases of signed vs. spoken language; effects of deafness on brain development; gesture; second language acquisition; Aboriginal languages; neuroimaging with fMRI and ERP; clinical applications of cognitive neuroimaging
Phillmore, L., BA (Western), MA, PhD (Queen's). Songbirds, animal behaviour and learning, seasonality, neural basis of song perception, neurogenesis
Robinson, L., BSc (Victoria), MA, PhD (Simon Fraser), major appointment in the School of Health and Human Performance. Psychosocial issues in cancer, relationships, internet-mediated health promotion, health promotion, community-based research
Sherry, S. B., BA (York), MA (UBC), PhD (Saskatchewan). Personality and psychopathology (e.g., suicide, eating disorders, and depression), perfectionism, hypochondriasis
Uher, R., MUDr, PhD (Charles Univ), MRCPsych (Royal College of Psychiatrists), CCT (London Deanery, UK), major appointment in Psychiatry. Early interventions to prevent severe mental illness, classification of psychopathology, the treatment of depression, the use of clinical assessment and genomics to personalize and optimize treatment and the interplay of genes and environment in the causation of mental illness

Assistant Professors

Aiken, S., BA, MSc (Western), PhD (Toronto), major appointment in the School of Human Communication Disorders. Auditory electrophysiology, brainstem and cortical responses to speech, psychoacoustics, otoacoustic emissions, speech perception, hearing aid signal processing
Bombay, A., BSc (Ottawa), MSc, PhD (Carleton), major appointment is jointly held in the School of Nursing and Psychiatry. Aboriginal health and the determinants of mental health outcomes among Aboriginal peoples of Canada
Campbell-Yeo, M., BScN, MScN (Dalhousie), PhDN (McGill), major appointment in the School of Nursing. Non-pharmaceutical pain relief, maternal-led interventions, pain and stress, skin-to-skin contact, breastfeeding, neonatal intensive care, randomized controlled clinical trials
Chorney, J., BSc (Dalhousie), MA, PhD (West Virginia), major appointment in Anesthesiology. Perioperative care, psychological management of pain
Dithurbide, L., BA (St. Mary's), MA (Brock), PhD (Michigan State), major appointment in the School of Health and Human Performance. Sport and exercise psychology, group/team dynamics, efficacy and trust in dyads/groups/teams, athletic performance, measurement of psychosocial variables in sport
Franklin, T., BSc (King's), MSc (Dalhousie), PhD (Swiss Fed Institute). Neuroscience, animal behaviour, sociability, epigenetics, in vivo electrophysiology, neuroconnectivity
Lovas, D., BSc, MD (Dalhousie), major appointment in Psychiatry. Somatic symptom disorders, somatization, chronic pain, functional disorders, biomarkers, mindfulness, child and adolescent psychiatry
Rosen, N. O., BA (Queen's), PhD (McGill). Female sexual disorders, women's pain, romantic relationships, health (psychosocial) psychology
Sculthorpe-Petley, L., BSc (Laurentian), PhD (Ottawa), major appointment in Surgery. Hearing loss, hearing impairments, non-invasive diagnostics for brain injuries, EEG, MEG
Town, J., BSc (York), DClinPsy (Univ of Sheffield), major appointment in Psychiatry. Psychotherapy process-outcome and effectiveness research, emotion processing, short-term dynamic psychotherapy, psychotherapy for common mental disorders, medically unexplained symptoms
Weaver, I. C. G., BSc (Aberdeen), MSc (Bristol), PhD (McGill). Neurobehavioural epigenetic mechanisms, early life experience, steroid hormone function, DNA and chromatin modification, programming of gene expression, cortical development, endocrine and behavioural stress responses, and pharmacological and psycho-social interventions

Senior Instructors

Gadbois, S., BSc, MAPs (Univ de Moncton), PhD (Dalhousie). University Teaching Fellow. Olfactory detection, discrimination, searching and tracking in dogs; wildlife conservation dogs; behaviour of wild canids (wolves, coyotes, and red foxes)
Juckes, T., BA, MA (Natal), PhD (Dalhousie). Sociopsychology, history of psychology, social influence, scientific writing, cognitive development
Ply, E., BS Ed (Univ of N Texas), MA, PhD (Texas Woman's Univ). Trauma, clinical training, psychotherapy outcome
Stamp, J., BSc (Dalhousie), PhD (Cambridge). University Teaching Fellow. Stress, addiction, steroid hormones and behaviour

Adjunct (FGS)

Backman, J., BA (Dalhousie), MA, PhD (Carleton), Erica Baker Psychological Services. Learning and developmental disabilities, brain injury, neuropsychology
Bardouille, T., BSc (Queen's), MSc (Dalhousie), PhD (Toronto), BIOTIC MEG Laboratory/IWK Health Centre. Functional neuroimaging for the purposes of clinical diagnosis and treatment, measurement of small- and long-range neural synchrony in the brain in patients with stroke, epilepsy and traumatic brain injury
Barresi, J., BSc (Brown), MA (S. Calif.), MS, PhD (Wisconsin), Psychology and Neuroscience/Dalhousie. Personology, social cognition, philosophical psychology, history of psychology
Chipman, K., BA (UPEI), MA, PhD (Western), Neuropsychology Service/Nova Scotia Hospital. Neuropsychology, cognitive rehabilitation, functional outcomes, aging, mild cognitive impairment (MCI), dementia and neurodegenerative disorders, schizophrenia, affective disorders, family/caregiver support
Church, E., BA (St. John's), MA, PhD (Toronto), School Psychology/Mount Saint Vincent Univ. Stepfamilies, parenting, self help, rural mental health, interprofessional collaboration
Conrad, N., BA (St. Mary's), PhD (McMaster), Psychology/St. Mary's Univ. Development of reading skills, memory, cognitive and linguistic factors related to reading and spelling
Ellsworth, C., BA (McMaster), MA, PhD (Queen's), Psychology/IWK Health Centre. Neurodevelopmental disorders (infants and preschoolers), early identification, parent education and support
Fisher, D., BSc (Ottawa), MSc, PhD (Carleton), Psychology/Mount Saint Vincent Univ. Schizophrenia, psychosis, psychopharmacology, nicotine, cognitive neuroscience, EEG, event-related potentials, mismatch negativity
Flanagan, H., BA/BSc (McMaster), MA, PhD (York), Psychology/IWK. Intervention for young children with Autism Spectrum Disorder (ASD), developmental trajectories in ASD, parent coaching
Gilin Oore, D., BSc (Northern Michigan), MA, PhD (Missouri-St. Louis), Psychology/St. Mary's Univ. Managerial decision making, conflict escalation and resolution, interpersonal and organizational change
Hauf, P., PhD (Johann Wolfgang Goethe Univ, Frankfurt), Psychology/St. Francis Xavier Univ. Early development of action understanding, infant action control, cognitive and motor development during infancy
Ivanoff, J., BSc, MA (Guelph), PhD (Dalhousie), Psychology/St. Mary's Univ. Attention, decison-making, executive control, response preparation, cognitive neuroscience, functional magnetic resonance imaging, event-related potentials
Krigolson, O. E., BEd (Victoria), MSc (Indiana), PhD (Victoria), School of Exercise Science, Health and Physical Education/Univ of Victoria. Learning, reinforcement learning, cognitive control, neuroimaging, computational neuroscience, motor control
LoLordo, V. M., AB (Brown), PhD (Penn), Psychology and Neuroscience/Dalhousie. Learning, animal behaviour
MacDonald, G. W., BA (St. FX), MA, PhD (Windsor), Private Practice. Learning disabilities, developmental reading disorders, pediatric and adult neuropsychology
Marchand, Y., MCS (Univ Paris), PhD (Compiegne, France). Computational modeling of reading, dyslexia, speech technology, event-related brain potentials
Mendez, I., BSc (Toronto), MD, PhD (Western), Surgery/Univ of Saskatchewan. Functional neurosurgery, neural transplantation, pain, robotics in neurosurgery, stem cells
Mitchell, D. E., BSc, MASc (Melb), PhD (Berkeley), Psychology and Neuroscience/Dalhousie. Visual system development, visual perception
Omisade, A., BA (York), PhD (Dalhousie), Neuropsychology/QEII Health Sciences Centre. Clinical neuropsychology, cognitive neuroscience and neuroimaging, epilepsy, neurodegenerative disorders, assessment: early detection of cognitive impairment and lateralization of cognitive functions
O'Neill, P., MSc, PhD (Yale), Professor Emeritus/Acadia Univ. Ethical decision making, community psychology
Rodger, R. S., MA (Edin), PhD (Queen's, Belfast). Statistical methodology; especially the evaluation of multiple, null contrasts against their alternatives (parametric and non-parametric), using decision-based error and detection rates
Saint-Aubin, J., BA (Sherbrooke), MPs, PhD (Laval), École de psychologie/Université de Moncton. Missing-letter effect, working memory, eye movements, shared book reading
Schellinck, H., BSc, MSc, PhD (Dalhousie), Psychology and Neuroscience/ Dalhousie. Olfactory learning in animal models of neurodegenerative disease; pheromonal mechanisms in rodents
Shaw, S. R., BSc (London), PhD (St. Andrews), Psychology and Neuroscience/Dalhousie. Insect sensory neurophysiology, visual optics, single neuron evolution, light- and electron-microscope neuroanatomy
Smith, S. M., BA (Bishop's), MA, PhD (Queen's), Psychology/St. Mary's Univ. Attitudes and persuasion, attitude change, behaviour change, health promotion, psychology and law, eyewitness identification, confession evidence, media and persuasion, media and the legal system
Song, C., BSc (East China Normal Univ), MD in Chinese Medicine (Hu Nan Medical Univ.), MSc (East China Normal Univ. and Chinese Acad. of Science), PhD (National Univ of Ireland), Psychiatry/Guangxi Medical University. Neurodegeneration, neuroinflammation, neurotrophic factors, microglia, neurons, neurotransmission, memory, lipids, natural products
Vallis, T. M., BSc (Dalhousie), MA, PhD (Western), Psychology/QEII Health Sciences Centre. Health psychology, diabetes, gastroenterology, cardiovascular risk reduction, obesity, motivational readiness to change, cognitive therapy
Wassersug, R., BA (Tufts), PhD (Chicago), Urologic Sciences/UBC. Testosterone androgen deprivation, libido, sexuality, gender theory
Watt, M., BA (St. FX), PhD (Dalhousie), Psychology/St. Francis Xavier Univ. Anxiety, cognitive-behavioural interventions, health-related behaviour, forensic psychology
Yoon, M. G., BS (Seoul), PhD (Berkeley). Development of nervous systems and language

Clinical Associate (Faculty of Science Appointment)

Appointments with the Clinical Associate designation are expected to be actively involved in the Clinical Psychology Program through a variety of activities such as being practicum supervisors for Clinical students and leading workshops. This type of appointment is not eligible for supervision of student research.

Angelopoulos, M., PhD (Dalhousie), Psychology/QEII Health Sciences Centre
Aubie, C., PhD (Windsor), Eating Disorders Clinic/Early Psychosis Program/QEII Health Sciences Centre
Battista, S., PhD (Dalhousie), CHOICES Adolescent Treatment Program/IWK Health Centre
Boehm, R., PhD (Windsor), Addictions Services/Nova Scotia Health Authority
Braha, R., PhD (Dalhousie), Health Administration - ABI Program/Nova Scotia Health Authority
Butler, G., PhD (Queen's), Psychology/QEII Health Sciences Centre, and Private Practice
Carter, S. L., PhD (Windsor), Psychology/QEII Health Sciences Centre
Chatman, J., PhD (UCLA), Dr. Jason Chatman Psychological Services
Chorney, D., PhD (West Virginia), Chorney and Associates (Private Practice)
Clark, S., PhD (Dalhousie), Mental Health and Addictions/IWK Health Centre
Cohen, J., PhD (UNB), Borderline Personality Disorder Treatment Program/East Coast Forensic Hospital
Connors, A., PhD (Simon Fraser), Forensic Sexual Behaviour Program/Nova Scotia Hospital
Coolican, J., PhD (Dalhousie), Feeding Clinic/IWK Health Centre
Corkum, V., PhD (Dalhousie), Corkum & Associates Psychological Services
Day, V., PhD (Queen's), Marsh-Knickle and Associates
Durdle, H., PhD (Windsor), CHOICES Adolescent Treatment Program/IWK Health Centre
Freeman, P., PhD (Manitoba), Community Mental Health Services (Dartmouth)/Nova Scotia Hospital
Gillespie, J., PhD (Western), Pediatric Health Psychology Service/IWK Health Centre
Gusella, J., PhD (Queen's), Private Practice
Hann, G., EdD (Indiana Univ of PA), Dr. Gerald S. Hann Psychological Services
Hendrick, J., PhD (Queen's), Psychology/QEII Health Sciences Centre
Howes, J., PhD (Western Ontario), Psychology/QEII Health Sciences Centre
Jefferson, S., PhD (UNB), Psychology/QEII Health Sciences Centre
Jerrott, S., PhD (Dalhousie), Community Mental Health/IWK Health Centre
Joyce, A. M., PhD (Dalhousie), Community Mental Health (Dartmouth Site)/IWK Health Centre
Kelln, B., PhD (Calgary), East Coast Forensic Hospital
Kelly, B., PhD (South California), Community Mental Health (Dartmouth)/IWK Health Centre
King, S., PhD (Dalhousie), Faculty of Education (School Psychology Program)/Mount Saint Vincent University
Lefebvre, C., PhD (Dalhousie), Youth Forensic Services/IWK Health Centre
Lowe-Pearce, C., PhD (Dalhousie), Clinical Neurosciences and Rehabilitation Care/IWK Health Centre
McInerney, R. J., PhD (Victoria), Dr. Robert J. McInerney & Associates (Private Practice)
McLaughlin, E., PhD (Dalhousie), Pediatric Health Psychology/IWK Health Centre
McNeill, B., PhD (Queen's), The Garon Centre for Child and Adolescent Mental Health (Inpatient) and The OCD Specific Care Clinic/IWK Health Centre
Patry, B., PhD (Victoria), Psychology, Nova Scotia Rehabilitation Centre/QEII Health Sciences Centre
Pencer, A., PhD (Calgary), Chorney and Associates (Private Practice)
Poisson, M., PhD (McGill), Community Mental Health Service (Halifax Branch)/IWK Health Centre
Ross, M., PhD (Saskatchewan), Mental Health Services (Bedford-Sackville)/Cobequid Community Health Centre
Scattolon, Y., PhD (UNB Fredericton), Eating Disorders Clinic/QEII Health Sciences Centre, and Private Practice
Starzomski, A., PhD (UBC), East Coast Forensic Hospital
Sullivan, A., PhD (York), Mental Health and Addictions Program/IWK Health Centre
Uman, L., PhD (Dalhousie), Community Mental Health (Dartmouth)/IWK Health Centre
Wetmore, A., MEd (Acadia) (Private Practice)

Postdoctoral Fellows

Hudson, A., PhD (Dalhousie)
Mimeau, C., PhD (Laval)
Ryan, K., PhD (Dalhousie)
Salmon, J., PhD (Dalhousie)
Tagarelli, K., PhD (Georgetown)
Tremblay, A., PhD (Alberta)
Vannier, S., PhD (UNB)

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies. Individuals interested in applying for a position in one of the Psychology and Neuroscience programs must submit at least two letters of reference, official copies of all undergraduate and graduate transcripts, application fee, and GRE scores (verbal, quantitative and analytic); GREs apply to Psychology (Experimental) and Clinical Psychology program applicants. Students should have at least a B+ average in their last two years. A letter from the applicant indicating his/her research and career interests is strongly recommended. Applicants for admission to the Clinical program must submit an additional reference letter which focuses on their clinical experience and/or suitability for work in clinical psychology.

Degree Programs

The Department of Psychology and Neuroscience offers graduate training leading to MSc and PhD degrees in Psychology, MSc and PhD degrees in Psychology/Neuroscience, and to a PhD degree in Clinical Psychology (Experimental). Master's level students in Psychology (Experimental) and Psychology/Neuroscience are expected to advance into the corresponding PhD programs. The Department does not have a "terminal" Master's program nor does it offer a Master's degree in Clinical Psychology.

Psychology (Experimental)

The graduate programs in Psychology emphasize training for research. They are best described as “apprenticeship” programs in which students work closely with a faculty member who has agreed to supervise the student's research. Compared with many other graduate programs, the Department places less emphasis on course work and greater emphasis on research, scholarship and independent thinking.

Master of Science (MSc) in Psychology

In addition to the Master's thesis (PSYO 9000.00), which is the major requirement of this program, the Master's student must complete the following courses:

- PSYO 6001.03: Fundamentals of Statistics and Experimental Design
- PSYO 7501.03: Proseminar: Methods of Psychological Inquiry I
- PSYO 7502.03: Proseminar: Methods of Psychological Inquiry II
- And at least six additional credit hours of electives

During each residency year Master’s students must register for and attend both semesters of the colloquium series (PSYO 8001.03 and PSYO 8002.03) and are required to do some teaching in the undergraduate program. The amount of teaching is presently the equivalent of no more than 10 hours/week for one term. This consists of working as a laboratory instructor, seminar leader, or teaching assistant.

Doctor of Philosophy (PhD) in Psychology

Students are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In addition to the dissertation (PSYO 9530.00), which is the major requirement of this program, students in the PhD program must complete the following courses (unless they were completed as part of the Master’s program):

- PSYO 6001.03: Fundamentals of Statistics and Experimental Design, and three additional credit hours in the quantitative/analytic area
- PSYO 7100.03: Seminar in Teaching Effectiveness
- PSYO 7501.03: Proseminar: Methods of Psychological Inquiry I
- PSYO 7502.03: Proseminar: Methods of Psychological Inquiry II
- And at least six additional credit hours of electives (with approval, this may be taken outside the department) in addition to any that were completed as part of the Master’s program.

During each year in the PhD program students are required to register for Dissertation Research (PSYO 9530.00) and are encouraged to enrol in graduate seminars. During each residency year students must register for and attend both semesters of the colloquium series (PSYO 8001.03 and PSYO 8002.03) and do some teaching in the undergraduate program (see Master’s program description). At least one year before submission of the dissertation students must also satisfy the comprehensive examination requirement. This requirement, entails completing at least three comprehensive 'projects' that are not directly related to the student's dissertation research or each other.

Psychology/Neuroscience

The graduate program in Psychology/Neuroscience is also designed as an "apprenticeship” program in which students work closely with a Psychology and Neuroscience faculty member who has agreed to supervise their research. Emphasis is placed on interdisciplinary research, scholarship and independent thinking rather than on course work.

Master of Science (MSc) in Psychology/ Neuroscience

In addition to the Master’s thesis (PSYO 9000.00), which is the major requirement of this program, the Master’s student must complete the following courses:

- NESC 6101.03 and NESC 6102.03: Principles of Neuroscience
- PSYO 7501.03: Proseminar: Methods of Psychological Inquiry I
- PSYO 7502.03: Proseminar: Methods of Psychological Inquiry II
- at least three credit hours of course work in the quantitative/analytical area

During each residency year Master’s students must register for and attend both semesters of the colloquium series (PSYO 8001.03 and PSYO 8002.03) and are required to do some teaching in the undergraduate program. The amount of teaching is presently the equivalent of no more than 10 hours/week for one term. This consists of working as a laboratory instructor, seminar leader, or teaching assistant. Master's students must register for PSYO 9000.00 (Thesis).

Doctor of Philosophy (PhD) in Psychology/Neuroscience

Students are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In addition to the dissertation (PSYO 9530.00), which is the major requirement of this program, students in the PhD program must complete the following courses (unless they were completed as part of the Master's program):

- NESC 6101.03 and NESC 6102.03: Principles of Neuroscience
- PSYO 7100.03: Seminar in Teaching Effectiveness
- PSYO 7501.03: Proseminar: Methods of Psychological Inquiry I
- PSYO 7502.03: Proseminar: Methods of Psychological Inquiry II

During each year in the PhD program students are required to register for Dissertation Research (PSYO 9530.00) and are encouraged to enrol in graduate Neuroscience and/or Psychology seminars. During each residency year students must register for and attend both semesters of the colloquium series (PSYO 8001.03 and PSYO 8002.03) and do some teaching in the undergraduate program (see Master's program description). At least one year before submission of their dissertation students must also satisfy the comprehensive examination requirement. This requirement entails completing at least three comprehensive 'projects' that are not directly related to the student's dissertation research or each other.

Doctor of Philosophy (PhD) in Clinical Psychology

Clinical Psychology at Dalhousie is a fast-track program in which students accelerate from the MSc to the Clinical PhD program without writing a Master's thesis or obtaining a Master's degree. Candidates for the Clinical Psychology program must have an Honours degree or equivalent in Psychology. Students accepted to study Clinical Psychology are initially registered in an MSc program and then fast-tracked to the Clinical PhD program before the end of their first year. Students accepted into the Clinical program with a Master's degree in Psychology (or a closely-related field) are eligible for direct entry to the PhD and may be eligible for advanced standing within the program. Note that fast-tracking into the Clinical PhD requires that a student has been admitted to study Clinical Psychology.

The PhD program in Clinical Psychology is a CPA accredited, structured, five-year program which follows the "scientist-practitioner" model. It considers clinical psychology as part of the science of psychology and therefore emphasizes research.

Upon admission, students are assigned to a faculty member who will supervise their thesis and other research projects. During the first four years of the Clinical PhD program, students complete required and elective courses, conduct supervised and thesis research, and gain clinical experience through field placements (PSYO 8333X/Y.06, a minimum of 600 hours are required). Students are involved in research from the outset, and are expected to conduct research leading to empirical, methodological and/or theoretical advances in their field of study, some or all of which will be included in their dissertation and defended publicly. In the fifth year, students complete a full-year clinical internship (PSYO 9100.00). The Department does not offer a Master's degree in Clinical Psychology.

The following courses are required:

- PSYO 6001.03: Fundamentals of Statistics and Experimental Design
- PSYO 6003.03: Multivariate Methods
- PSYO 6102.03: Child Assessment: Historical and Contemporary Perspectives and Practical Applications
- PSYO 6103.03: Adult Assessment: Historical and Contemporary Perspectives and Practical Applications
- PSYO 6104.03: Psychopathology: A Lifespan Perspective
- PSYO 6105.03: Ethics and Professional Decision Making
- PSYO 6106.03: Foundational Practice Skills for Clinical Psychology
- PSYO 6107.03: Mental Health and Psychoeducational Assessment Practicum
- PSYO 6204.03: Cognitive, Affective and Behavioural Bases of Intervention: A Lifespan Perspective
- PSYO 6208.03: Clinical Neuropsychology
- PSYO 6209.03: Research Seminar
- PSYO 6213.03: Culture and Identity: Diversity Issues in Clinical Psychology
- PSYO 6301.03: Advanced Clinical Intervention: Child
- PSYO 6302.03: Advanced Clinical Intervention: Adult
- PSYO 6303.03: Advanced Clinical Practice Skills in Supervision, Consultation and Program Evaluation
- PSYO 6304X/Y.06: Clinical Rounds/Case Conference
- PSYO 7100.03: Seminar in Teaching Effectiveness
- PSYO 7501.03: Proseminar: Methods of Psychological Inquiry I
- PSYO 7502.03: Proseminar: Methods of Psychological Inquiry II
- PSYO 8001.03: Psychology Colloquium I
- PSYO 8002.03: Psychology Colloquium II
- PSYO 8333X/Y.06: Field Placements
- At least nine credit hours of elective seminars must also be completed.
- At least six other credit hours in the quantitative/analytic area.

Certificates in Translational NeuroTechnology

Contact: Aaron Newman, Dalhousie University (Aaron.Newman@dal.ca)

Certificate Descriptions

The certificates in Translational NeuroTechnology (TNT1 and TNT2) are designed to provide both a scientific grounding in neurotechnology and clinical neuroscience, and the professional skills needed to work in translating scientific knowledge into products that benefit people. These include skills in the process of innovation, intellectual property, business, and communication. Graduates will be suited to jobs in industrial and academic settings, designing solutions that meet real needs and commercializing or otherwise mobilizing these innovations.

There are two graduate certificates in Translational NeuroTechnology: TNT1 and TNT2. These are designed to be completed sequentially, although some components of the TNT2 certificate may be completed prior to the awarding of the TNT1 certificate. Normally, it is expected that students will complete the TNT1 certificate during their Master's degree, and the TNT2 certificate during their PhD degree; other scenarios are possible however.

The TNT certificates are open to students enrolled in a graduate program at Dalhousie University. Students may come from programs in the Faculties of Science (including Psychology, Chemistry, Biology), Computer Science, Management (MBA), Medicine (including Medical Neuroscience, Physiology & Biophysics, Pharmacology, and Biochemistry), Engineering (including the School of Biomedical Engineering), and Health Professions (including Audiology, Kinesiology, Occupational Therapy, Physical Therapy, Speech Pathology, and Clinical Vision Sciences).

TNT1 Certificate Requirements

The Graduate Certificate in Translational NeuroTechnology (TNT1) will be awarded at graduation, upon successful completion of the following:

- PSYO 7701.03: RADIANT Seminar
- PSYO 7705.06: Summer Institute — Neurotechnology Innovation, Commercialization, and Entrepreneurship
- A thesis or other research project in the domain of neurotechnology.
  This research project may fulfill a requirement of the student's degree program (e.g., thesis or comprehensive research project) as well as the requirement of the Certificate. This project must be approved by the Management Committee.

TNT2 Certificate Requirements

The Graduate Certificate in Advanced Translational NeuroTechnology (TNT2) will be awarded at graduation, upon completion of the following:

- PSYO 7711.03: Innovating Neurotechnology I
- PSYO 7712.03: Innovating Neurotechnology II
- PSYO 7790.06: Internship in Neurotechnology
- A thesis or other research project in the domain of neurotechnology.
  This research project may fulfill a requirement of the student's degree program (e.g., thesis or comprehensive research project) as well as the requirement of the Certificate. This project must be approved by the Management Committee. The same project may not be used to fulfill the requirements of TNT1 and TNT2.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Required courses in Psychology are offered on a regular basis, and are restricted to students enrolled in a graduate program in Psychology. Those courses required for the Clinical Psychology Program are restricted to those students enrolled in that program. Director of Clinical Training and Instructor approval is required for non-Clinical Psychology graduate students to register for Clinical courses. Other courses are offered, and seminar topics chosen, on the basis of faculty interests and student needs.

Course Descriptions

PSYO 5000X/Y Research Assignment

CREDIT HOURS: 6
Students become actively involved in ongoing research in the laboratory of a faculty supervisor. In addition to research training, this course aims to improve the student's oral presentations and scientific writing. A final report (e.g. in the form of a Journal article) is required.
NOTES: 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.

PSYO 5001 Independent Study

CREDIT HOURS: 3
Students work closely with a faculty supervisor on a topic of mutual interest. Study may focus on laboratory research or library research and empirical, methodological, theoretical and/or professional issues may be covered. A final report is required.
NOTE: Course Details listed here also apply to PSYO 5002.

PSYO 5002 Independent Study

CREDIT HOURS: 3
See PSYO 5001.

PSYO 6001 Fundamentals of Statistics and Experimental Design

CREDIT HOURS: 3
This course will survey some common parametric statistical procedures in psychology, including analysis of variance and covariance. Major emphasis is placed on the general linear model and how best to apply the model as a function of the type of data, experimental design, and hypotheses under investigation. Some knowledge of basic statistics is assumed.

PSYO 6003 Multivariate Methods

CREDIT HOURS: 3
This course will cover a variety of topics in multivariate statistics, such as factor analysis, regression, multivariate analysis of variance and covariance, and discriminant function analysis. Some topics in categorical data analysis may also be covered, such as multiway frequency analysis and logic models.

PSYO 6051 Neural Basis of Perception

CREDIT HOURS: 3
This seminar course explores the correlations between 1) stimulus properties and neural responses produced by sensory stimulation and 2) the neural coding of environmental events and the behaviours that may be produced in the context of these events. These correlations will be studied within the auditory, visual and tactile modalities.
FORMAT: Seminar

PSYO 6060 Biological Basis of Mental Illness

CREDIT HOURS: 3
This seminar course explores our current understanding of the physiological mechanisms that may underlie various forms of abnormal behaviour. Its subject matter includes disorders for which a physiological mechanism has been identified as well as those for which a physiological basis is currently a matter for speculation. This course is intended for graduate students with backgrounds in some aspects of neuroscience and clinical psychology.
FORMAT: Seminar

PSYO 6071 Topics in Behavioural Neuroscience

CREDIT HOURS: 3
This seminar course covers contemporary, fundamental topics in physiological psychology, including methods, research and/or theory. Various topics such as brain mechanisms of reinforcement, hormones and behaviour, and biological rhythms, will be covered in different years.
FORMAT: Seminar
CROSS-LISTING: NESC 6071.03

PSYO 6081 Topics in Personality and Social Psychology

CREDIT HOURS: 3
Different topics in personality and social psychology (such as psychology of persons, attitude formation, group dynamics) are covered in a seminar format.
FORMAT: Seminar

PSYO 6091 Topics in Child Development

CREDIT HOURS: 3
Different topics in child development (such as language acquisition, social development, meta-cognitive processes) are covered in a seminar format.
FORMAT: Seminar

PSYO 6101 Computers and Instrumentation in Psychology Experiments

CREDIT HOURS: 3
This course provides an overview of the use of computers in psychological experimentation. Topics may include: real-time issues, input and display devices, platform and operating system differences, web-based experiments, and current experimental packages. Course work will include an introduction to programming and the development of a small-scale computerized experiment.
FORMAT: Seminar

PSYO 6102 Child Assessment: Historical and Contemporary Perspectives and Practical Applications

CREDIT HOURS: 3
This course addresses the theoretical and applied foundations of psychological measurement as it relates to child assessment. Historical, theoretical and psychometric issues are addressed to provide the students with a sound knowledge base in issues related to test development. The second part of the course emphasizes the development of skills in assessment of cognitive abilities, personality, behaviour and emotional function of children. Students learn to administer, score and interpret

performance on a variety of assessment instruments for children. Report writing skills are developed through case studies.
FORMAT: Seminar

PSYO 6103 Adult Assessment: Historical and Contemporary Perspectives and Practical Applications

CREDIT HOURS: 3
This course addresses the theoretical and applied foundations of psychological measurement as it relates to adult assessment. Historical, theoretical and psychometric issues are addressed to provide the students with a sound knowledge base in issues related to test development, including various forms of validity and reliability, as well as research designs in test development. The second part of the course emphasizes the development of skills in the assessment of cognitive abilities, personality, behaviour and emotional functioning of adults. Students learn to administer, score and interpret performance on a variety of assessment instruments for adults. Report writing skills as developed through case studies.
FORMAT: Seminar
EXCLUSIONS: PSYO 6203.03

PSYO 6104 Psychopathology: A Lifespan Perspective

CREDIT HOURS: 3
This course is an overview of psychopathology from a lifespan perspective. The objective is to provide knowledge of diagnostic criteria, and evidence on etiology and treatment of the major mental health disorders. Historical, social, cultural, and contextual aspects of psychopathology are examined and current research in the field is highlighted.
FORMAT: Seminar

PSYO 6105 Ethics and Professional Decision Making

CREDIT HOURS: 3
This course covers ethical and professional issues arising in various fields of psychology, including clinical practice and research. Students will be encouraged to develop a methodology for appraising their ethical and professional behaviour through an understanding of such issues as the legal regulation of psychology, codes of ethics and professional standards, and malpractice. The course will introduce students to the concepts of quality and risk, and explore the relationship between psychology and other professions in multi-disciplinary contexts. The course will also examine the relation between psychology standards and standards established by organizations in which psychologists work, such as health facility accreditation.
FORMAT: Seminar

PSYO 6106 Foundational Practice Skills for Clinical Psychology

CREDIT HOURS: 3
This course provides an introduction to foundational clinical skills necessary for intervention and assessment practice with clients. Students will learn clinical interviewing techniques and their application with clients across the lifespan. Students will learn how to select techniques and structure interviews to meet specific assessment and intervention goals, keeping with the referral question and the client's developmental status. Students will also become familiar with professional standards of practice, core competencies, and key ethical issues related to clinical practice as a preparation for practicum training.
NOTES: Replaces PSYO 6203. New title accurately reflects content and is in line with the Canadian Psychological Association (CPA) accreditation standards.
FORMAT: Seminar
EXCLUSIONS: PSYO 6203.03

PSYO 6107 Mental Health and Psychoeducational Assessment Practicum: Child and Adult

CREDIT HOURS: 3
This course will provide students with the opportunity to gain applied experience in conducting psychoeducational and mental health assessments, as well as to develop these skills within a lifespan model. Students will be able to apply the skills learned in PSYO 6102 Child Assessment and PSYO 6103 Adult Assessment, while conducting two assessments, one with a child and one with an adult. Students will attend class as well as practicum to complete two psychological assessments. Students will receive course credit for taking PSYO 6107 as well as accumulate practicum hours to a maximum of 80 hours.

PSYO 6160 Comparative Psychology

CREDIT HOURS: 3
Different topics in comparative psychology (such as kin selection, parental behaviour, hormonal control of behaviour, olfaction and behaviour) are covered.
FORMAT: Seminar

PSYO 6204 Cognitive, Affective and Behavioural Bases of Intervention: A Lifespan Perspective

CREDIT HOURS: 3
This course is an overview of major courses and modes of psychotherapy from a lifespan perspective. The objective is to provide knowledge of the history, development, current research findings, and practical considerations for implementing psychological interventions. Skills and knowledge for evaluating research evidence for specific treatments will be highlighted.
FORMAT: Seminar
PREREQUISITE: PSYO 6104.03

PSYO 6208 Clinical Neuropsychology

CREDIT HOURS: 3
This course emphasizes the development of a knowledge base by surveying several aspects of clinical neuropsychology. Topics include neuroanatomy, neurological exam, investigations and diseases, models of neuropsychological assessment, dementia, epilepsy, localization of function, cognitive remediation, theories of aphasia, amnesia, and agnosia.
FORMAT: Seminar

PSYO 6209 Research Seminar

CREDIT HOURS: 3
This course focuses on theoretical and substantive aspects of research design. Topics include reliability and validity of measurement, correlational, quasi-experimental, and experimental designs, measurement redundancy, and power analysis. Students present on selected topics, as well as present on design issues related to their dissertation.
FORMAT: Seminar

PSYO 6213 Culture and Identity: Diversity Issues in Clinical Psychology

CREDIT HOURS: 3
This course is an introduction to the interrelated concepts of culture and identity as they intersect in clinical psychology. It is intended to promote an appreciation of the impact of diverse and cultural influences on who we understand ourselves and others to be. This class will serve as an initial step towards developing cultural competence
FORMAT: Seminar

PSYO 6240 Topics in Animal Learning

CREDIT HOURS: 3
Different topics in the field of animal learning (such as classical and operant conditioning, quasi-neural modeling of learning phenomena, etc.) are covered.
FORMAT: Seminar

PSYO 6301 Advanced Clinical Intervention: Child

CREDIT HOURS: 3
This class focuses on a wide range of theoretical and applied aspects of child intervention. The class involves instruction in case conceptualization, treatment planning, and treatment evaluation.

PSYO 6302 Advanced Clinical Intervention: Adult

CREDIT HOURS: 3
This course is the adult equivalent of 6301.03. The emphasis is on Adult Advanced Clinical Intervention.
FORMAT: Seminar

PSYO 6303 Advanced Clinical Practice Skills in Supervision, Consultation & Program Evaluation

CREDIT HOURS: 3
Clinical supervision, consultation, and program development and evaluation constitute three critically important skill areas for clinical psychologists. This course will provide students with hands-on experience in supervision as well as theoretical and practical knowledge in consultation and program development and evaluation.
FORMAT: Seminar
EXCLUSIONS: PSYO 6401.03

PSYO 6304X/Y Clinical Rounds/Case Conference

CREDIT HOURS: 6
All students are expected to attend clinical rounds and presentations in various clinical settings in the community. Students are also expected to attend clinical case conferences that will be held on a monthly basis through the Fall and Winter terms. Clinical psychologists from the community and senior students are invited to present cases from their clinical practice. The aim of this course is to familiarize students with different ways of conceptualizing psychological problems, planning and initiating interventions, and evaluating outcome. Evaluation is based on student attendance and participation.
NOTES: 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.

PSYO 6313 Topics in Cognitive Psychology

CREDIT HOURS: 3
Varied topics in cognitive psychology (such as theories of attention, memory and amnesia, cognitive inhibition) are covered in a seminar format.
FORMAT: Seminar

PSYO 6581 History of Psychology I

CREDIT HOURS: 3
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.
FORMAT: Lecture| Seminar
PREREQUISITE: To be enrolled in a Graduate Program

PSYO 6582 History of Psychology II

CREDIT HOURS: 3
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, the unconscious, dreams, development, and the self.
FORMAT: Lecture| Seminar
PREREQUISITE: To be enrolled in a Graduate Program

PSYO 6803 Topics in Psychopathology

CREDIT HOURS: 3
Topics in psychopathology, which may vary from year to year, include: anxiety, child psychopathology, drug abuse, schizophrenia.
FORMAT: Seminar

PSYO 6804 Topics in Neuropsychology

CREDIT HOURS: 3
These seminars will vary from term to term and will focus on specific aspects of neuropsychology. Topics may include: localization of function, neuropsychological assessment, neurological, psychiatric and medical neuropsychology, cognitive rehabilitation, child neuropsychology, aphasia, amnesia, agnosia and apraxia.
FORMAT: Seminar

PSYO 6805 Topics in Assessments

CREDIT HOURS: 3
Different topics in assessment are covered.
FORMAT: Seminar

PSYO 6806 Topics in Psychopharmacology

CREDIT HOURS: 3

This seminar course examines the neural and behavioural effects of drugs. The agonist and antagonist actions of drugs on receptors for neurotransmitters and the effects of drugs on neurotransmitter synthesis, storage, release and deactivation are covered. Aimed specifically at psychologists, the course focuses on the use of drugs to treat clinical disorders such as depression, schizophrenia, Alzheimer's disease, etc.

FORMAT: Seminar

PSYO 6807 Topics in Forensic Psychology

CREDIT HOURS: 3

Forensic Psychology deals with the applications of psychological principles and methods to various aspects of the criminal justice system (i.e., the courts, corrections, policing). Coverage of this broad topic will vary from a general overview of the field to specific topics of interest to the students. Whatever the topic, professional and ethical issues will be addressed and the complexities of conducting research on psycho-legal issues will be explored.

FORMAT: Seminar

PSYO 6808 Topics in Therapeutic Intervention

CREDIT HOURS: 3

This seminar course will focus on specific types of intervention. Topics, which may vary from year to year, may include: crisis intervention, feminist therapy, operant interventions, family therapy, marital therapy, sex therapy, cognitive behaviour therapy, individual psychotherapy, pharmacotherapy, etc.

FORMAT: Seminar

PSYO 6809 Topics in Health Psychology

CREDIT HOURS: 3

This seminar course will examine specific topics concerning the inter-relationship between physical health and psychology. Topics, which may vary from year to year, may include: pediatric psychology, pain, health in the aged, health promotion, cardiovascular disease, etc.

FORMAT: Seminar

PSYO 6820 Topics in Community Psychology

CREDIT HOURS: 3

The focus of this seminar will be on the delivery of psychological services in community settings. The topics will vary from year to year depending on the needs of the course and the expertise of the instructor.

FORMAT: Seminar

PSYO 7100 Seminar in Teaching Effectiveness

CREDIT HOURS: 3

Students currently engaged as Teaching Assistants in PSYO 2000.03 and NESC 2007.03 must concurrently enroll in this course, which has two components: 1) a weekly meeting in which all students meet to discuss general and specific issues related to course planning, assessment of student performance and dealing with problems; 2) actual teaching experience in course for 2 hours/week. Teaching performance is intermittently observed and feedback provided on an individual basis.

PSYO 7501 Proseminar: Methods of Psychological Inquiry I

CREDIT HOURS: 3

New students are exposed to a broad range of topics in Psychology and Neuroscience as well as a sampling of methodologies used to study human and animal behaviour and its neural underpinnings. The course may also aim to develop the student's communication skills and research ability.

FORMAT: Seminar

PSYO 7502 Proseminar: Methods of Psychological Inquiry II

CREDIT HOURS: 3

New students are exposed to a broad range of topics in Psychology and Neuroscience as well as a sampling of methodologies used to study human and animal behaviour and its neural underpinnings. The course may also aim to develop the student's communication skills and research ability.

FORMAT: Seminar

PSYO 7701 Rehabilitative and Diagnostic Innovation in Applied Neurotechnologies (RADIANT) Seminar

CREDIT HOURS: 3

Seminar in commercialization and other translational activities for neuroscience and neurotechnology. Topics include: neurotechnology research and methods; clinical neuroscience; commercialization and intellectual property; ethics: research, clinical, and professional ethics, implications of neurotechnology on society; written and oral communication skills suitable to scientific and lay audiences.

FORMAT: Seminar

PREREQUISITE: Instructor's approval

PSYO 7705X/Y Neurotechnology Innovation, Commercialization, and Entrepreneurship

CREDIT HOURS: 6

Intensive three-week course in neurotechnology, clinical neuroscience, and commercialization. Topics include: neuroimaging methods; diagnosis, assessment, and treatment of nervous system-related disorders; the process of innovation; and business fundamentals. Features guest lectures by successful scientists and entrepreneurs, as well as hands-on workshops and lab exercises on business and neurotechnology topics.

FORMAT: Seminar

PREREQUISITE: Instructor's approval

PSYO 7711 Innovating Neurotechnology I

CREDIT HOURS: 3

Provides an overview of the process of innovation and commercialization of neurotechnologies and related technologies. Topics include: needs finding, needs screening, and product development; project, time, and personnel management; and communication to scientific, clinical and lay audiences.

FORMAT: Seminar

PREREQUISITE: Instructor's approval

PSYO 7712 Innovating Neurotechnology II

CREDIT HOURS: 3
Provides an overview of the process of innovation and commercialization of neurotechnologies and related technologies. Topics include: product development; project, time, and personnel management; finance; capital-raising; intellectual property; marketing; and communication to scientific, clinical and lay audiences.
FORMAT: Seminar
PREREQUISITE: Instructor's approval

PSYO 7790 Internship in Neurotechnology

CREDIT HOURS: 6
A minimum 4 month internship in an industrial or other setting (e.g., life sciences industry organization; not-for-profit/NGO; etc.). This course will provide exposure to research and development in a non-academic environment, along with other aspects such as business strategy, organizational structure, management, sales, marketing, and finance.
PREREQUISITE: Instructor's approval

PSYO 8001 Psychology Colloquium I

CREDIT HOURS: 3
Students enrolled in this course are required to attend the weekly colloquium series.

PSYO 8002 Psychology Colloquium II

CREDIT HOURS: 3
Students enrolled in this course are required to attend the weekly colloquium series.

PSYO 8333X/Y Field Placements

CREDIT HOURS: 6
Students are assigned to field placements in co-operating institutions where the student will spend one day per week (or equivalent). Placements are individually arranged to provide the student with experience in a variety of clinical environments. Field placements are coordinated and monitored by the Field Placement Coordinator. Students who are assigned to field placements will present case reports in a weekly one-hour seminar. Students must complete a minimum of 600 practicum hours before they can register for the predoctoral internship (see Practicum Guidelines).
NOTES: 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.

PSYO 9000 MSc Thesis

CREDIT HOURS: 0

PSYO 9100X/Y Pre-Doctoral Internship

CREDIT HOURS: 0
A 12-month, full-time internship in an approved setting is required. Typically, the internship setting will be accredited by the Canadian Psychological Association or the American Psychological Association.

PSYO 9530 PhD Thesis

CREDIT HOURS: 0

Public Administration

Location:
Building/Room:
Street Address 1: 6100 University Avenue
Street Address 2: 3rd Floor
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3742
Fax: (902) 494-7023
Website: www.dal.ca/mpa
Email Address: DalMPA@.dal.ca

Staff

Director of School

Moody, R.

Graduate Coordinator

Wranik, D.

Professors Emeriti

Butler, P. M., BA (Memorial), MA (UNB), PhD (Toronto)
McNiven, J. D., BA, MA, PhD (Mich)
Pross, A. P., BA, MA (Queen's), PhD (Toronto)

Professors

Roy, J., BA (Waterloo), MBA (Ottawa), PhD (Carleton). Electronic government, public-private partnerships, public service transformation, ethics and corporate governance and democratic engagement
Traves, T., BA (Man), MA, PhD (York), President Emeritus, Dalhousie University, jointly with History

Associate Professors

Cassin, A. M., BA (Man), MA (UBC), PhD, (Toronto). Public sector management, gender relations, career advancement, community economic development
Mechoulan, S., Diplôme HEc (Paris, France), MA (Paris Jourdan Sciences Economiques), PhD (Northwestern), Health Economics, Family Economics, Law, Economics, Public Policy
Quigley, K., BA (Queen's), MSc (London School of Economics and Political Science, London Uk), PhD (Queen's University, Belfast, Uk). Comparative public sector risk and crisis management, strategic management and critical infrastructure protection
Wranik, D., BA, MA, PhD (Manitoba). Health Economics, Health System Efficiency, Physician Remuneration Models, Health Service Delivery Models, Health Technologies Assessment and its use in policy making, Health Policy Design and Evaluation

Adjunct (FGS)

Brown, M. P., BA (Mt. A), MA (Dalhousie), PhD (Toronto)
Chaytor, K., BA (MSVU), MA, PhD (Dalhousie)
Durier-Copp, M., BA, MA, PhD (McGill)
Fanjoy, E., BSc (Hons), LLD (UNB)
Francis, M., ONS, BA, MPA (Honorary DHUML, DCL, LLD)
Friesen, J., LLB (Saskatchewan), MPA (Harvard)
Fullerton, R. W., BSc (Dalhousie), MED (Toronto), PhD (Union Institute)
Haworth, R., BSc (Durham), PhD (Cambridge)

Hodgett, S., BSSc (Ulster), PGCE, MSSC (Queen's Belfast), PhD (Sheffield)
Moody, R. P., BComm (St. Mary's), MPA (Dalhousie), PhD (Bradford)
Smart, D., BA (Carleton), MSc (National Defence University)

Students seeking further information or help in planning courses of study in the School of Public Administration should address themselves to:

Graduate Coordinator
School of Public Administration
6100 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3742
Fax: (902) 494-7023

Degree Programs (General)

The graduate programs of the School are designed to provide the professional education essential to a career in modern public service. They are offered to students who either are preparing for initial employment or are returning to university with work experience. The School is part of Dalhousie's Faculty of Management. This gives students the opportunity to explore links between public administration, business, the environment and the information sciences.

The School offers six degree programs in total, each designed for a different audience. These are the Master of Public Administration (MPA), the Master of Public Administration Management (MPAM), the Graduate Diploma in Public Administration (GDPA), the combined Master of Public Administration/Juris Doctor (MPA/JD), and the combined Master of Public Administration/Master of Information Management (MPA/MLIS).

The programs are professional in that they equip students with both an understanding of the organization, process, and activities of government and the administrative skills required in public sector management. Each component is essential, and consequently required of all students. They are expected to achieve an expanded awareness of the public interest and a personal appreciation of the ethical standards and comptroller principles appropriate to a career in the service of the public. The professional requirements have been developed in consultation with senior officials of all levels of government (including graduates of the School).

Master of Public Administration (MPA)

The quantity and quality of work expected in individual courses will reflect the high scholarly standards of graduate education.

The MPA curriculum encompasses the essential components of financial, human resources and statistical techniques on the one hand, and economic, organizational and policy analysis on the other. Students in the first year of the MPA program are required to complete eight half credit courses in these core fields.

Students in the second year will develop their program from the offerings in the School and may elect to take up to three half credits from courses outside the School. Elective courses proposed from outside the school must be relevant to the field of Public Administration and approved by the Graduate Coordinator. These include courses from other academic units at Dalhousie or other universities provided they have sufficient public sector content.

In exceptional circumstances, students might qualify for completion of the MPA program in one year. The program, consisting of nine half credits of course work, may be considered for students who have completed, with a first-class standing, a BA honours degree in public administration. Admission to the one-year MPA may also be based on completion, with first-class standing, of an MA degree in these academic areas or a professional graduate-level degree in a field relevant to public administration (e.g. with public sector content). Course work in the honours degree and/or the masters program must have included at least four of the eight course credits required in the first year of the two-year MPA program.

A Dalhousie Bachelor of Management graduate with a cumulative GPA of 3.7 (A-) or higher over the four-year duration of the program might be accepted into the one-year MPA.The Graduate Co-ordinator of the MPA program shall determine the required courses the student must take to satisfy the requirements of the one-year MPA program consisting of nine half-credit courses.

Graduate Diploma in Public Administration (GDPA)

The GDPA consists of 27 credit hours to be completed in the fall and winter semesters. These include the eight required courses of the first year of the MPA program plus one additional elective course to be determined in consultation with the Graduate Coordinator.

JD/MPA

The School of Public Administration and the Schulich School of Law offer a joint JD/MPA program. The program allows students to take the two degrees simultaneously and to complete them in four years, rather than in five years as is the case if each is taken independently. Students interested in entering the joint program should apply separately to both the School of Public Administration and the Schulich School of Law, indicating on their applications that they wish to enter the JD/MPA program. The closing date for applications for the JD is the end of February.

Students in the JD/MPA program will be eligible to take three PUAD elective courses and one elective outside the PUAD course offerings. Modern Comptrollership

(PUAD 6100.03) is a required course for JD/MPA students. However, PUAD 6000.03: Senior Seminar: Ethics, Public Service, and Governance is not a required course for JD/MPA students, but may be taken as elective courses.

MPA/MLIS

As the information-based economy continues to develop, it is clear that employees must be effectively equipped with technical and professional competencies to survive and prosper in public sector environments. In response to this need, the School of Public Administration and the School of Information Management are jointly offering the only dual, MLIS/MPA degree program. The joint program allows students to complete the two degrees simultaneously and to complete them in three years rather than in four years, if each is taken independently. Students should apply separately to both the School of Public Administration and the School of Information Management.

Master of Public Administration (Management)

The MPA (M) program is one of the finest examples of blended learning at the graduate level in Canada, combining distance learning with classroom instruction. This cutting-edge Master's degree is specifically designed for dedicated and goal-oriented mid-career public service professional who wish to pursue advanced management education on a part-time basis.

The MPA (M) consists of 39 credit hours; these include 27 core credit hours of hte MPA (Management) program plus 12 additional elective credit hours to be determined in consultation with the Graduate Coordinator

The program focuses on core public administration disciplinary areas including human resource management, public policy, economics, accounting and research methods. It also emphasizes people, relationships and organizational culture, and addresses transparency, ethics, accountability, integrity, leadership and change.

Educational methods use interactive, web-facilitated instruction, classroom sessions and problem-based evaluation. The varied means of learning allow candidates to develop the skills and analytical ability necessary to successfully address current issues and priorities in the public sector.

Each course ends with a mandatory 2.5-day classroom session (Halifax and/or Central Canada). These sessions provide each student with individual attention from the instructor and the opportunity to share invaluable perspectives with fellow professionals from across the public sector and NGO.

Graduate Diploma in Public Administration (Management)

The GDPA(M) consists of 21 credit hours; these include 18 of the 24 core credit hours of the MPA (Management) program, plus three additional elective credit hours to be determined in consultation with the Graduate Coordinator.

Students seeking further information should contact the Centre for Advanced Management Education (CFAME), Faculty of Management, Dalhousie University at 1-800-205-7510 or (902) 494-6391 and ask for an application package or contact the CFAME Office by email at cfame@dal.ca

Application and Admission Requirements

Application forms are available from the Admissions Office of Dalhousie University. Applications should be submitted as early as January and not later than June 1 in the academic year in which studies are to commence.

Admission decisions are made on a continuing basis from January until the program quota is reached.

Note: MPA (Management) accepts applications for fall, winter and summer. Refer to MPA (Management) website for full admission criteria and deadlines.

General Admission Requirement for MPA

Enrolment in the School is limited. Normally, competitive applicants will have attained a good second class standing (B+ (3.3 GPA) average) in their last 60 credit hours of university work.

Admission is based on an assessment of:

- All previous academic work;
- Two letters of reference;
- TOEFL (Test of English as a Foreign Language), for English as a second language students only, a minimum score of 580 is required for acceptance in the Faculty of Graduate Studies. The TOEFL score must be submitted at the time of application; In addition to the TOEFL score, English as a second language students must also submit one of the following tests; the Graduate Management Admissions Test (GMAT); the GRE or the Law Standards Admissions Test (LSAT).

In summary it is imperative that in addition to your application we receive:

- A statement of career interest (one page should be sufficient);
- A current résumé;
- At least two academic letters of reference;
- A TOEFL score and GRE/GMAT (if applicable)

Although not required except for international students, all students may submit a score from the Graduate Management Admission Test (GMAT) in support of their application.

The Dalhousie School of Public Administration GMAT Number is 0957.

Applicants for the test should use an order form obtainable from the Registrar's Office of the nearest University, Dalhousie University, or you may write to the address below to obtain an information bulletin and registration form for the GMAT. If the order form is lost or omitted from the materials you receive, you should write directly to:

Graduate Management Admission Test
Educational Testing Service
Box 966
Princeton, NJ, 08540 USA

For further information, contact the Administrative Secretary of the School.

General Admission Requirement for GDPA

Enrolment in the School is limited. Normally, competitive applicants will have attained a good second class standing (B+ (3.3 GPA) average) in their last 60 credit hours of university work.

Admission is based on an assessment of:

- All previous academic work;
- Two letters of reference;
- TOEFL (Test of English as a Foreign Language), for English as a second language students only, a minimum score of 580 is required for acceptance in the Faculty of Graduate Studies. The TOEFL score must be submitted at the time of application; In addition to the TOEFL score, English as a second language students must also submit one of the following tests; the Graduate Management Admissions Test (GMAT); the GRE or the Law Standards Admissions Test (LSAT).

In summary it is imperative that in addition to your application we receive:

- A statement of career interest (one page should be sufficient);
- A current résumé;
- At least two academic letters of reference;
- A TOEFL score and GRE/GMAT (if applicable)

Although not required except for international students, all students may submit a score from the Graduate Management Admission Test (GMAT) in support of their application.

The Dalhousie School of Public Administration GMAT Number is 0957.

Applicants for the test should use an order form obtainable from the Registrar's Office of the nearest University, Dalhousie University, or you may write to the address below to obtain an information bulletin and registration form for the GMAT. If the order form is lost or omitted from the materials you receive, you should write directly to:

Graduate Management Admission Test
Educational Testing Service
Box 966
Princeton, NJ, 08540 USA

For further information, contact the Administrative Secretary of the School.

General Admission Requirement for JD/MPA

Candidates for the JD/MPA program must satisfy the entrance requirements of both the MPA and JD programs, and may obtain further information about the combined program by writing to the School of Public Administration and the Schulich School of Law. For admission, students must apply to both the School of Public Administration and the Schulich School of Law individually. Students applying for the MPA program may submit LSAT results in lieu of GMAT results.

General Admission Requirement for MPA/MLIS

Students should apply separately to both the School of Public Administration and the School of Information Management. Students must qualify for both programs independently. Students may be registered in the first year of one program and apply to the other program during their first year.

General Admission Requirement for MPAM and GDPA(M)

To be eligible for admission to the MPA (M) or GDPA(M) program, an applicant must have a Four-year Undergraduate degree from a recognized university (or a master's degree) with a B average (3.0 GPA on a 4.3 scale) or equivalent (as determined by Dalhousie University) in a recognized degree program, plus at least five years' relevant professional experience in public or non-for-profit service sectors (combined private sector professional experience may be considered on a case by case basis).

*Applicants who do not meet the standard academic criteria may be required to submit a Prior Learning Assessment Portfolio/or a GMAT (results 550 or higher)

Part-time Study

The programs offered through the School are available to students on a part-time basis. A part-time student may enrol in up to 15 credit hours during the 12 month period, September to August.

In order to ensure that graduate students benefit from a reasonable concentration of their studies, part-time programs leading to the GDPA must be completed within four years, and part-time programs leading to the MPA must be completed within six years.

Master of Public Administration (MPA)

The MPA is an 54 credit hours graduate program designed for individuals prepared to undertake advanced professional study. Individual programs will vary in content to reflect each student's background and interests, while at the same time recognizing the central principles and functions of public administration.

Course Requirements

The two-year MPA will require the successful completion of 30 credit hours plus 24 credit hours of electives. Full-time students are required to complete all eight required courses during the first year of their program prior to being permitted registration in 6000 level courses and MGMT 5000: Management Without Borders: A Foundation Course for Masters Students in Management. Deviations from the program structure might be possible in exceptional circumstances and must be approved by the Graduate Coordinator. Part-time students are expected to complete the first eight required MPA courses prior to registering in 6000 level electives and MGMT 5000: Management Without Borders: A Foundation Course for Masters Students in Management. Part-time students should discuss their program of study with the Graduate Coordinator.

In the first year, students must take 24 credit hours which are:

- PUAD 5100.03: Organization Designs for Governance and Public Management
- PUAD 5120.03: Introduction to Public Policy
- PUAD 5130.03: Managerial Economics
- PUAD 5131.03: Public Economics
- PUAD 5140.03: Quantitative Methods for Public Sector Management
- PUAD 5170.03: Public Sector Human Resources Management
- PUAD 5180.03: Research Methods and Policy Analysis
- PUAD 5200.00: Professional Development Certificate Program
- PUAD 5250:03: Strategic Financial Management

In the second year, students must take the following two required three credit hour courses plus 24 credit hours of electives:

- MGMT 5000.03: Management Without Borders
- PUAD 6000.03: Ethics, Public Service and Governance
- PUAD 6200.00: Professional Development Certificate Program

The remaining 24 credit hours will be electives. Some exemptions in required courses, resulting in either program modification or a reduction of credits, may be granted to well qualified candidates upon application to the Graduate Coordinator.

The one-year MPA will require the successful completion of up to 27 credit hours including up to nine credit hours from the 5000-level courses, PUAD 6000.03: Senior Seminar: Ethics, Public Service and Government and five electives.

Graduate Diploma in Public Administration (GDPA)

The Graduate Diploma in Public Administration is a one-year, 27 credit hours, graduate program designed for public servants who hold a first degree, and for students wishing to obtain professional preparation for a career in public administration.

Course Requirements

The GDPA requires the successful completion of 27 credit hours:

- PUAD 5100.03: Organizational Designs for Governance and Public Management
- PUAD 5120.03: Introduction to Public Policy
- PUAD 5130.03: Managerial Economics
- PUAD 5131.03: Public Economics
- PUAD 5140.03: Quantitative Methods for Public Sector Management
- PUAD 5250.03: Strategic Financial Management
- PUAD 5170.03: Public Sector Human Resources Management
- PUAD 5180.03: Research Methods and Policy Analysis
- and one additional graduate level three credit hours elective course from the PUAD series, to be selected in consultation with the Graduate Coordinator

When a student has a demonstrated competence in the area of a required course, an alternate course may be substituted if approved by the Graduate Coordinator.

Juris Doctor/Master of Public Administration (JD/MPA) Program

The combined JD/MPA program is a four-year program which enables students to select courses leading to degrees of Master of Public Administration and Juris Doctor. A total of 39 credit hours Public Administration courses are required. The combined program is structured as follows:

Year 1

- First year courses of the MPA program (24 credit hours required courses)

Year 2

- First year courses of the JD program

Year 3

- nine credit hours of elective courses from the MPA program (one of these could be PUAD 6855: Internship, typically completed during the summer after first or second year of the program, as agreed upon with program coordinators).
- Civil Procedure
- Constitutional Law
- Compulsory Moot
- Plus 12-14 credit hours of courses from the JD program including a major paper class

Year 4

- six credit hours of elective courses from the MPA program. Students may choose to do a three credit hour elective course from outside the MPA course offerings. This course must be approved by the MPA Graduate Coordinator
- 23-25 credit hours of courses from the JD program, which must include The Legal Profession and Professional Responsibility, and a major paper class

MPA/JD are not required to participate in the Professional Development Certificate program, but are required to participate in the professional development activities in the JD program. Student who wish to pursue the PUAD 6855: Internship should note that the first year of the PD program is a prerequisite for the Internship course.

Master of Public Administration/Master of Library and Information Studies (MPA/MLIS) Program

The combined MPA/MLIS program is a three-year program which enables students to select courses leading to degrees of Master of Public Administration and Master of Information Studies. A total of 45 credit hours Public Administration courses are required and the suggested order of the program is:

Year 1 (eight courses)

- Concentration in Information Studies

Year 2 (nine courses)

- eight first year required courses of the MPA program and MGMT 5000:

Management Without Borders: A Foundation Course for Masters Students in Management

Year 3 (10 courses)

- four courses in Library and Information Studies
- one second year required course (PUAD 6000:

Senior Seminar: Ethics, Public Service and Governance) plus five Public Administration elective courses

MPA/MLIS students are required to participate in the MPA Professional Development Certificate program during any two consecutive years of their three year degrees.

Advanced Standing

Advanced Standing of up to 27 credit hours (one year) may be granted to students who have completed graduate level courses which are relevant to the Masters in Public Administration Program but which have not been used towards another degree. Students are advised to seek advanced standing when they apply for admission. All course exemptions or advanced standing must be approved by the Graduate Coordinator.

The Internship Program

The internship offers MPA candidates an educational and professional development experience through preparation and competition for a work term with a public sector employer. The experience connects the academic program in the MPA and public service experience. The internship is a half credit course in recognition of its educational value. Please consult PUAD 6855.03: Internship for prerequisites and requirements. Placements in internships are not guaranteed, however, all eligible interns have been placed in the last seven years.

Master of Public Administration (MPA) (Management) Program

The MPA (Management) is a 39 credit hour graduate program. The Graduate Diploma in Public Administration (Management) (GDPA (M)) is a 21 credit hour graduate program, both are designed for individuals who have public sector experience and wish to continue their academic studies part time via a blended learning model. The MPA (M) emphasizes the theory, analysis and practice of public policy and management. Dalhousie professors, in collaboration with public sector specialists, authored the MPA (M) courses to address the specific concerns and realities of today's public sector and NGO. A management team from the School of Public Administration ensures that the courses are integrated yet individually focused, and that the curriculum builds a firm academic foundation for the practice of public administration.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

The schedule of courses offered through the MPA (M) program provides students with flexibility and location choice. However, it is recommended that students register, early in the program, for what would be considered the core courses. They include: Policy Formulation, Economics, Government Structures, Research Methods, Managing Information Resources, Human Resources, Business and Government, and Strategic Management in the Public Sector.

Student have up to seven years to complete the course requirement (average time-frame is four years).

Core Courses

- MGMT 5105.03: Government Structure and Organization
- MGMT 5110.03: Strategic Management in the Public Sector *
- MGMT 5125.03: Policy Formulation & Analysis
- MGMT 5135.03: Managerial Economics
- MGMT 5146.03: Research Methods
- MGMT XXXX: Public Sector Financial Management ****
- MGMT 6501.03: Business and Government
- MGMT 6555.03: Managing the Information Resources
- MGMT 6650.03: Human Resources Management

Electives

- MGMT 5140.03: Public Economics **
- MGMT 6400.03: Municipal Government
- MGMT 6525.03: Program Evaluation ***
- MGMT 6700.03: Managing People in Diverse Organizations
- MGMT 6755.03: Intergovernmental Relations in Canada

* Highly recommended that Strategic Management in the Public Sector is taken as close to the end of the program as possible.
** Strongly recommended that students complete Managerial Economics prior to Public Economics.
*** Strongly recommended that students complete Research Methods prior to Program Evaluation.
**** Pending approval by the Faculty of Graduate Studies.

Advanced Standing

Advanced Standing of up to six credit hours may be granted to students who have completed the government CAP and/or the Direxion programs. Students are advised to inquiry about advanced standing when they apply for admission.

MPA

Required First Year Courses

- MGMT 5000.03: Management Without Borders: A Foundation Course for Masters Students in Management
- PUAD 5100.03: Organizational Designs for Governance and Public Management
- PUAD 5120.03: Introduction to Public Policy
- PUAD 5130.03: Managerial Economics
- PUAD 5131.03: Public Economics
- PUAD 5140.03: Quantitative Methods
- PUAD 5170.03: Public Sector Human Resources
- PUAD 5180.03: Research Methods and Policy Analysis
- PUAD 5200X/Y.00: Professional Development Certificate Year 1
- PUAD 5250.03: Strategic Financial Management

Second Year Courses

Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling in 6000 level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. All second year elective course offerings are subject to resource availability.

Required

- PUAD 6000.03: Senior Seminar: Ethics, Public Service and Governance
- PUAD 6200X/Y.00: Professional Development Certificate Year 2

Electives

- PUAD 6010.03: Issues in Public Administration
- PUAD 6050.03: Strategic Management in the Public Sector
- PUAD 6235.03: Issues in Applied Economics
- PUAD 6300.03: Alternative Programme Delivery
- PUAD 6400.03: Local Government
- PUAD 6420.03: Municipal Finance
- PUAD 6450.03: Economics of Health Policy
- PUAD 6500.03: Business and Government
- PUAD 6505.03: Interest Groups: Function and Management
- PUAD 6520.03: Programme Evaluation Seminar
- PUAD 6555.03: Management of Information (EGovernment)and Public Administration
- PUAD 6570.03: Equity and Diversity in the Public Sector

MPA (Management) Courses

These courses are intended for students registered in the MPA (Management) program. For more information on this program please contact the Centre for Advanced Management Education - 1-800-205-7510 or (902) 494-6391, Email: cfame@dal.ca.

- MGMT 5105.03: Government Structure and Organization
- MGMT 5110.03: Strategic Management in the Public Sector
- MGMT 5125.03: Policy Formulation & Analysis
- MGMT 5135.03: Managerial Economics
- MGMT 5140.03: Public Economics (elective)
- MGMT 5146.03: Research Methods
- MGMT 6400.03: Municipal Government (elective)
- MGMT 6501.03: Business and Government
- MGMT 6525.03: Program Evaluation (elective)
- MGMT 6555.03: Managing the Information Resource
- MGMT 6650.03: Human Resource Management
- MGMT 6700.03: Managing People in Diverse Organizations (elective)
- MGMT 6755.03: Intergovernmental Relations in Canada (elective)

Course Descriptions

PUAD 5100 Organizational Designs for Governance and Public Management

CREDIT HOURS: 3

This course examines the organizational designs of government for the purposes of governance and public management. It encompasses the basic constitutional and political designs of government; the structures and principles governing the relationship between the partisan-political and non-partisan public-service institutions of government; the organization and roles of the central executive and corporate policy and management agencies; the organization of portfolios, departments and agencies for the management of policy and operational functions; and, the structures and processes of accountability for governance and public management. The course is focused on the Canadian system of government but addresses basic questions of organizational theory and design in a comparative context.

PUAD 5120 Introduction to Public Policy

CREDIT HOURS: 3

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 in policy advocacy both inside and outside government. The first section of the course examines policy definitions and professional policy making approaches in the 21st century. The second section considers the role of the state in the 21st century, and the policy competencies that analysts must have if that role is to be carried out effectively. Section three explores vertical, horizontal and external policy relationships, both as determinants 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 blend of theory and practice 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 in policy processes

in the future.
CROSS-LISTING: POLI 4240.03, POLI 5240.03

PUAD 5130 Managerial Economics

CREDIT HOURS: 3
This class introduces the fundamental concepts of economics and helps to develop the analytical skills of students appropriate for practitioners in the public sector. It provides an understanding of basic microeconomic theories and principles in considerable depth, consistent with a graduate-level course in an interdisciplinary program. The course focuses on the theories of consumer and producer behaviour and their interaction in the market, of particular interest are situations of market failure and the resultant need for policy intervention.

PUAD 5131 Public Economics

CREDIT HOURS: 3
This course introduces the basic principles macroeconomics, appropriate to a graduate-level course in an inter-disciplinary program. It is also concerned with the use and application of macroeconomic theory and the relevance of this theory in economic decision-making in a market economy with a large public sector. In particular, this course places a special emphasis on the role of government in the economy and on the application of economic theory in policy analysis within the framework of the Canadian federation. Together with Managerial Economics, these two courses provide a unique blend of theoretical rigor, empirical relevance and sound policy applications.

PUAD 5140 Quantitative Methods

CREDIT HOURS: 3
This course is designed to enable students to understand existing statistical analyses, as well as to conduct their own. Statistical analyses are presented with focus on application in the public sector, emphasizing the importance of statistical analysis in social research and policy making. Specific topics include descriptive and inferential statistics, measures of association for nominal and ordinal variables, analysis of variance techniques, as well as linear regression. In addition to the course, students are also offered tutorials in working with SPSS and MS Excel. Student assignments require work with large data sets.

PUAD 5170 Public Sector Human Resources

CREDIT HOURS: 3
A major part of most public administration positions is human resource management. Therefore, it is important that public administrators understand the components of human resource management and their effect on an organization. In this course, human resource management is defined in a very broad sense, touching on all the major components of human resource management in order to give an overall concept or paradigm. The components are: 1) planning the need for public servants, 2) attracting the right people to be public servants, 3) placing the public servants in well matched jobs, 4) assisting public servants with their career development, 5) maintaining high performance with public servants and 6) evaluating public servants.

PUAD 5180 Research Methods and Policy Analysis

CREDIT HOURS: 3
This course is designed to equip students with tools needed for the collection of quantitative and qualitative data in the context of an applied research project. Students learn how to combine qualitative analysis with quantitative techniques they acquired in PUAD 5140. Specifically, students learn to write literature reviews, to conduct personal interviews, to run focus groups, and to design survey questionnaires. All techniques discussed are applied to the analysis of public policy issues. Policy is analyzed with respect to its strengths and weaknesses from various stakeholders perspectives. Students are required to present their work in class.

PUAD 5200X/Y Professional Development Certificate Year 1

CREDIT HOURS: 0
This mandatory course focuses on preparing MPA candidates with professional competencies expected by public sector employers, while promoting responsibility, collaboration, integrity and inclusiveness. Led by faculty and guest speakers, the program design includes lectures, seminars, collaborative learning groups and an individual development project. This course is a prerequisite for PUAD 6855 (Internship) and PUAD 6200X/Y and offers related professional development such as support with resumes and cover letters. The PDCP is a non-academic, non-credit program.
ASSESSMENT METHOD: Pass/Fail

PUAD 5250 Strategic Financial Management

CREDIT HOURS: 3
Exploring issues at all orders of government, the course will review concepts of financial planning, budgeting and accountability. It will place these finance and budgeting concepts within a holistic strategic management context. A review of public sector accounting will develop an understanding of the assumptions and principles of accounting.
FORMAT: Lecture| Lab
EXCLUSIONS: PUAD 5150.03, PUAD 6100.03

PUAD 6000 Senior Seminar: Ethics, Public Service and Governance

CREDIT HOURS: 3
Designed as a culminating and integrating exercise for the MPA program, this course focuses upon a wide range of ethical problems in governance. Topics covered include conflict of interest, accountability, political neutrality, service to the public and codes of conduct. The course is based on case studies with a premium placed on discussion. Please consult the instructor for information on assignments and other course requirements.
NOTES: For students enrolled in the two-year MPA program, successful completion of the first year of studies is the prerequisite for this course.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6010 Issues in Public Administration

CREDIT HOURS: 3
This course provides a solid grounding in the legal underpinnings, the governance framework, and the concepts surrounding union-management and employee relations in the public service. This knowledge will strengthen the capacity of public servants to perform effectively whether they are employees, managers or elected union officials. The course will examine in some detail the evolution of Labour rights and Labour relations in the federal public service, up to and including the implementation of the Public Service Labour Relations Act which has been implemented as part of the newly enacted Public Service Modernization Act. While this course will draw extensively from the federal experience, it will also provide opportunities to examine provincial, municipal and private sector experiences. It will examine the roles and responsibilities of the various players within the legal framework which governs these relationships and explore the impact in the workplace of

the various approaches to Labour management including the movement towards a less litigious Alternative Dispute Resolution (ADR) process as an alternative to the rights based processes and how this can affect the workplace.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6050 Strategic Management in the Public Sector

CREDIT HOURS: 3
This course is an in-depth examination of the management of government organizations. Its topics include management control, strategy development, innovation, risk management and leadership. The more specific course goals are as follows:-To provide a process understanding of practices employed by government organizations to develop and implement their strategies-To provide insights into the practicalities of performing organizational functions, including management control, innovation, strategy development and risk management-To strengthen the ability to penetrate and critique prescriptive arguments about public management practices-To develop skills in designing practices suited to particular circumstances of application
FORMAT: Lecture
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6120 Citizen Engagement and Consultation: The Opportunities and Challenges of Public Engagement

CREDIT HOURS: 3
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, and the techniques or methods that can be used to more effectively involve individual citizens and stakeholder groups in community decisions.
CROSS-LISTING: PLAN 4120.03, PLAN 6120.03

PUAD 6130 Risk, Media and Communications in Public Administration

CREDIT HOURS: 3
This course offers students the opportunity to analyze and understand to greater depth the relationship between the government, risk and the media. Participants will: analyze media coverage of government and risk; learn techniques and tools that governments use to communicate with the media and to the public directly.
FORMAT: Lecture| Discussion
PREREQUISITE: PUAD 5100, PUAD 5120, PUAD 5180, PUAD 5130, PUAD 5140, PUAD 5170, PUAD 5180, PUAD 5250, PUAD 5131

PUAD 6150 Information in Public Policy and Decision Making

CREDIT HOURS: 3
This course addresses the role(s) of information in policy and decision-making at local, national, and international levels. Evidence-based policy making is relatively new and challenging. This course examines the research-policy interface, especially enablers and barriers to use of information of several domains, and uses case studies to illustrate concepts.
FORMAT: Lecture
CROSS-LISTING: INFO 6100.03, ENVI 6100.03

PUAD 6200X/Y Professional Development Certificate Year 2

CREDIT HOURS: 0
This mandatory course expands on the professional competencies developed in PUAD 5200X/Y. Led by faculty and guest speakers, the program design includes lectures, seminars, collaborative learning groups and an individual development project. This course also builds on learnings from the summer Internships to develop competencies appropriate for entry level professional positions in public sector organizations. The PDCP is non-academic, non-credit program. Certificates awarded and transcript notations will reflect the work completed over the professional development program. (PUAD 5200X/Y and PUAD 6200 X/Y)
PREREQUISITE: Successful completion of PUAD 5200X/Y or special permission from the Graduate Coordinator or course instructor.
ASSESSMENT METHOD: Pass/Fail

PUAD 6235 Issues in Applied Economics

CREDIT HOURS: 3
This course addresses a selection of topics in applied economics that are of considerable significance for any economy. It is designed for those students who wish to develop the ability to (a) understand and interpret different economic programs and policies beyond the introductory level; and (b) help formulate and implement such policies. Topics covered will depend in part upon the interests of students but some will be based upon the following areas: poverty and inequality; taxation; inflation and unemployment; stabilization policies; public sector economics; international trade and the balance of payments; technological innovation and growth. Each student will be expected to specialize in a topic of his or her choice and prepare a major paper for presentation in class. There will also be short assignments and a final examination. Please see the instructor for additional information about course requirements.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6300 Alternative Program Delivery

CREDIT HOURS: 3
Alternative Methods in Program Delivery is a graduate and honours undergraduate level seminar which allows participants to conduct and present research on the increasing resort by governments at all levels to alternative methods of programme delivery. Over the last decade and a half, governments around the world have moved from designing and delivering programmes themselves to utilizing the private sector, both profit and non-profit, for this purpose. These alternative methods have taken the form of the privatization of crown assets, public-private partnerships to address a myriad of concerns (from the design and construction of bridges and highways to the management of laundry facilities in institutions for long term care), user fees and charges, contracting out, and the adoption of business-like practices in their own operations.This course has two purposes. The first is to allow participants to explore methodologies for assessing the viability of alternative programme delivery in particular fields, based on the best practices of the past decade. The second is to allow participants to explore critically the use or proposed use of alternative methods of programme delivery in areas in which they have an interest. Each participant is expected to prepare a seminar paper of at least 5,000 words, to present their findings in class in a presentation not exceeding thirty minutes in length, and to respond to questions. In addition, participants are asked to prepare a critique of a paper by another participant, and to lead discussion on that paper.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6400 Local Government

CREDIT HOURS: 3
There is a renewed interest in local government resulting from population migration to urban areas, the need to invest heavily in improved and greener infrastructure that can be used to satisfy local service needs, and a trend towards a more inclusive public involvement in urban issues. This course looks at how local governments fit into the public sector framework, how provincial / national legislation empowers and limits them, and their governance and management. Services offered, and issues faced, by local governments vary with size, population density and with central government legislation. Issues facing local governments, and the central governments who determine municipal responsibilities and revenue sources, are researched, presented and discussed. While the primary focus of the course is on local government in Canada, structures and practices used in other countries to address local government issues will be included. The course is conducted in a seminar style format (class size permitting)
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6420 Municipal Finance

CREDIT HOURS: 3
Canadian local governments are arguably more challenged than the federal or provincial governments when raising sufficient revenue to meet their operational and infrastructure requirements. This course explores the reasons for this and puts forward potential solutions that reflect a solid understanding of the issues and sound public policy. The solutions could include greater revenue generation powers, expenditure reduction through transferring responsibilities, finding less expensive ways of providing services through internal efficiencies or outsourcing, or reorganizing municipal boundaries (territorial reform). The course begins with a focus on the fundamentals of local government finance to provide the background needed to address the broader issues. While the primary focus of the course is on Canadian municipal finance issues information on finance policies and structures of other countries will also be included. The course is conducted in a seminar style format (class size permitting).
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6450 Economics of Health Policy

CREDIT HOURS: 3
This course focuses on health policy themes as they relate to the current situation in the Canadian health policy arena. Themes include population health determinants, health system types, physician remuneration methods, healthcare delivery models, health production, demand for healthcare, and health system efficiency. The course is conducted in seminar style format.
FORMAT: Lecture| Seminar
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6500 Business and Government

CREDIT HOURS: 3
The focus of this course is twofold: first, how government and business influence one another and secondly, why collaboration is a growing reality enjoining 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 such differences are sorted out through contemporary governance systems. 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.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.
CROSS-LISTING: BUSI 6009.03

PUAD 6505 Interest Groups: Function and Management

CREDIT HOURS: 3
This course will attempt a systematic examination of the function and management of interest groups in Canada and, to a lesser extent, other western countries. It will begin by considering the functions such groups perform for their supporters on the one hand and, on the other, the role they play in 1) maintaining political systems; 2) securing and modifying public policy, and 3) implementing programs. It will explore the ways in which their structures and behaviour patterns vary according to the resources of the groups themselves, the nature of their concerns and the demands of the political/bureaucratic systems in which they operate. An important feature of the course will be a discussion of the internal management of groups. This discussion will include a review of how membership is secured and retained and how group resources are obtained and applied; the role of professional staff in developing group positions and in interacting between the interest group and government officials. In conclusion, the course will examine the role of interest groups in policy processes and the relationship between that role and the prospects for democracy in western politics. Approved with Canadian Studies.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.
CROSS-LISTING: POLI 3228.03, POLI 5228.03

PUAD 6520 Program Evaluation Seminar

CREDIT HOURS: 3
This course is focused on the construction of different types of evaluation frameworks for a set of government programmes or initiatives. Students prepare a plan of how to evaluate their program of choice giving special attention to perspective taken and stakeholder interests, students identify relevant data sources, and data collection instruments and design a research framework that combines qualitative and Quantitative approaches. Specific research skills acquired in PUAD 5140 and PUAD 5180, are applied to a broader and large scale evaluation framework. In addition, students are exposed to competing approaches to programme evaluation, as well as ethical issues within the discipline. Student presentations and class discussion are an integral part of the course.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6525X/Y Practicum in Policy Analysis and Management

CREDIT HOURS: 6
The Practicum provides MPA students with an opportunity in their final academic term to gain experience in the implementation and management of public sector consultation and research. It establishes a consultative context in which students can successfully implement a pro bono economic, financial or policy analysis or programme evaluation project. Students can also work on a large academic research project. All projects are expected to include a substantive academic research component. The Practicum research groups will meet weekly to discuss applied research strategies for data collection, analysis and reporting. Topics and professional resources will be organized around the research needs of the projects and may include measurement and design, sampling, questionnaire design, cost-benefit analysis,

computer applications for information management and analysis, report writing and presentation. Students are expected to present their research and to present on research related topics in PUAD 5180. The Practicum is a full-credit elective course in the winter term.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6540 Canadian Regional Economic Development

CREDIT HOURS: 3
This course provides students with a solid understanding of regional economic development practice in Canada. Beginning with an exposure to economic development practice throughout the globe, the course then sequentially focuses on national, provincial and local economic development efforts, from both stand alone and integrated perspectives. The course will centre on desired outcomes of regional development, the translation of those outcomes into program activity and the theoretical underpinnings which support individual economic development initiatives. Economic development is a dynamic undertaking, with significant social and political consequences. Hence this highly interactive course will expose students to the risks and rewards of government policy making within a such a charged climate.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6555 Management of Information (E-Government) and Public Administration

CREDIT HOURS: 3
The main objectives are to understand that information technologies provide means for public administrators to obtain, analyze, disseminate and store information; to analyze the uses of new technologies; and to understand the opportunities and problems that information technologies present to public administrators on personal, organizational and international levels. Each course addresses separate but related issues of managing information in the public sector. Some of the courses look at the history of information technology to place present day devices into perspective. The topics for other courses relate IT to smart communities, professional development, virtual offices, digital divide, management information and unethical behavior in public offices.
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6570 Equity and Diversity in the Public Sector

CREDIT HOURS: 3
This is a theoretical course on inclusion, participation and inequality in public service employment and public service delivery. It explores representativeness as an ideology and the management practices and policy initiatives which arise from this notion. The course considers the questions: What is equality? Why do we want equality? What difference does it make to have equality oriented initiatives? What is equity and diversity? What results are being achieved? What are the underlying issues of inequality difference and inclusion as they relate to Canadian democracy and global issues of equality?
PREREQUISITE: MPA students must successfully complete all eight required courses of the first year of the MPA program prior to enrolling in 6xxx level courses and MGMT 5000, or seek special permission from the Graduate Coordinator. Students from outside of the MPA program must seek permission from the course instructor.

PUAD 6625 Special Topics in Human Resource Management

CREDIT HOURS: 3
This course explores current topics in human resource management and policy in the public sector. The topic emphasis varies with issues and trends in public service. The approach to human resources explores the relations of organizations, work and people in the public sector. The aim of the course is to examine topics, how they are known as well as methods of investigation and problem solving. To learn of current topics, please consult the professor.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6780 Comparative Development Administration

CREDIT HOURS: 3
Some analytical and normative issues of public administration in developing countries are examined including 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 resources management, aspects of state economic management with Japanese and South Korean case studies; and institutional aspects of aid administration with CIDA and World Bank cases.
FORMAT: Seminar
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.
CROSS-LISTING: POLI 3302.03/5302.03

PUAD 6800X/Y Projects

CREDIT HOURS: 6
A course designated “project” and using this course number can be developed around an area of interest that is sufficiently complex to justify a full course credit. Such a project will likely be grounded in the needs of a particular agency and an area of professional literature that represents current debate or issues in the field of public administration. It may reflect on interest held by a student, faculty member or by a government agency.
NOTE: Course Details listed here also apply to PUAD 6820.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6820X/Y Project

CREDIT HOURS: 6
See PUAD 6800.

PUAD 6855 Internship

CREDIT HOURS: 3
The internship is half credit course which includes a program of professional development, a challenging work term with a public sector employer and the mentorship of a first year MPA candidate (in the terms following the work term). The Internship course recognizes the educational value of a high quality work experience as well as the developmental value of supervised work terms and preparation for work terms. The aim of the internship is to integrate the academic program and practical public service experience. School approved and employer sponsored work terms are awarded competitively on the basis of merit. They are paid (paid by the employer), 14-16 weeks normally in the spring and summer term between the first and second year of the program.The opportunity for a work term placement is normally available

to students:- who have successfully completed the full first year of the MPA program with a B or greater in each required course- who have completed the Professional Development Requirements -who have submitted the required documents (general resume and sample job application), at the expected level of competence in preparation for competing for work terms.The full details of requirements are available in the syllabus and the Internship Contract.Previous work placements have been in the federal, provincial and municipal levels of government, international and non-governmental organizations and in the private sector. However, the emphasis is on public sector employers
NOTES: Regular Course fees apply and students must be registered and successfully complete PUAD 5200 X/Y.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6900X/Y Directed Reading

CREDIT HOURS: 6
A special programme of directed reading, with appropriate written assignments, may be arranged with a faculty member where the interest in a subject is not sufficiently widespread to warrant offering a regular course.Students who wish to take any of the Project or Directed Reading Courses mentioned above must provide the School with the following before approval is granted:1) a letter from the Professor* concerned indicating his/her willingness to supervise 2) a course outline which includes a description of the goals and objectives of the course, the grading scheme, a preliminary reading list and a schedule of the work; 3) the period in which the course is to be completed. Not all courses are offered each year. Consult the School for current year offerings. In addition to the above, courses may be selected from other schools, departments, or faculties, subject to the approval of the Graduate Co-ordinator.
NOTE: Course Details listed here also apply to PUAD 6910/PUAD 6920/PUAD 6940/PUAD 6942/PUAD 6944.
NOTES: Approval must be obtained from the Graduate Coordinator before the course begins.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.

PUAD 6910 Directed Reading

CREDIT HOURS: 3
See PUAD 6900.

PUAD 6920 Directed Reading

CREDIT HOURS: 3
See PUAD 6900.

PUAD 6925 Management Information Systems

CREDIT HOURS: 3
This course is meant to provide the student with a basic knowledge of information systems and their role in business organizations. Fundamental to this basic knowledge is an understanding of the variety of information systems in business. An understanding of the use of computers in current and future information systems is stressed.
PREREQUISITE: Students must successfully complete all eight required courses of the first year of the MPA program prior to enroling 6000 level courses and MGMT 5000, or seek special permission from Graduate Coordinator.
CROSS-LISTING: BUSI 5511.03

PUAD 6940 Directed Readings

CREDIT HOURS: 3
See PUAD 6900.

PUAD 6942 Directed Readings

CREDIT HOURS: 3
See PUAD 6900.

PUAD 6944X/Y Directed Reading

CREDIT HOURS: 6
See PUAD 6900.

Social Work

Location:
Building/Room: Mona Campbell Building
Street Address 1: 1459 Le Marchant Street
Street Address 2: Suite 3201
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3760
Fax: (902) 494-6709
Website: www.socialwork.dal.ca
Email Address: social.work@dal.ca

School of Social Work

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 those values. The School was founded in 1941 to meet a need for professionally qualified social workers in the Atlantic region. The School amalgamated with Dalhousie University in 1969 to become one of the nine constituents of the Faculty of Health Professions.

Staff

Director of the School

MacDonald, J. (Interim)

Associate Director

Richard, B.

Graduate Coordinator

Brown, C.

Professors

Karabanow, J., BA (Hons), MA (McGill), PhD (Wilfrid Laurier)
Thomas-Bernard, W., BA (MSVU), MSW (Dalhousie), PhD (Sheffield)
Ungar, M., BA, BSW, MSW (McGill), PhD (Wilfrid Laurier)

Associate Professors

Brown, C., BA, MA (Manitoba), MSW (Carleton), PhD (Toronto)
Brown, M., BA Hon, BSW, MSW (Dalhousie), PhD (Memorial)
Campbell, C., BSc (King's), Bed. SpeEd (Acadia), MSW (Carleton), PhD (Memorial)
MacDonald, J., BSW (STU), MSW (Carleton), PhD (Memorial)
Richard, B. K., MSW (Dalhousie)
Weinberg, M., BA (Toronto), MSW (Smith College), PhD (Toronto)

Assistant Professors

Hanrahan, C., BA (McGill), MS, PhD (Toronto)
MacDonald, N., BA, BSW, MSW, PhD candidate (Dalhousie)

Adjunct (FGS)

Harbison, J., BA, Bsoc Stud (Dublin Trinity Coll), Grad Dip SW (Edinburgh), PhD (Toronto)
Wien, F. C., BA (Queen's), MA, PhD (Cornell)

Master of Social Work (MSW) Degree

In line with the School's vision and mission, the master of social work program embraces a critical and anti-oppressive, social justice approach to social work practice that includes an emphasis on critical analysis, theoretical perspectives, social policy, practice methods, research skills and professional values. The curriculum is organized into core and elective courses. In addition, the School allows for students to complete a thesis or non-thesis based program. Students will be able to focus on areas of their choice (such as international social work, social policy, physical and/or mental health, direct interventions with individuals and families, social administration, community development, etc.) through core courses, elective offerings, research endeavors and possible independent studies.

Note: The MSW program is delivered onsite (Campus) and online (Distance)

Please consult our website www.socialwork.dal.ca for updates to our MSW Degree program.

Note: In order to practice social work in Nova Scotia, all persons must have a social work degree (BSW or MSW) AND be approved for practice by the Board of Examiners of the Nova Scotia Association of Social Workers. Persons applying to the Board to practice social work should contact the address below for further information:

The Registrar of the Board of Examiners
Nova Scotia Association of Social Workers
1891 Brunswick Street, Suite 106
Halifax, NS B3J 2G8
Telephone: (902) 429-7298

Program Objectives

The School of Social Work adheres to the principles of adult learning in its educational approach. This approach is applicable to students with special or concurrent professional social work experience. In the course of their study, MSW students are encouraged to identify and pursue their learning goals within the parameters of the curriculum and the objectives of the program, which include the following:

- Approaches to social work that reflect critical and anti-oppressive perspectives.
- Development of an understanding of the methods for critical appraisal and systematic inquiry related to existing practice theories, models of intervention and personal practice experiences and abilities;
- Application of these means to existing and new knowledge regarding practice contexts, practice-related issues, practice theories, models of intervention and personal practice experience and abilities;
- Acquisition of new knowledge with respect to practice contexts, theories and interventions, including an area of practice of particular interest to the student;
- Integration of the new knowledge acquired into practice situations which support the development of personal and social change.

Admission Requirements

All applicants must satisfy the admissions requirements of the Faculty of Graduate Studies, Dalhousie University as stated in this calendar. These include an undergraduate BSW degree from an accredited university with no less than a "B" level average. Applicants from outside Canada whose first language is not English must submit a Test of English as a Foreign Language (TOEFL) prior to the application deadline of December 1st, with a minimum acceptable score of 580, 237 computerversion. Where TOEFL is unavailable, the following tests will be accepted with the following minimum scores: MELAB, 90; IELTS, 7. See Faculty of Graduate Studies Admission Requirements.

Canadian Residency Requirement for Distance Study

The on-line (distance delivery) option is only available to residents of Canada as defined by Canada Customs and Revenue Agency. If you will be residing outside Canada, please check with Canada Customs to determine your residency status, complete the Residency Form and submit it with your application package.

MSW Program

Direct admission to the MSW program of advanced study in the theory and practice of Social Work is open to applicants with a baccalaureate degree in Social Work a minimum cumulative GPA of 3.0 (on a 4.3 scale) or an equivalent cumulative average of at least B, normally two years of full time employment in a Social Work position and suitability for the study and practice of social work.

Dalhousie also historically offered a two-year option for applicants who do not hold a baccalaureate degree in Social Work, but hold a master's degree in a closely related discipline and otherwise meet the above pre-requisites. However the structure of this 2-year option is currently under review, and admission is suspended for the 2015-16 and 2016-17 academic years. The program will continue to be delivered to any current students until all students have graduated, or the time allowed for program completion has elapsed, or all the students have left the program.

Special Student Status

Special student status is not available for enrolment in graduate courses in Social Work. Courses are normally restricted to students who have applied and been accepted to the MSW degree programs, however, non-social work students may be permitted to register for a MSW elective with permission of the Graduate Coordinator.

Selection Criteria

The number of places offered each year to graduate students is limited. There are no deferrals granted in MSW Admissions. Applicants who do not register in the fall semester following acceptance, must re-apply. Candidates are selected according to their qualifications. The MSW Admissions Committee makes its selection on the basis of the following criteria:

- Academic performance (60 credit hours)
- A clearly defined field of practice related to social work;
- A (professional) leadership role in their work or volunteer experience;
- Intellectual capacity demonstrated in a thoughtful and reflective Statement of Scholarly Interest
- Strength of academic, work, and professional references;
- Appropriateness of educational/professional goals to the School's course offerings;
- Personal suitability for social work.

Statement of Scholarly Interest

The Statement of Scholarly Interest is an important component of the MSW application. This statement explores a student's decision to pursue a graduate level degree in Social Work.

Personal Suitability

Aptitude and fitness for the profession of Social Work, as determined by the MSW Admissions Committee, is a requirement for admission as well as for continuation in the program. (See Section V: Required Withdrawal on Grounds of Unsuitability section.)

Affirmative Action Policy

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, and Transgender People. The School is committed to admitting and graduating the highest possible number of students who qualify under this policy.

The admissions prerequisites described in the above section are the same for all applicants. Each candidate who applies under the affirmative action policy is, however, considered on the basis of her/his qualifications for graduate study in Social Work rather than in relation to other candidates.

Application Procedure

Applications for admission are reviewed once a year following the application deadline date of December 1st.

MSW application packages include instructions, application, application fee, the three required reference forms, work/volunteer experience summary sheets, and guidelines for the Statement of Scholarly Interest. The cover sheet for the latter includes a place for eligible candidates to indicate whether they wish to apply under the Affirmative Action policy. MSW application packages may be found on the School's website www.socialwork.dal.ca.

Incomplete or late applications cannot be considered. Each applicant is notified by mail of the MSW Admission Committee's final recommendation to the Dean of Graduate Studies. Acceptances are conditional on the approval of the Dean followed by official notification from the University Registrar.

Scholarships, Bursaries, Teaching Assistantships and Financial Aid

For information on prizes, bursaries, scholarships and loans available to graduate students, consult the relevant section of this graduate calendar, or go to www.socialwork.dal.ca.

Curriculum Requirements - Masters of Social Work Degree Program

MSW Program

The MSW Program requirements consist of either

a) a course based option: 30 credit hours Social Work core courses
b) a thesis option: 24 credit hours Social Work courses, 6 credit hour thesis

The MSW is available on a full-time or part-time basis to students. Qualified BSW graduates may be admitted directly to the five-credit (30 credit hour) MSW program. These curriculum requirements cannot be reduced by advanced placement or transfer credit in relation to any graduate courses taken prior to MSW registration.

Distance students admitted to the MSW program and on-campus students who choose to complete their MSW program on a part-time basis would normally complete the course requirements over a two or three-year period.

Class Sequencing for all Students

Students will be given a course sequence to follow based on full-time or part-time status.

Class Sequencing for Full-Time Students

The core courses (including Field) are offered during specific times in each term.

Full-time students who take a course-based program (non-thesis) may expect to complete the program by July of the following year and to graduate in October. Full-time students who elect to do a thesis should expect to spend eight to twelve months more for completion.

Class Sequencing for Part-Time Students

To maintain the integrity of the part-time student's academic program, core courses are taken in a prescribed sequence. The elective courses may be taken concurrently with the core courses in any year.

Part-time students who take a course-based option (non-thesis) may expect to spend two to three years to complete the program, graduating in May or October. Part-time students who elect to do a thesis should expect to spend an additional twelve to eighteen months for completion.

* Continuation as a “Thesis Only” student, for both full-time and part-time students, requires continuous registration and payment of continuation fees every term until all requirements are complete.

* It is important for campus students to note that most of the MSW core courses and the requisite agency field placement are available during daytime hours only.

Field Education

Students should note that the 3 credit hour field education course includes a field seminar and a field placement of 450 hours in an appropriate agency other than the student's place of employment. Placements are possible in a students workplace only under exceptional circumstances (see field manual for criteria). The Field education course is undertaken between January and end of June (on-campus) and between September and April (distance) concurrently with a bi-weekly field education seminar, which is online for distance students. The MSW Field Manual (which can be found at http://socialwork.dal.ca/Educational%20Programs/Field%20Education/) contains the policies and procedures which define various aspects of the Field Education course.

Placement agencies set their own criteria for accepting MSW student placements. For example, placements in physical and mental health typically require MSW students to have at least two years of direct social work experience.

Confirmation of field placements requires advanced planning as there is considerable coordination required for each student placement. Incomplete and/or late submissions will not be accepted.

Electives

Students completing their MSW program on both a full-time and part-time basis may take their electives either concurrently with or following the completion of the core course SLWK 6001: Theory and Practice of Anti-Oppressive Social Work in Diverse Communities.

At least one elective must be taken in the School of Social Work. Any electives taken outside the School (e.g. a graduate course at Dalhousie University or another university) requires approval and completion of the letter of permission form.

Registration in elective courses is subject to availability.

Regulations

All students are required to be familiar with and to observe University, Faculty of Graduate Studies and School of Social Work regulations. Students should therefore request a Graduate calendar when they register.

Please refer to Faculty of Graduate Studies Section V. Registrations Procedures and Regulations.

Grading Requirements

Students are governed by the grading regulations of the Faculty of Graduate Studies dalgrad.dal.ca/

Required Academic Withdrawal

A student who fails to meet the minimum grade requirement of “B-” in a course may be withdrawn from the MSW program. Students who are withdrawn may submit a formal written request to be re-admitted.

If the student is re-admitted, the failed/ uncompleted course(s) must be repeated with a final grade of at least B-. If the failed/uncompleted course was an elective, it can be replaced with another elective.

Please refer to Graduate Calendar Section 4.2.5 gr.cal.dal.ca/

Required Withdrawal on the Grounds of Unsuitability

The School acting through its Program Committee and its Director may require a student to withdraw if judged to be unsuitable in aptitude and fitness for the profession of Social Work. Because the nature of the study and practice of Social Work places clients in a position of special trust in relation to social workers and social work, certain impairments or some types of conduct unbecoming to a member of the social work profession may be grounds for dismissal, or suspension. Aptitude and fitness for the profession of Social Work, as determined by the MSW Program Committee, are requirements for continuation in the program.

The following list of examples illustrates the criteria used to assess the unsuitability in aptitude and fitness. This list should not be considered to exclude other such behaviors:

1. conviction of criminal activity (e.g. assault, sexual assault, fraud and drug trafficking).
2. persistent substance abuse (e.g. alcoholism, drug addiction, use of illegal drugs).
3. any medical condition which affects an individual’s ability to perform as a social worker if that condition is chronic and/or recurring and affects judgments.
4. unethical behaviour (see Nova Scotia Association of Social Workers Code of Ethics, 1994).

The MSW Committee will consider the student’s situation to determine whether he/she is fit for the study and practice of Social Work. The principles of confidentiality, natural justice and due process are observed in all Committee deliberations.

Sexual Harassment

The School is governed by the Sexual Harassment Policy and Procedures of Dalhousie University. For more information, see Graduate Calendar: Resources and Services - Sexual Harassment Office.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Core Courses

SLWK 6001.03: Theory and Practice of Anti-Oppressive Social Work in Diverse Communities
SLWK 6341.03: Critical Perspectives on Social Work Practice Interventions
SLWK 6381.03: Social Policy Issues and Analysis for Practice
SLWK 6415.03: SLWK Field Work Class
SLWK 7001.06: Social Work Practice Research
SLWK 7400.03: Integrated Approaches for Social Work Practice
SLWK 9000.00: Master's Thesis

Elective Course Descriptions

A. Standing Electives

SLWK 6370.03: Advanced Practice Skills
SLWK 6385.03: Community and Social Change Analysis
SLWK 6500.03: Interventions with Families
SLWK 7410.03: Social Work in Health Systems

B. Rotating Electives

SLWK 5110.03: Africentric Perspectives in Social Work
SLWK 5120.03: International Social Work
SLWK 5130.03: Critical Perspectives on Ageing and Practice
SLWK 5160.03: Aboriginal Perspectives on Service Delivery and Practice
SLWK 5380.03: (dis)Ability: Policy and Practice
SLWK 6363.03: Postmodern and Narrative Social Work Practice
SLWK 6365.03: Community Socio-Economic Development
SLWK 6510.03: Women, Social Policy and Social Citizenship
SLWK 6520.03: Current Issues and Trends in Social Work Supervision
SLWK 6530.03: HIV/AIDS and Social Work Practice
SLWK 6540.03: Critical Approaches to Mental health and Addiction in Social Work Practice

C. Independent Study

SLWK 5830.03: Independent Study
SLWK 5831.03: Independent Study

Course Descriptions

SLWK 5110 Africentric Perspectives in Social Work

CREDIT HOURS: 3
The course provides students with an opportunity to engage in critical dialogue, reflection and action about historical and contemporary experiences of African Nova Scotians and Africans in the Diaspora. The course also focuses on awareness of Africentric theory, and its application in social work practice with Africans and non-Africans.
CROSS-LISTING: SLWK 3110.03

SLWK 5120 International Social Work

CREDIT HOURS: 3
This course introduces students to various 'worlds' of social work practice throughout the globe. Theoretical and practice grounding regarding development issues and social welfare systems within a global context is given. There will be encouragement to develop a critical and reflective stance toward the practice of social work in a global world.
FORMAT: Lecture| Discussion

SLWK 5130 Critical Perspectives on Ageing and Practice

CREDIT HOURS: 3
The course examines the social construction of aging and its relationship to the formation of gerontological knowledge. It explores the experiences of older people in both formal and informal service delivery systems and considers the extent to which the nature of and type of services offered, meet the needs of diverse groups of older people.
FORMAT: Lecture| Seminar| Discussion

SLWK 5160 Aboriginal Perspectives on Service Delivery and Practice

CREDIT HOURS: 3
This course is offered to MSW students enrolled at the School of Social Work, Dalhousie University. Aboriginal Perspectives will be explored through both historical and contemporary perspectives. Students will have an opportunity to explore historical, social and political realities and perspectives from Aboriginal peoples including Aboriginal perspectives on Indigenous social work practice. Through critical reflection and analysis students will have the opportunity to re(articulate) their own framework of social work practice in relation to Aboriginal perspectives on service delivery and social work practice.

SLWK 5380 (dis)Ability: Policy and Practice

CREDIT HOURS: 3
(dis) Ability will be examined from an anti-oppressive, social constructivist, rights-based lens, focusing primarily on three areas of exploration: (dis)Ability identity – how it is constructed, perceived and utilized within and albist world; societal location of (dis)Ability – examining the historical and current day (dis)placement of people with (dis)Abilities; and, policy/practice implications, ranging from grassroots (dis)Ability organizations to government legislation.

SLWK 5830 Independent Study

CREDIT HOURS: 3
This option is available to students with a specific area of interest. A student may develop an Independent Study with a faculty supervisor on the subject of research interest to both. It is essential that the student follow the School's Independent Study Guidelines. The proposal must be approved by the Graduate Coordinator.

SLWK 5831 Independent Study

CREDIT HOURS: 3
This course is available to masters of social work students with a special area of interest. A student may develop an Independent Study with an available faculty supervisor on a subject of interest to both. The student must follow the school's Independent Study Guidelines. The independent study proposal must be approved by the Graduate Coordinator.

SLWK 6001 Theory and Practice of Anti-Oppressive Social Work in Diverse Communities

CREDIT HOURS: 3
Note: SLWK 6001 must be the first course taken in the MSW program.The principles of cross-cultural and ethnic-specific social work practice are now widely accepted in social work education, training and practice. The more recent challenge has been to develop anti-racist and anti-oppressive theory and practice. Racism and oppressive practices are in conflict with the "caring" notion of social work as a profession. Multiple forms of oppression frame everyone's life. Social work intervention either adds to oppression, condones it through non-action, or does something to ease or break oppression. The aim of this course is to unravel the underlying thread of multiple oppression, and the interaction of various sources and forms of oppression, and to develop practice strategies that seek to challenge and break oppression.

SLWK 6341 Critical Perspectives on Social Work Practice Interventions

CREDIT HOURS: 3
The course will provide students with an opportunity to examine, discuss, and debate historical and current social work theories and their application to social work methods of practice with specific populations who are served by social workers.

SLWK 6363 Postmodern and Narrative Social Work Practice

CREDIT HOURS: 3
Rooted in social constructionism and post-modernism, narrative therapy emphasizes the idea w live stored lives. This course will integrate the theory and process of narrative practice through externalizing unhelpful stories and re-authoring preferred stories. Small groups will create and work with a case story adapted from film

SLWK 6365 Community Socio-Economic Development

CREDIT HOURS: 3
This course deals with the socio-economic development of communities and regions that are economically disadvantaged, as measured by high rates of poverty and underemployment. This course includes an examination of the leading theoretical frameworks that seek to explain high rates of poverty and underemployment, the policy-strategy directions that flow from each of these frameworks, and current attempts to achieve socio-economic development, including the work of community practitioners.

SLWK 6370 Advanced Practice Skills

CREDIT HOURS: 3
This elective course is designed to put into practice the knowledge and skills students are developing in their field placements and work environments. Much of the

learning is experiential. Students will be encouraged to think critically about the assumptions that underpin various approaches to practice. They will be given the opportunity to apply newly acquired knowledge and skills in a supportive environment, and to receive constructive feedback. This course is graded as either a pass or fail.

SLWK 6381 Social Policy Issues and Analysis for Practice

CREDIT HOURS: 3

This course provides students with theoretical interpretations of the current and projected status of the welfare state in advanced industrial societies, consideration of the economic political, social and demographic factors that lead to change in social policy and their implications for social work practice.

SLWK 6385 Community and Social Change Analysis

CREDIT HOURS: 3

There are tensions within the concept of community between marginalization and/or self-determination. Through case studies, the course explores these tensions as they occur in the field of community "care", and expanding field of social work practice. The theoretical base for the course draws on a variety of perspectives such as communitarianism, eco-feminism, social ecology, managerialism, neo-liberalism, and new" social movement theory.

SLWK 6415X/Y SLWK Field Work Class

CREDIT HOURS: 3

The field education course provides students with opportunities to integrate learning and practice through a supervised social work experience related to specified learning goals. The course comprises 450 hours of supervised social work practice in an approved agency and a concurrent Faculty facilitated seminar of approximately 30 hours. The placement site is determined through consultation and agreement among the student, the Field Education Coordinator or designate and agency. Please refer to the MSW Field Education manual for full details related to and required for the Field education course at http://www.dal.ca/content/dam/dalhousie/pdf/healthprofessions/school%20of%20Social%work/msw%20field/msw%field%20manual_september11_2015.pdf.

SLWK 6500 Interventions with Families

CREDIT HOURS: 3

The purpose of the course is to provide students with an awareness of issues in conceptualizing families and their diversity, and opportunities to develop knowledge about, examine, and critique a range of interventions with families and their application in social work practice situations.

SLWK 6510 Women, Social Policy and Social Citizenship

CREDIT HOURS: 3

The course examines the shifting terrain of women's social citizenship in Canada. An examination will be done of women's relationship to the Canadian welfare state, the nature of the new social policy regime and the impact that recent changes are having on women and gender equality.

FORMAT: Lecture| Discussion

SLWK 6520 Current Issues and Trends in Social Work Supervision

CREDIT HOURS: 3

This course provides an opportunity to study the historical and current content of social work supervision. The relationship between social work theory and supervision methods will be examined from a critical perspective

SLWK 6530 HIV/AIDS and Social Work Practice

CREDIT HOURS: 3

The course links social work practice to an examination of the biopsychosocial aspects of HIV/AIDS. Considering community and institutional responses to the epidemic, students will develop and understanding of the application of social work approaches and values to HIV/AIDS issues

SLWK 6540 Critical Approaches to Mental health and Addiction in Social Work Practice

CREDIT HOURS: 3

This course will provide a critical approach to understanding mental health and addictions and the development of critical frameworks for social work practice and programming in these areas.

SLWK 7001X/Y Social Work Practice Research

CREDIT HOURS: 6

The overall aim of the full year course is to enhance students' understanding of the research process by presenting an overview of qualitative and quantitative research techniques used in the assessment of social work practice. The course explores ontological and epistemological queries of "doing research" as well as considerations of ethics and power dynamics. Methods such as evaluative assessments, observational strategies, interviews, focus groups, questionnaires, and standardized scales are reviewed. The course also provides students with a guided opportunity to develop and implement a research proposal in an area of interest. Students will be required to work collaboratively to lead class discussion regarding various methodological tools and their own research design projects.

FORMAT: Lecture| Seminar

SLWK 7400 Integrated Approaches for Social Work Practice

CREDIT HOURS: 3

In this course, theory, policy and direct intervention (i.e. individual, family, community, and activism work) are examined as interrelated forms of social work practice. Through an integrated approach to social work practices within diverse communities, students explore politicized approaches to transformative social work. The course examines social welfare settings such as formal and informal health environments, child welfare structures, government, non-government, and not-for- profit organizations. Central concepts such as power, oppression, social justice, the welfare state, community, citizenship, nation-state and politics are examined in relation to these substantive areas and within their larger social context. Students will have opportunity to develop a critical analysis of integrated approaches to social work practices in a chosen area of interest.

FORMAT: Lecture| Seminar

ASSESSMENT METHOD: Assignments & Participation

SLWK 7410 Social Work in Health Systems

CREDIT HOURS: 3

This course is to enable participants to enhance their understanding and practice abilities in diverse social work practice roles within the context of the health system

through involving them in an examination and critique of theories and knowledge about health and health service delivery systems.
FORMAT: Lecture| Seminar

SLWK 9000 Master's Thesis

CREDIT HOURS: 0
The Thesis is a major research project undertaken independently but with guidance and supervision from your thesis committee. This option requires that students extend their time in the Program by at least six months full-time and eighteen months part-time.

Sociology and Social Anthropology

Location:
Building/Room: Marion McCain Arts and Social Sciences Building
Street Address 1: 6135 University Avenue
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6593
Fax: (902) 494-2897
Website: www.dal.ca/faculty/arts/sociology-social-anthropology.html
Email Address: SOSAGrad@dal.ca

Staff

Chairperson of Department

Gardiner Barber, P.

Professors Emeriti

Apostle, R., BA (Simon Fraser), MA, PhD (Calif, Berkeley). Economic Sociology; Research Methodologies; Sociology of Culture
Barkow, J. H., BA (Cuny), MA, PhD (Chicago). Psychological Anthropology; Medical Anthropology; Evolutionary Psychology; West Africa; Human Nature
Binkley, M., BA, MA, PhD (Toronto). Maritime Anthropology; Coastal communities; Anthropology of Tourism; Women and Work; Qualitative and Quantitative Research Methods
Butler, P. M., BA (Memorial), MA (UNB), PhD (Toronto). Power; Public Opinion; Politics; Quantitative Methods; Public Opinion Polling; Canadian Society; Occupations; Telework
Clairmont, D. H., BA, MA (McMaster), PhD (Wash). Social Problems; Public Policy; Justice; Work; Ethno-cultural Relations
Thiessen, V., BA (Manitoba), MA, PhD (Wis). Family Sociology; Sociology of Occupation; Youth Transitions; Social Psychology; Survey Research; Social Statistics; Education; Aspirations; School-to-Work; Coastal communities; Social Stratification

Professors

Gardiner Barber, P., BA, MA (Auckland), PhD (Toronto). Culture and Political Economy; Development; Gender and Work; Globalization; Philippines; Transnationalism; Citizenship and Migration
Murphy, C. J., BA (St. FX), MA (Dalhousie), PhD (Toronto). Social Policy Research, Globalization, Policing and Security
Ramos, H., BA (York), MA, PhD (McGill). Political Sociology, Social Movements, Media Studies, Race/Ethnic/Minority Relations

Associate Professors

Cooper, A., BA (Toronto), MA (Ontario Institute for Studies in Education), PhD (Toronto). History of the African Diaspora in Canada; African Canadian studies; slavery; abolitionism; women; gender
DuBois, L., BA (McGill), MA, PhD (New School-NY). History and Anthropology; Political Culture; Argentina; Latin America; Human Rights
Fitting, E., BA (Toronto), MA, PhD (New School). Rural development; Mexico; gender and ethnicity; commodity studies and globalization; agricultural biotechnology
Gambold, L., BA (Illinois), MA, PhD (UCLA). Economic Anthropology, Kinship, Development, Rural Culture, Gender, Postsocialist Societies, Russia
Helland, C., BA, MA (Concordia), PhD (Toronto). Sociology of Religion, Communication and Information Technologies, Social Networks
Noble, B., BA, MA, PhD (Alberta). Indigenous peoples, knowledge production, postcolonial relations, translocality, politics of transaction, anthropology of technoscience, public culture, museums and media
Oakley, R., BA (Hons) (St. Mary's), MA, PhD (Toronto). Aging and the life class; Political economy of health and illness; development critique; South Africa
Radice, M., BA (Sussex), MA (Univ Laval), PhD (INRS-UCS). Urban anthropology; anthropology of space and place; immigration, ethnicity and interethnic relations; theories of cosmopolitanism; Quebec; Canada
Whelan, E., BA (Hons) (Winnipeg), MA (Queen's), PhD (Carleton). Sociology of Knowledge; Sociology of Health and Illness; Gender; Science and Technology Studies
Yoshida, Y., BA Studies (Tsuda College, Tokyo, Japan), MA, PhD (McGill). Social statistics; Inequality in the Canadian Labour market; Race and ethnic relations; Immigration and integration; Inequality in healthcare access

Assistant Professors

Eramian, L., BA (Hons), MA (Western), PhD (York). Economy, work and development, social justice and inequality, ethnicity, personhood; political anthropology; personal relationships; violence and genocide; Africa
Foster, K., BA (Hons) (Dalhousie), MA (Waterloo), PhD (Carleton). Economy, work and development; knowledge; science and expertise; political economy; research methods; rural studies; social statistics; Atlantic Canada
Guy, J. S., BA, MA (Laval), PhD (UQAM). Classical and contemporary social theory; Theories of modernity; System theory and globalization
Lewis, D., BA (McMaster), MREM (Dalhousie). Social Justice and Inequality, Community based Participatory Research, Environment Health, Indigenous Methodology, Embodiment, Social Statistics
Martin, F., BA (Queen's), MA, PhD (Melbourne). The Sociology of Addictions; The Sociology of Body and Emotions; Feminist Theory and the Sociology of Motherhood; Bioethics and Public Health; Forms and experiences of inequality inadvanced capitalist societies

Cross-Appointed Professors

Asbridge, M., BA, MA, PhD (Toronto), Professor in Dalhousie Medical School's departments of Community Health and Epidemiology and Emergency Medicine. Psychoactive substance use in children and adolescents; drug and alcohol impaired driving; emergency medicine; social determinants of health; and the historical development and formation of public policy and law
Beagan, B., BA, MA (Dalhousie), PhD (UBC), major appointment in the School of Occupational Therapy. Social Inequality; Health and Illness; Gender and Health; Racism and Health; Health Professions
Graham, J., BA Hons (Waterloo), MA (Victoria), PhD (Montreal), Professor of Pediatrics and Canada Research Chair in Bioethics. Medical Anthropology; Science Studies; International Harmonization of standards and Regulations
Ng, E., BCom (UBC), MBA (Simon Fraser), PhD (McMaster)
Waldron, I., BA (McGill), MA (London), PhD (Toronto), Professor in Dalhousie's School of Nursing. Aboriginals; African Canadians; Immigrant and refugee communities

Adjunct (FGS)

Alfoldy, S., BFA (Victoria), MA, PhD (Concordia)
Davis, A., BA (St. Mary's), MA (Manitoba), PhD (Toronto)
Gamberg, H. V., BA (Brandeis), MA, PhD (Princeton)
Halafoff, A., BA (Melbourne), MA (New England), PhD (Manash)
Hetherington, K., BA (Concordia), MA (Dalhousie), PhD (Univ of California, Davis).
Kearney, J., BSc (Acadia), MES (Dalhousie), PhD (Laval)
Khasnabish, A., BA, MA, PhD (McMaster)
Leroux, D., BA (Trent), MA (Toronto), PhD (Carleton)
Looker, D., BA (Carleton), MA (Waterloo), PhD (McMaster)
Phyne, J., BA (Memorial), MA, PhD (McMaster)
Thomson, A., BA, BEd, MA (Dalhousie), PhD (Cambridge)

Admission Requirements

The Department of Sociology and Social Anthropology offers programs leading to the MA in Sociology, the MA in Social Anthropology, the PhD in Sociology, and Social Anthropology.

All candidates who are applying to the MA program in Sociology or Social Anthropology must satisfy the general requirements for admission to the Faculty of Graduate Studies. Candidates will normally be expected to hold a four-year degree in Sociology or Social Anthropology with at least an upper second course (A-) standing. It is expected that a candidate's undergraduate work will have included courses in theory and methods appropriate to the particular discipline. Promising applicants who fail to meet these requirements may be admitted to a qualifying year which, if successfully completed, would permit subsequent enrollment in the MA program.

All candidates who are applying for the PhD in Sociology or Social Anthropology must hold an MA in Sociology, Anthropology or its equivalent. Applicants must have a graduate academic record of at least A-. Priority for acceptance to the PhD program will be given to students whose areas of interest coincide with the Department's major areas of concentration. Priority in acceptance will also be given to students who have not acquired both a BA and MA from Dalhousie University, however, all applicants will be considered.

The internal deadline to apply to our program is January 15th. We admit once a year in September. The January 15th deadline is imperative if you expect to be considered for scholarships.

Master of Arts (MA)

A full-time MA program is normally of one year's duration, its upper time limit (in accordance with Faculty of Graduate Studies Regulations) being four years. A part-

time option is also available, its upper time limit (once again, in accordance with Faculty of Graduate Studies regulations) being four years.

The normal program is made up of 30 credit hours. SOSA 9000.00/SOSA 9001.00: MA Thesis, worth 12 credit hours, is required as are the following courses: SOSA 5200.06: Master's Seminar in Sociology and Social Anthropology and SOSA 5300.06: Area Examination. An elective course (or two 3 credit hour courses) approved by the Graduate Education Committee constitute the final credit hours.

An examination in the student's chosen area of specialization as well as defense of a thesis proposal are required

Doctor of Philosophy (PhD)

In accordance with the Faculty of Graduate Studies regulations, the program has a two-year residency requirement. It is expected that the program will take approximately four years to complete.

The student will also complete any additional graduate courses, internal or external to the Department, that the student's Advisory Committee deems necessary.

By the end of the second academic year the student must have written three interrelated comprehensive exams in theory, in methods and in a substantive area. The student is required to pass all three comprehensive exams in order to continue in the PhD program. During this year, or the following, the student is required to make a presentation to a departmental colloquium on a topic that normally will be related to the research proposal. The latter must also be completed and approved by the Advisory Committee by the end of the second year.

For the third (and any subsequent) years the student will register for “thesis only” credit. By the end of the third year, the student must demonstrate a working knowledge of a language other than English which is relevant to the student's studies and research. If a student does not have an approved doctoral thesis proposal within three calendar years after acceptance into the program, the student will not be permitted to continue in the program. In accordance with Faculty regulations, an oral defense of the thesis is required.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year’s offering. For further information please contact the department.

Course Descriptions

SOSA 5001 Quantitative Analysis for the Social Sciences I

CREDIT HOURS: 3
This course will introduce quantitative analysis. It will engage issues of research design, the relationship between samples and populations, statistics and inference, as well as basic tests of statistical significance. The course will also introduce tabular, graphical, and bi-variate 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 4001.03
EXCLUSIONS: SOSA 3115.03

SOSA 5002 Quantitative Analysis for the Social Sciences II

CREDIT HOURS: 3
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 critically weigh options available to researchers when "normal" assumptions are broken. The course 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 course will develop these skills through a series of class projects.
FORMAT: Seminar
PREREQUISITE: SOSA 1000.06 or Equivalent
CROSS-LISTING: SOSA 4002.03

SOSA 5003 Contemporary Perspectives in Ethnography

CREDIT HOURS: 3

Ethnographies and critical writings which grapple with questions of theory and interpretation in a range of contexts-near and far, familiar and strange, local and global - will be examined in this course.
FORMAT: Seminar

SOSA 5004 Advanced Issues in Economy, Work and Development

CREDIT HOURS: 3
Each year, this “advanced issues” course focuses on a different specific topic within the general area. In past years topics have addressed the social and cultural aspects of changing livelihoods and patterns of work associated with globalization. The approach is typically comparative and considers different regional, national, and international contexts. Consult Department for the specific topic.
FORMAT: Seminar

SOSA 5005 Advanced Issues in Social Justice and Inequality

CREDIT HOURS: 3
Each year, this “advanced issues” course focuses on a different specific topic within the general area. In past years topics have addressed social and moral problems of social inequalities of various kinds viewed in a 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

SOSA 5006 Advanced Issues in Critical Health Studies

CREDIT HOURS: 3
Each year, this “advanced issues” course 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 effects of health knowledges and power relationships, and how various perspectives on health are challenged from within and beyond the health professions. Consult Department for the specific topic.
FORMAT: Seminar

SOSA 5007 Tourism and Development

CREDIT HOURS: 3
Tourism is now the most lucrative industry in the world. Around the globe, companies chase the tourist’s dollar offering the best deals on a wide range of destinations tailored to a variety of different experiences from sex tourism to eco-tourism. This course will explore the relationship between tourism and development. Topics under discussion will include the definitions of hosts and guests, the commodification of tourist sites and the tourist experience, and the relationship of tourism to sustainability, environmentalism, and globalization.
FORMAT: Seminar
CROSS-LISTING: SOSA 4210.03

SOSA 5011 Advanced Issues in Social Theory

CREDIT HOURS: 3
This seminar consists of an intensive examination of one or more selected bodies of theory , and makes links between theory and current trends in research in sociology and/or social anthropology.
FORMAT: Seminar

SOSA 5012 Special Topics in Sociology and Social Anthropology

CREDIT HOURS: 3
This seminar consists of an intensive examination of a selected substantive issue within Sociology and Anthropology. Since the specific topic or research problem which receives special treatment will differ from year to year, students are advised to consult the department prior to registration.
FORMAT: Seminar

SOSA 5031 Social Policy Research Seminar

CREDIT HOURS: 3
One of the distinctive features of the social sciences had been the use of social research as a basis for the development and reform of social policy. Though 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 analysis of a major policy research project. The course will selectively draw on faculty, government and private sector policy researchers and policy makers to help ground discussion and research in actual policy research experience.
FORMAT: Seminar

SOSA 5060 Advanced Social Analysis

CREDIT HOURS: 3
This seminar begins with an exploration of the nature of arguments/theses/explanations. Included in this exploration is an examination of the criteria for relevant data/information used to assess such arguments/theses/explanations. Following this general introduction to the nature of social-scientific scholarship, the focus shifts to an overview of the main types of data collection designs used in sociology and social anthropology.
FORMAT: Seminar

SOSA 5200X/Y Master's Seminar in Sociology and Social Anthropology

CREDIT HOURS: 6
The main goal of this course is graduate student cohort-building, instruction on research design and method Selection (with dedicated classes on topics such as developing research questions, conducting literature searches and reviews, entering the field, analyzing qualitative and quantitative data, and research ethics), guidance on the requirements of the programs (including area essay’s, comprehensive exams, and thesis proposals), and professional Development (with dedicated classes on topics such as conferencing, publishing, and academic and non-academic jobs). The second term will involve working towards producing a preliminary proposal for the Master’s Thesis
FORMAT: Seminar

SOSA 5300X/Y Area Examination

CREDIT HOURS: 6

The Area Examination is an examination in some designated area of Sociology or of Social Anthropology. The area itself is based on a reading list developed by the student's Program Committee in consultation with the student.

SOSA 5510 Graduate Readings in Sociology and Social Anthropology

CREDIT HOURS: 3

In a reading course, the student is assigned to a member or staff or regular meetings to discuss in a selected area. Papers and research projects are expected.

SOSA 5520 Graduate Readings in Sociology and Social Anthropology

CREDIT HOURS: 3

In a reading course the student is assigned to a member or staff or regular meetings to discuss in a selected area. Papers and research projects are expected.

SOSA 5530X/Y International Development Studies Through the Shastri Summer Institute in India

CREDIT HOURS: 6

The placement would be for nine-ten weeks offered during the summer. Two weeks of briefing and debriefing both within Canada and India, with remaining weeks spent in the actual placement in India. This course is for students who wish to earn academic credit related to their work in India. Students will be chosen on the basis of their academic standing as well as their strong interest in South Asia. Students will be accompanied overseas by a faculty member.

SOSA 5540 Community-Based Co-Management

CREDIT HOURS: 3

See course description for MARA 5012.03 in the Marine Affairs section of this calendar.

SOSA 5600 PhD Seminar in Sociology and Social Anthropology

CREDIT HOURS: 3

The main goal of this course is graduate student cohort-building, instruction on research design and method selection (with dedicated classes on topics such as developing research questions, conducting literature searches and reviews, entering the field, analyzing qualitative and quantitative data, and research ethics), guidance on the requirements of the program (including area essays, comprehensive exams, and thesis proposals), and professional development (with dedicated classes on topics such as conferencing, publishing, and academic and non-academic jobs).

FORMAT: Seminar

PREREQUISITE: MA degree

SOSA 9000 MA Thesis - SOCI

CREDIT HOURS: 0

SOSA 9001 MA Thesis - SOAN

CREDIT HOURS: 0

SOSA 9530 PhD Thesis

CREDIT HOURS: 0

Statistics

Location:
Building/Room: Chase Building
Street Address 1: 6316 Coburg Road
Street Address 2:
P.O. Box: 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2572
Fax: (902) 494-5130
Website: www.mathstat.dal.ca
Email Address: statgc@mathstat.dal.ca

The department offers programs leading to the degrees of MSc and PhD in the following areas: statistical inference, robust statistics, data mining, bioinformatics, data analysis, multivariate analysis, linear and nonlinear regression, time series analysis, statistical genetics, environmental statistics, information theory and ecological statistics.

Staff

Chair of the Department

Smith, B., MSc (Calgary), PhD (Berkeley)

Director of Division

Gu, H., MSc (Peking), PhD (Hong Kong)

Graduate Coordinator

Mills Flemming, J. E., MSc (TUNS), PhD (Dalhousie)

Professor Emeritus

Field, C. A., MSc, PhD (Northwestern). Robust statistics, data analysis, bioinformatics

Professors

Dowd, M., MES, PhD (Dalhousie). Statistical inverse problems, time series, spatial analysis, stochastic dynamic models
Hamilton, D. C., MA, PhD (Queen's). Linear and nonlinear regression, data analysis, statistical genetics
Smith, B., MSc (Calgary), PhD (Berkeley). Time series analysis, data analysis, statistical genetics
Susko, E. A., MSc (UBC), PhD (Waterloo). Molecular evolution, bioinformatics, mixture models, machine learning, data analysis
Thompson, K., MSc (Manchester), PhD (Liverpool), joint appointment with Oceanography. Time series analysis, applications to oceanography

Associate Professors

Beiko, R., PhD (Ottawa), joint appointment with Computer Science
Bielawski, J. P., MA (Hofstra), PhD (Texas A & M Univ), joint appointment with Biology. Adaptive molecular evolution, Markov models of molecular evolution, genomics, bioinformatics
Gu, H., MSc (Peking), PhD (Hong Kong). Data mining, bioinformatics
Herbinger, C., MSc (Paris), PhD (Dalhousie), joint appointment with Biology. Statistical genetics
Mills Flemming, J. R., MSc (TUNS), PhD (Dalhousie). Environmental statistics, robustness, data analysis (longitudinal, tracking)
Zhao, Y., MSc (Western Kentucky), PhD (UBC), joint appointment with Management

Instructor

Sarhan, A., PhD (Gdansk), Dalhousie

Adjunct (FGS)

Gupta, R. P., MSc (Agra), PhD (Delhi), Dalhousie University
MacNeil, A., PhD (Newcastle), Aus. Inst. Marine Sciences
Millar, M., MSc, PhD (Dalhousie), Mount Saint Vincent University
Stewart, C., PhD (Dalhousie), University of New Brunswick, St. John
Yung, W., PhD (Carleton), Statcan

Statistical Consultant

Liu, L., MSc (Dalhousie)

Please refer to the entry for the Department of Mathematics and Statistics in this calendar for a full listing of the members of the Department and information on other programs offered by the Department.

Admission Requirements

Candidates must satisfy the general requirements for admission to the Faculty of Graduate Studies.

Candidates will normally be expected to hold a degree recognized by Dalhousie University as the equivalent of a Bachelor's degree with Honours in one of its own faculties.

TOEFL scores are required for applicants whose native language is not English. Valid score reports must be received directly from the Educational Testing Service. To ensure consideration for scholarship funds, application should be made by January 15.

Master of Science (MSc)

Requirements

1. At least 18 credit hours, at the graduate level to be chosen in consultation with the graduate coordinator or their supervisor. In addition, students whose preparation is deficient will be required to complete appropriate courses which will be designated by the adviser.
2. Attendance and participation in seminars.
3. A satisfactory thesis.
4. Students are required to give an oral presentation of their thesis and at that time to answer questions about the thesis. This presentation will be made after the thesis is in the hands of the student's committee and will be taken into account when the committee makes its decision.

Doctor of Philosophy (PhD)

Requirements

NOTE: The minimum and maximum time required to complete this program are set out in Section 1.3.2 and 6.1 in the Faculty of Graduate Studies regulations.

1. At least 12 credit hours chosen in consultation with the graduate coordinator or their supervisor.
2. Attendance and participation in seminars.
3. Candidates must write and orally defend a thesis proposal within 18 months of commencement of their PhD program.

4. Preparation and defence of a satisfactory research thesis.

Courses

Below you will find descriptions for courses offered in this field of study. You will find a general overview of the topics covered and any prerequisite course(s) or grade requirements, credit value and exclusions.

Some courses are listed as exclusionary to one another. This means that students may not take both courses as designated.

Not all courses are offered each year. Please consult the current timetable for this year's offering. For further information please contact the department.

Course Descriptions

STAT 5001 AARMS Summer Course I

CREDIT HOURS: 3
This course is to be offered by and completed at an AARMS Summer School hosted at an Atlantic University. To register you must have permission from the Graduate Coordinator.
FORMAT: Lecture

STAT 5002 AARMS Summer Course II

CREDIT HOURS: 3
This course is to be offered by and completed at an AARMS Summer School hosted at an Atlantic University. To register you must have permission from the Graduate Coordinator.
FORMAT: Lecture

STAT 5066 Advanced Statistical Theory I

CREDIT HOURS: 3
This course, together with STAT 5067.03 provides a solid basis in the theory of statistical inference. After a review of some probability and distribution theory, the Bayesian and classical theories of estimation and testing are introduced.
CROSS-LISTING: MATH 4066.03/5066.03, STAT 4066.03

STAT 5067 Advanced Statistical Theory II

CREDIT HOURS: 3
This course builds upon the material of Statistics 4065/5065. After a discussion of shortcomings of classical theory, the basic inferential rules are introduced and consistently applied throughout the course to solve problems of inference.
CROSS-LISTING: MATH 5067.03

STAT 5070 Multivariate Distributions

CREDIT HOURS: 3
This course deals with the distribution theory of the observations on more than one variable. Topics covered include: the multivariate normal distribution, the Wishart distribution, Hotelling's T, distributions associated with regression, canonical correlations and discriminant analysis.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3460.03

STAT 5090 Probability

CREDIT HOURS: 3
A mathematically rigorous treatment of probability theory in Eucidean space. Topics include measure and integration, probability measures, the definitions and properties of random variables and distribution functions, convergence concepts, Borel-Cantelli lemmas, laws of large numbers, characteristic functions and central limit theorems, conditional probability and expectation. Although the necessary measure theory is introduced, a previous analysis course is an asset.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3360.03 and a third year analysis course, instructor's consent
CROSS-LISTING: MATH 4090.03/5090.03, STAT 4090.03

STAT 5100 Survival Analysis

CREDIT HOURS: 3
This course is an introduction to survival analysis methods and will cover both the statistical theory behind the methods, and the application of various techniques. Topics to be discussed include survivorship and hazard functions and their relationship to lifetime distributions and densities; modes of censoring; the Kaplan-Meier estimate of the new 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

LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3340.03 and STAT 3460.03, or equivalent
CROSS-LISTING: STAT 4100.03

STAT 5300 Topics in Statistics and Probability
CREDIT HOURS: 3

STAT 5350 Applied Multivariate Analysis
CREDIT HOURS: 3
This course deals with the stochastic behaviour of several variables in systems where their interdependence is the object of analysis. Greater emphasis is placed on a practical application than on mathematical refinement. Topics include classification, cluster analysis, categorized data, analysis of interdependence, structural simplification by transformation or modelling and hypothesis construction and testing.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3340.03 and MATH 2135.03 or 2040.03
CROSS-LISTING: STAT 4350.03

STAT 5360 Robust Statistics
CREDIT HOURS: 3
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. Starting from the location problem, we will move on to regression and to multivariate problems by means of robust covariance estimates. We will also consider robust techniques in time series. Some simple programming will be required to implement various procedures.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3460.03 and 3340.03
CROSS-LISTING: STAT 4360.03

STAT 5370 Stochastic Processes
CREDIT HOURS: 3
The theory and application of stochastic processes. Topics to be discussed include the Poisson process, renewal theory, discrete and continuous time Markov processes, and Brownian motion. Applications will be taken from the biological and physical sciences, and queuing theory.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3360.03 or instructor’s consent
CROSS-LISTING: STAT 4370.03

STAT 5390 Time Series Analysis I
CREDIT HOURS: 3
Time series analysis in both the time and frequency domain is introduced. The course is applied and students are required to develop their own computer programs in the analysis of time series drawn from real problems. Topics to be discussed include the nature of time series, stationarity, auto and cross covariance functions, the Box-Jenkins approach to model identification and fitting, power and cross spectra and the analysis of linear time-invariant relationships between pairs of series.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3340.03, 3460.03, or instructor’s consent
CROSS-LISTING: OCEA 4210.03/5210.03, STAT 4390.03

STAT 5410 Advanced Topics in Time Series Analysis
CREDIT HOURS: 3

STAT 5500 Topics in Advanced Statistics
CREDIT HOURS: 3

STAT 5550 Longitudinal Data Analysis
CREDIT HOURS: 3
This course is concerned with statistical techniques for analysis of longitudinal data, data that are collected repeatedly over a time on a number of subjects. Topics include generalized estimating equations; fixed, random and mixed effects linear models; generalized linear models; diagnostics and model checking; as well as missing data issues.
FORMAT: Lecture
PREREQUISITE: STAT 4620/5620 OR permission of instructor

STAT 5570 Statistical Genetics
CREDIT HOURS: 3
This course discusses the use of statistics in genetics. Following an introduction to genetics, statistical methodology related to genetic data will be covered. Such data arises in measuring population structure and distance, finding disease susceptibility loci, detecting genes related to quantitative traits, constructing phylogenetic trees, and from microarrays.
FORMAT: Lecture
PREREQUISITE: Permission of instructor
CROSS-LISTING: STAT 4570.03

STAT 5620 Data Analysis

CREDIT HOURS: 3
A variety of statistical models which are useful for the analysis of real data are discussed. Topics may include: generalized linear models, such as logistic regression and Poisson regression, models for multidimensional contingency tables, ordered categories and survival data.
FORMAT: Lecture
LECTURE HOURS PER WEEK: 3
PREREQUISITE: STAT 3340.03, 3460.03, or instructor’s consent
CROSS-LISTING: STAT 4620.03

STAT 5630 Statistical Methods in Molecular Evolution

CREDIT HOURS: 3
This course will cover the common data types, models, and estimation and inferential methods in Molecular Evolution. The non-standard nature of the data and parameter space make this an usual statistical problem. Topics include distance methods, maximum likelihood and confidence regions for trees.
PREREQUISITE: STAT 3460 or instructor's consent

STAT 5640X/Y Advanced Analysis of Complex Survey Data

CREDIT HOURS: 3
This course provides an interdisciplinary forum to address a specific research question or a methodological-statistical issue through an applied analysis of an existing Statistic Canada data set.Students will learn how to assess data quality, suitability of the data for assessing a research question, and identify and apply appropriate statistical techniques.
FORMAT: Seminar
PREREQUISITE: Completion of a senior undergraduate or graduate course in survey research and/or statistical methods, basic familiarity with general-purpose statistical software (SAS, SPSS, or STATA, consent of the course coordinator, and security clearance to gain admission to the ARDC.

STAT 5700X/Y Statistical Consulting Practicum

CREDIT HOURS: 3
This course gives Statistics graduate students practical experience in Statistical Consulting. The course will address the issues of communications with the client, and the translation of their questions into statistical language. Students will carry out a minimum of 30 hours consulting.
NOTES: 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.

STAT 5750 Statistical Data Mining

CREDIT HOURS: 3
This course covers statistical methodology, major software and applications in data mining. A variety of supervised learning and unsupervised learning methods will be discussed. Topics include: Linea methods for regression and classification, prototype methods, decision trees, additive models, bagging and boosting, neural networks and support vector machines.
FORMAT: Lecture
PREREQUISITE: Permission of instructor

STAT 8891 Co-Op Work Term I

CREDIT HOURS: 0

STAT 8894 Co-Op Work Term IV

CREDIT HOURS: 0

STAT 9000 Master's Thesis

CREDIT HOURS: 0

STAT 9500 Thesis Proposal

CREDIT HOURS: 0
As part of PhD requirements, within 12 months of successful completion of comprehensive exams, students must submit a written document to thesis committee members as a PhD proposal. This proposal will summarize the relevant literature related to their proposed thesis research topic. It should also outline a plan for successful completion of the project. The proposal needs to be defended orally approximately one week after submission.

STAT 9530 Doctoral Thesis

CREDIT HOURS: 0

Centres and Institutes

A number of centres and institutes for study and research in specific fields are based at the University. These are:

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 those 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 entity 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)

Director: Neale Ridgway
Phone: (902) 494-7133
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 expertise 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 biological research. The Centre's staff hold appointments in the Departments of Pediatrics and Biochemistry and Molecular Biology in the Faculty of Medicine. Research at the ARC is supported by agencies such as the CIHR, NSERC, CFI, Heart and Stroke Foundation, National Cancer Institute, Atlantic Innovation Fund, and the IWK Health Centre.

Brain Repair Centre

Chair: Dr. Victor Rafuse, Director
Website: http://www.brainrepair.ca/

The Brain Repair Centre (BRC) is a collaboration of Dalhousie University, the Capital District Health Authority and the IWK Health Centre. The BRC is a multi-disciplinary unit focusing on research that can lead to the diagnosis, treatment, and repair of the brain to overcome the effects of neurological and psychiatric disorders such as Parkinson's disease, Huntington's disease, Amyotrophic Lateral Sclerosis (ALS), Epilepsy, Muscular Sclerosis (MS), stroke and spinal cord injury. The BRC grew out of the clinical Neural Transplantation Program, collaboration between basic neuroscientists and clinicians interested in treating Parkinson's disease. The success of the Neural Transplantation Program led clinical and basic neuroscientists to decide to form the Brain Repair Centre. The BRC was formed in 1999 and has focused on stem cell transplantation, Parkinson's disease, spinal cord injury, psychotic disorders, stroke and neuroimaging as areas of innovation at Dalhousie University, Capital Health and the IWK Health Centre.

Examples of BRC achievements include:

- Attracted capital funding from private donors, institutions and the public sector to support construction and fit-up of the new Life Sciences Research Institute. When the LSRI is completed, the Brain Repair Centre will become the anchor tenant of this new research and commercialization building with state-of-the-art research, equipment and facilities.
- Establishment of collaboration agreements with research teams at McLean Hospital/Harvard University; Jilin University, China; Cardiff University, Wales; and Neurodyn, Inc.
- Establishment of a $12 million magnetic resonance imaging facility with the national Research council's Institute for Biodiagnostics (NRC-IBD).
- In 2006, the BRC was awarded $5.5 million for infrastructure from the Canadian Foundation for Innovation, the largest such award to date in Atlantic Canada. Also in 2006, BRC received a $3 million Atlantic Innovation Fund award for research, a follow-on to an earlier $3 million research award.
- Dr. David Clarke, a member of the Brain Repair Centre used a virtual model of a patient's brain to remove a simulated brain tumour before removing the actual tumour the following morning. Developed by a partnership of the National Research Council and a team of about 50 people in 10 Centres across Canada, this was the first such surgery performed in the world.
- Medtronic Canada, Capital District Health Authority, QEII Foundation, and the Brain Repair Centre established a Canadian Centre of Excellence and Training at the Halifax Infirmary. This new $3.5 million centre provides important new clinical facilities for training and development in imaging, spinal cord and neuromodulation.

- In the neurotransplantation field, the BRC is unique in Canada and one of only four centres worldwide involved in clinical application of neural transplantation, with the "Halifax Protocol" accepted as the world gold standard.
- The BRC is an innovative collaboration that integrates its research expertise with pioneers in the fields of imaging, neurology, stem cell neurobiology, vision, molecular neurobiology, pharmacology, psychiatry, clinical trials and cognitive neuroscience.
- The BRC brings together the expanding fields of neuroimaging and stem cell technologies with application to the treatment of neurological and psychiatric disorders.
- The BRC is the Atlantic Canada presence in the Stem Cell Network, a National Centre of Excellence in stem cell research.

The BRC places emphasis on moving basic science research from the bench to the clinical bedside and from the bedside back to the bench. A key objective of the BRC is to produce innovative technologies that will be commercialized.

Canadian Center for Vaccinology

Director:	Scott Halperin, MD
Associate Directors:	Robert Anderson, MD
	Joanne Langley, MD
	Janice Graham, PhD
Website:	www.centerforvaccinology.ca
Email:	ccfv@iwk.nshealth.ca
Facebook:	CCfVhfx
Twitter:	@VACCres
Phone:	902 470-8141
Fax:	902 470-7232

Vision

CCfV is an integrated collaborative multidisciplinary vaccine research team committed to excellent research. CCfV unites the biomedical and clinical sciences with the social sciences and humanities to effectively span the research continuum from basic discovery to translation into useful vaccines to prevent disease in humans and to change population and public health outcomes.

Organization

Activity within CCfV is organized into three groups

- Vaccine Discovery Group
- Vaccine Evaluation Group
- Health Policy & Translation Group

An **Advisory Committee** of CCfV investigators and external advisors provides counsel on the strategic direction and objectives of CCfV research.

Members

Anyone with an interest in vaccine-related research may apply for membership at http://www.centerforvaccinology.ca/about-ccfv/join-us/

For a list of current members go to http://www.centerforvaccinology.ca/about-ccfv/members/

CCfV is made possible by a continuing collaboration of Dalhousie University, the IWK Health Centre, and Capital Health. The CCfV's 20,000 square foot facility in the IWK Health Centre includes laboratories for microbiological and molecular research, ambulatory and inpatient clinical trial facilities, data analysis, training and conference space. It was founded in 2007 with financial assistance from the Canada Foundation for Innovation, the Nova Scotia Research and Innovation Trust, and the Government of Nova Scotia's Department of Economic Development, among others. The Clinical Research/Vaccine Challenge Unit, which opened in 2009, was made possible by additional funding from Sanofi Pasteur.

Canadian Institute of Fisheries Technology (CIFT)

Director: A. T. Paulson, PhD
Phone: (902) 494-3280
Fax: (902) 420-0219
Website: http://cift.engineering.dal.ca
CIFT was established in 1979 at the former Nova Scotia Technical College (later TUNS). The federal Department of Fisheries and Oceans provided much of its early specialized laboratory and seafood 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 process 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:

- fats and oils 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 to a computer- controlled cold-storage facility, the pilot plant is equipped for experimental processing including freezing, chilling, thermal processing, drying, centrifugal separation, and meat-bone separation.

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 for the study of changes in foods as a result of frozen storage history. The pilot plant is also equipped with a custom-built computer-controlled heat pump dryer that is used in food dehydration experiments.

Specialized laboratory equipment includes: automated high performance and fast protein liquid chromatography systems, gas chromatography/mass spectroscopy system, preparative ultracentrifuge, multi-purpose refrigerated centrifuge, microtube centrifuge, analytical and preparative electrophoretic/isoelectric focusing equipment, pulsed field electrophoresis system, thermocycler, DNA gel electrophoresis, Hoefer Daltsix for 2D eletrophoresis, Image Master 2D elite software, capillary electrophoresis system, ultra-low temperature freezer, universal texture testing machine, various colorimeters, U.V. and visible spectrophotometer, spectrofluorometer, electrokinetic analyzer, workstation for mathematical modelling and computer simulation, Linkham shearing stage/microscope, Nikon microscope (various attachments), controlled stress rheometer with a high temperature/pressure attachment, controlled rate rheometer, Viscomat, and a rolling ball 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 class work and research opportunities relate to food science, seafood 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, chemistry/biochemistry, microbiology or biology are invited to apply.

Centre for African Studies

Director: Theresa Ulicki, PhD
Phone: (902) 494-3814/1377
Fax: (902) 494-2105

This Centre, established in 1975, advances instruction, publication, research and development education programs in African Studies. Associated faculty offer classes through the Departments of History, International Development Studies, Political Science, French, Sociology and Social Anthropology and Philosophy. The Centre organizes academic and informal seminars and public 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 with the International Research and Development office.

Centre for Comparative Genomics and Evolutionary Bioinformatics

Director: Andrew J. Roger, PhD
Coordinator: Wanda Danilchuk
Phone: (902 494-2620
Fax: (902) 494-1355
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 is 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 intellectual 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 of microbes in the biological world.

CGEB 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.

CGEB researchers and trainees are supported by grants from the Canadian Institutes for Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), and 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, and the Provost and Vice President Academic. CGEB 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 trainees in the CGEB research specialties. CGEB also has a regular seminar series that brings world renowned scientists to speak at Dalhousie University and interact with faculty members and trainees.

Centre for Environmental and Marine Geology

Contact: Ann Bannon, Administrator

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 permafrost as well as strengthening 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 problems; 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 shore-based programs; and 4) expand our capacity to help solve some of the many environmental geology problems associated with urbanization.

Centre for European Studies

Director: Jerry White (Canada Research Chair in European Studies)
Email: jerry.white@dal.ca

The Centre for European Studies was established in 2007 to promote research on all aspects of European society and its relations with the rest of the world. The Centre facilitates the work of Europeanist scholars at Dalhousie, including the participating Canada Research Chairs in European Studies, enables research collaboration with scholars from Canada and around the world on projects related to Europe and the European Union.

Centre for Foreign Policy Studies

Director: Brian Bow

Established in 1971 the Centre is concerned with teaching, research, publication, policy advice and other professional activities in the various aspects of foreign policy, security studies, development studies, and international politics.

The Centre's work is concentrated in the areas of Canadian and comparative maritime security and oceans policy, Canadian and American foreign and security policies, and global security and international development. Its geographical specializations include Canada, North America, Europe, and the South (especially Africa, Asia, and the Caribbean). The Centre encourages activities in these areas by Faculty, Research, and Doctoral Fellows, and advances communication among local and international communities in these fields through seminars, workshops conferences and colloquia, often in collaboration with local, national, and/or international organizations. It publishes occasional papers and monographs on Maritime Security, Canadian Defence and Security, and Global Security issues.

The Centre is an integral part of the Department of Political Science. Centre faculty offer classes through the Department in foreign and defence policy, international relations and development, and maritime affairs at both undergraduate (majors and honours) and graduate (MA and PhD) levels. They also supervise masters and doctoral theses in these fields.

For further information, consult the Centre's website: http://centreforforeignpolicystudies.dal.ca.

Centre for Innovation in Infrastructure

Director: John Newhook, PhD, PEng
Location: Room B233, Sexton Campus
1360 Barrington Street
PO Box 1000
Halifax, NS B3J 2X4
Phone: (902) 494-2847
Email: forgeron@dal.ca

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 originally focussed on assisting Atlantic Canadian industry with the integration of computer added manufacturing and computer aided design technology in their operations. Since the 1990's the Centre has continued to evolve to meet the needs of industry in other areas and to take a more active role in research and development in civil infrastructure.

Today the Centre act as a focal point for research, innovation and technology transfer in Civil Infrastructure related areas. The major funding partnerships are with the Atlantic Canadian departments of transportation, industries related to bridge and structural engineering and with companies developing new materials and products for infrastructure.

Our combined areas of expertise and research interests include:

- Structural Analysis and Design
- Structural Health monitoring
- Bridge engineering and innovations
- Soil-steel structures
- Fibre reinforced polymers
- Fibre reinforced concrete
- NDT of bridge decks and pavements
- Sustainable asphalt technology

The Centre has acquired and maintains 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: 6100 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Director: Sergio Carvalho
Phone: (902) 494-3120
Email: citt@dal.ca
Student Exchange Coordinator: Liz Muaror-Wilson
Phone: (902) 494-2224
Email: rsbstudent.exchange@dal.ca
Fax: (902) 494-1483
Website: http://citt.management.dal.ca

The Centre for International Trade and Transportation (CITT) 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, and an annual workshop on Supply Chain and Logistics Management.

Centre for Marine Vessel Development and Research (CMVDR)

Contact: Josh Leon, Dean of Engineering

The mandate for this Centre is under review.

Centre for Transformative Nursing and Health Research

Interim Director: Dr. Gail Tomblin Murphy
Research Coordinator: Julie Barry
Location: School of Nursing, 5869 University Avenue, Halifax NS B3H 4R2
Phone: (902) 494-6125

The Centre for Transformative Nursing and Health Research is a newly designated Research Centre at Dalhousie University. The vision of the Centre is to undertake collaborative research that develops, enhances, expands and disseminates evidence and knowledge to inform ways to improve and sustain people's health and wellbeing. The mission of the Centre is to generate nursing research and inspire discovery that is methodologically sound, actionable, and dedicated to improving outcomes for those requiring health care, their providers and the overall system. Through strong research partnerships and extensive research capacity building initiatives, the Research Centre will be acknowledged as a key resource for health system planning. This collective strength creates a more research-intensive environment, transforming the culture of health research within and beyond the School so that evidence and the quest for new knowledge are well integrated into teaching and clinical practice. The overall improved scholarly environment ensures graduates engage in original research, advance professional knowledge and are well positioned to be leaders in practice and health system change.

In concert with the School of Nursing's transformation strategy, Academic Plan and Research Strategy and informed by Boyer's Model of Scholarship, the Centre's activities will focus on four research pillars: the health needs of people, health workforce and health systems planning, marginalized populations and health equity, and knowledge translation.

Centre for Water Resources Studies

Director: Graham Gagnon, PhD, PEng
Location: Office D-514
1360 Barrington Street
Phone: (902) 494-3268
Email: 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, soil erosion processes, drinking water treatment, the use of roofwater cisterns for domestic water supply, eutrophication, watershed 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 Floatation (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.

Children and Youth in Challenging Contexts Institute

Director: Dr. Michael Ungar

The Children and Youth in Challenging Contexts (CYCC) Institute is an interdisciplinary research initiative and a network of Canadian and international researchers committed to making a lasting difference in the lives of vulnerable children and youth. CYCC Institute researchers examine the political, social, psychological and biological factors that pose serious risks to children and youth exposed to adversity across contexts and cultures. Through interdisciplinary collaboration and innovation, the Institute promotes change at the program and policy level that will improve the protection and well-being of young people around the world. More than 200 policy makers, mental health practitioners, directors of local and international NGOs, law enforcement officers, Aboriginal child welfare advocates, national defence personnel, and researchers are among the community partners who provide leadership to, and benefit from, the work of the Institute.

Dalhousie Institute for Society and Culture (DISC)

Director: Associate Dean, Research in the Faculty of Arts and Social Sciences
Email: discfass@dal.ca
Website: http://arts.dal.ca/Research

Established in 2008, the Dalhousie Institute on Society and Culture serves as the virtual home for the many divergent 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, publicity and fund raising initiatives, publishing ventures, conferences and lecture series, and cross-disciplinary exchanges.

The Institute encompasses two broad and overlapping research clusters: *Societies in Local, National, and Global Contexts,* and *Cultural Representations and Presentations*. 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 the province. These two clusters, with a flexibility and breadth unequalled in Eastern Canada, are uniquely equipped to analyze social and cultural change.

European Union Centre of Excellence

Director: Ruben Zouoth
Phone: (902) 494-7558
Fax: (902) 494-1909
Email: euce@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 Canada and EU Arctic policy, transatlantic trade negotiations, migration policies in Europe, EU Copyright legislation, the EU and the economic crisis, public health policy in EU and Canada.

Global Health Office

Director: Shawna O'Hearn
Location: C-241, 5849 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-1965
Fax: (902) 494-2799
Email: gho@dal.ca
Website: http://dal.ca/globalhealth

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 local and global electives.

- Events focusing on relevant and timely global health issues are organized through the office including global health rounds, 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 CSIH (Canadian Society for International Health), CCGHR (Canadian Coalition for Global Health Research), National Network on MNCH (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 MacIntosh, BA, MA, LLB
Location: Dalhousie University
6061 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Phone: 902 494-6881
Email: 902 494-6879
Email: hli@dal.ca
Website: http://www.dal.ca/hli

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:

- cultivating interdisciplinary health law and policy research networks
- engaging in principled analysis of both recognized and emerging areas of health law and policy
- enabling knowledge transfer

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 our areas of expertise by:

- contributing to the societal understanding of health law and policy issues
- providing expertise and consulting to organizations in the public sector
- engaging in and supporting the policy-making process at local, regional, provincial, national and international levels.

Healthy Populations Institute

Managing Director: Maureen Summers, MSc
Scientific Director: Lois Jackson, PhD
Other: Project Coordinators,
Research Scholars, Research Assistants, and students
Phone: (902) 494-2240
Fax: (902) 494-3594
Website: www.dal.ca/hpi

The Healthy Populations Institute or HPI (formerly Atlantic Health Promotion Research Centre, AHPRC) is a leading Canadian health promotion research centre based at Dalhousie University. HPI was established in 1993 to conduct interdisciplinary, collaborative population health and prevention research that informs policies and programs to improve the health and well-being 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 HPI is currently supported by the Faculties of Health Professions, Dentistry, and Medicine, 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 charitable sector research institutes, and private foundations.

Our research associates hold appointments in the Faculties of Health Professions, Architecture, Management, Medicine, Dentistry and Science.

Institute for Big Data Analytics at Dalhousie University

Director: Dr. Stan Matwin
Location: Goldberg Computer Science Building
6500 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-4320
Email: bigdata@cs.dal.ca
Website: https://bigdata.cs.dal.ca

Big data is not a single breakthrough invention, but rather a coming together and maturing 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 an 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 industries in Nova Scotia, and in Canada. To achieve this goal, we want to focus - for example - on becoming a world leader in the analytics of marine data and all aspects relating to marine biology, fisheries and shipping. Thirdly, we will develop a focused and advanced training program that covers all aspects of big data, preparing our next generation of researchers and practitioners for this important field of study.

Institute for Research in Materials (IRM)

Director: Daniel Boyd, PhD
Administrative Offices: 6414 Coburg Road
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-6373
Fax: (902) 494-8016
Website: http://irm.dal.ca

Established in 2002, IRM is made up of over 90 faculty members in six faculties (Science, Engineering, Dentistry, Medicine, Architecture and Planning and Health Professions). 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 leads collaboration 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 by the Nuclear Magnetic Resonance Research Resource)
- Scanning electron microscope
- Focused ion beam
- X-ray photoelectron spectrometer (XPS)
- Secondary ion mass spectrometer (SIMS)
- Physical property measurement system (PPMS)
- Scanning thermal microscope (SThM)
- Hot press
- Grindo Sonic
- High-speed motion recorder/analyzer
- FT-Raman spectrometer

These facilities are open to external users. Please contact IRM@dal.ca for details.

Law and Technology Institute

Director: Robert J. Currie, BA, MA, LLB, LLM
Associate Director: Steve Coughlan, BA, MA, LLB, PhD
Location: Schulich School of Law
6061 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Phone: 902 494-1469
Fax: 902 494-1316
Email: lynda.corkum@dal.ca
Website: www.dal.ca/faculty/law/LATI.html

The Law and Technology Institute was established at the Schulich School of Dalhousie in 2001 to provide teaching, research, and continuing education on technology law issues to students, faculty members, and the practicing Bar. The Institute participates, with the faculties of Computer Science and Management, in Dalhousie's Master of Electronic Commerce Program, and has been involved in collaborative projects with the private sector and governments on information technology issues. Also, in conjunction with Dalhousie's Industry Liaison and Innovation Office, the Institute sometimes offers a student placement program in intellectual property and commercialization. Its faculty members provide graduate supervision to students interested in the developing field of technology law, and are active in law and technology organizations, such as IT.Can and the International Society for Law and Technology. Faculty members of the institute are writers of the English edition of IT.Can bi-weekly newsletter. 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.

Classes Offered:

- Law and Technology
- Internet and Media Law
- Privacy Law
- Intellectual Property Law
- Information Technology Transactions
- Entertainment Law
- Intellectual Property and Commercialization Placement
- Special Topics on Intellectual Property (IPII)
- Copyright Law
- Patent law

Students also have the opportunity to pursue specialized interests in fields such as criminal law, health law and alternate dispute resolution, as they relate to law and technology.

MacEachen Institute for Public Policy and Governance

Scholarly Director: Kevin Quigley, PhD

The MacEachen Institute for Public Policy and Governance at Dalhousie University is a nationally-focused, non-partisan, interdisciplinary institute designed to support the development of progressive public policy and encourage greater citizen engagement. The MacEachen Institute is named in honour of Allan J. MacEachen, retired federal cabinet minister and senator and one of Nova Scotia's most accomplished political leaders.

The MacEachen Institute is a collaboration between Dalhousie's Faculties of Arts & Social Sciences, Law and Management, as well as the Office of the Vice-President, Research. It stimulates debate, discussion and research by engaging thought leaders from across Canada and internationally.

The Institute builds on Allan J. MacEachen's legacy and passion by promoting vigorous debate on progressive public policy issues. It will also encourage and engage the active participation of Canadian citizens in civic activities ranging from community and neighbourhood issues to those of national concern.

Marine & Environmental Law Institute

Location: Schulich School of Law
6061 University Avenue
PO Box 15000

Halifax, NS B3H 4R2
Phone: 902 494-1988
Fax: 902 494-1316
Email: MELAW@dal.ca
Website: http://www.dal.ca/law/MELAW
The Institute, which is housed in the Schulich School of Law, carries out teaching, research capacity-building and consultancy activities and also directs the MELP 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 home to the editorial office of the Ocean Yearbook and the Journal of Environmental Law and Practice (JELP). The Ocean Yearbook is a major international interdisciplinary annual, devoted to ocean affairs, published in collaboration with the International Ocean Institute in Malta. Dalhousie law students have the chance to gain experience working as research assistants on the Institute's research projects and workshops, and assisting with editing the Ocean Yearbook. JELP is the leading environmental law journal for practitioners and academics in Canada.

MELAW supports student collaboration in addressing environmental issues through the Environmental Law Students' Society and the East Coast Environmental Law Association, a non-governmental organization dedicated to environmental law education and advocacy. MELAW encourages interdisciplinary collaborations within the Dalhousie community including the School for Resource and Environmental Studies (SRES), the College of Sustainability, the Marine Affairs Program (MAP), the International Development Studies (IDS) Program, the Centre for Foreign Policy Studies, the Ocean Tracking Network (OTN) led by the Department of Oceanography and the recently established Institute for Ocean Research Enterprise (IORE). MELAW also promotes national collaborations, for example, through the Ocean Management Research Network (OMRN). International linkages include among others, the Australian-Canadian Ocean Research Network, the Global Forum on Oceans, Coasts and Islands and the IUCN Academy of Environmental Law as well as numerous sister institutions in Australia, Asia, Caribbean, Europe, South America and the United States.

Minerals Engineering Centre

Director: Josh Leon, PhD, PEng
Location: G Building, Sexton Campus
1360 Barrington Street
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-3955
Fax: (902) 494-3506
Email: mec@dal.ca
Website: http://minerals.engineering.dal.ca
The Minerals Engineering Centre was established from the Laboratory for the Investigation of Minerals. The Minerals Engineering Centre provides research, analytical and advisory services to industries, universities, and government bodies in Atlantic Canada, Canada and International. The Centre is located in G Building on Sexton Campus and is affiliated with the Materials Engineering program. The services offered include:

- Sample preparation of ores, soils, silts, rocks, cores, clay fraction and wood pellets
- Size analysis, including screening, sieving, and sub-sieve analysis
- Minerals separation using dense liquids
- Physical and chemical analytical methods using atomic adsorption, XRD, ICP-OES, AA, x-ray fluorescence spectographic, wet chemical techniques and carboy/sulphur analysis
- Analysis of samples including geological, metalliferous ores, industrial minerals, coals, metals, alloys and water
- Mineral processing test work covering the whole range of investigative techniques from bench scale to pilot plant, including crushing, grinding, classification, gravity separation, dense medium separation, magnetic separation, electrostatic separation, flotation, flocculation, thickening, filtration, and drying
- Evaluation of biomass fuels calositic value of raw material and wood pellet.

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.institute@dal.ca
Website: http://www.neuroscience.dal.ca

The Neuroscience Institute was founded 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 collaboration between clinical and basic scientists in these Faculties. Some foci of current research activity include: development and plasticity of the nervous system; cognitive neuroscience; motor control; autonomic function; synaptic function; and sensory physiology. The Institute also provides a vehicle to seek new sources of funding, and encourages new initiatives in all areas of neuroscience research at Dalhousie. In addition, the Institute 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 Leach, BComm (Dalhousie), MBA (Ivey), PhD (Nova Southeastern)
Coordinator:	Paulette Dun
Entrepreneur in Residence:	Brian Lowe
Lead Researcher:	Mary Kilfoil
Phone:	(902) 494-6975
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 its many forms, through innovative curriculum, 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 networks. 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
Facility Coordinator:	M. D. Lumsden, 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, materials science, biology, biochemistry and related areas. Its current instrumentation includes Bruker, Avance 300 and Avance 500 NMR spectrometers for liquids and Bruker Avance DSX 400 and Avance 700 NMR spectrometers for solids. NMR^3 users also have direct access to a Bruker Avance III 700 NMR spectrometer with cryoprobe capabilities for liquids experiments. The Avance 500 and Avance 700 NMR spectrometers were installed in 2003 with funding from NSERC, the Canadian Foundation for Innovation and the Atlantic Innovation Fund. The cryoprobes 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.chemistry.dal.ca.

Trace Analysis Research Centre

Director: A. Doucette, BSc, PhD

The Trace Analysis Research Centre (TARC) was established in 1971 with the assistance of a grant from the National 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.

Resources and Services

Academic Advising

Academic advisors provide academic support to current Dalhousie University students. We help you build on your ability to make decisions that positively impact your academic and career success.

Academic Advisors can help you:

- clarify your education and career goals
- explore programs
- choose courses that relate to your goals and interests
- address concerns about your studies
- develop strategies for academic success from first-year to graduation
- identify skill-building opportunities
- assist if you are struggling in school
- explore academic options when faced with personal/family emergency
- determine where to go for additional information

Find out more: www.dal.ca/learnwell
Email: advising@dal.ca (Halifax Campuses) ssdalac@dal.ca (Agricultural Campus)
Phone: (902) 494-3077 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

Access Services

Advising and Access Services (Halifax Campuses) and Student Services (Agricultural Campus) serve as Dalhousie's centres for expertise on student accessibility and accommodation. The work of our access services teams is governed by the Student Accommodation Policy, to best support the needs of Dalhousie students. Our teams work with students who request accommodation as a result of:

- disability,
- religious obligation
- any barrier related to any other characteristic protected under Human Rights legislation (NS, NB, PEI, NL)

Services

- information and education on accessibility and accommodation
- determining and facilitating classroom and exam accommodations
- determining and facilitating non-academic accommodations
- note-taking program
- advice on, and access to, technology supports
- assistance in accessing disability related funding
- textbook scanning and/or publisher requests for PDFs
- referrals to on and off-campus resources and services
- self- advocacy skill building

Early consultation is encouraged to ensure appropriate planning for any of your needs that may include accommodations. Staff meet with you to determine areas to facilitate your success, and if accommodations are required, we ensure those accommodations are put in place by working with your instructors. As part of ongoing efforts to facilitate a successful transition to and throughout your university experience, we offer several points of contact for students. We also work with faculty, staff, parents and prospective students, who have questions regarding access and accommodation.

Find out more: www.dal.ca/learnwell
Email: access@dal.ca (Halifax Campuses) scc@dal.ca (Agricultural Campus)
Phone: (902) 494-2836 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

Alumni Association/Alumni Relations

The Alumni Association is comprised of over 125,000 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 at 6389 Coburg Road (902 494-8801/1-800-565-9969/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 dal.ca/alumni.

Athletics and Recreation

Dalhousie offers a wide array of programs, facilities and services to suit 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; two climbing facilities; two weight rooms; more than 35 weekly fitness classes; an eight-lane, 50m indoor pool; a 1/6-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. Sexton Memorial Gymnasium includes a fitness centre, a gym with hardwood courts, group fitness classes, two squash courts, and change rooms 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, to curling, basketball and inner 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, soccer, women's volleyball, and woodsmen. The Tigers varsity program on the Halifax campuses consists of 14 teams (men's and women's basketball, 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 recreation opportunities at Dalhousie visit www.dal.ca/athletics.

Black Student Support

The Black Student Advising Centre strives 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 advising services, personal and community support, advocacy, and relevant resource materials are a few of the roles the BSAC. The BSAC 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 on the second floor of 1321 Edward Street, contact us at (902) 494-6648 or bsac@dal.ca or visit us online at dal.ca/bsac.

Career Supports

The Career and Leadership Development Centre (CLDC) in Halifax and Student Services on the Agricultural Campus 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; and
developing and maintaining relationships with organizations that
provide career development and employment opportunities for you.

Find out more: www.dal.ca/leadwell
Email: cldc@dal.ca (Halifax Campuses) careerac@dal.ca (Agricultural Campus)
Phone: (902) 494-3537 (Halifax Campuses) (902) 893-7895 (Agricultural Campus)

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 learning and teaching practices, 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 G90, Killam Library, 6225 University Avenue, (902) 494-1622, CLT@dal.ca, or you can visit the CLT website at: dal.ca/clt

Programming: Workshop series, presentations, discussion groups, and demonstrations are scheduled to address the full spectrum of educational issues, including curriculum design, evaluation of student learning, teaching and learning 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 presenters from across the University and the country to explore issues related to specific themes.

eLearning: The eLearning team with CLT offers eLearning advice and support to the Dalhousie community. With two experienced instructional designers, the eLearning team is available to offer guidance with both online and blended/hybrid course initiatives.

Curriculum Renewal: CLT provides support for curriculum design and renewal at the level of a course, program, department and faculty. Facilitated department and faculty-specific workshops or retreats assist the formation of cohesive programs by considering how courses and content develop thorugh the duration of a program. Departments or programs in the early stages of an MPHEC proposal, internal program review, or accreditation process can take advantage of CLT's resources to design learning outcomes and map the curriculum.

Certificate in University Teaching and Learning and the Teaching Assistant Enhancement Program: These programs are 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.

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 Alumni Association Award of Excellence for Teaching, Early Career Faculty Award of Excellence for Teaching, Contract and Sessional Instructor Award of Excellence for Teaching, President's Graduate Student Teaching Award, Educational Leadership Award for Collaborative Teaching, Academic Innovation Award, Award for Excellence in Education for Diversity, and the Award for Excellence in Graduate Supervision.

Student Ratings of Instruction (SRI): Higher education institutions in Canada and abroad encourage faculty to use teaching 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 course(s).

Grants: CLT offers a number of Teaching and Learning Grants each year for instructors to develop and evaluate new teaching methods, curriculum innovation, and teaching with 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 (dal.ca/clt). CLT's lending library provides resources on topics related to teaching. CLT's LibGuide of links to electronic sources can be found at: dal.ca.libguides.com/clt

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 feel free to contact Dalhousie's Peer Ally (peerally@dal.ca). We can help, if you:

- question (or have questions about) sexuality or gender identity and need 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 dal.ca/dalally for more information.

DalCard

The DalCard is your university identification card that has many uses on and off campus. It must be presented at officially scheduled examinations, to receive bursary or scholarship cheques and to use library facilities. It also functions as an access pass to Dalhousie athletic facilities including Dalplex, your meal hall pass with a meal plan and a door key to residence if you live on campus. Your DalCard can also be used as a debit card at many locations on campus including the Bookstores and food vendors. It can also be used for printing and photocopying, for laundry in residence, and it's even accepted at several off-campus locations.

The DalCard Office is located at 6230 Coburg Road. Students on the Sexton campus may obtain their DalCard at the Student Service Center, B Building, 1360 Barrington Street.

On the Agricultural Campus students can obtain their DalCards at the Enrolment Services Center located in the Cox Institute, Room 100.

See dal.ca/dalcard for more information.

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 in our community and stands as the only 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 1,023 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, Billy Connolly, Vance Joy, Bill Burr and Ron Sexsmith to name a few. Other performing and visual arts spaces in the Arts Centre include: The Sir James Dunn Theatre (194 seats), the David Mack. Murray Theatre, 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 and music productions, faculty recital series and weekly student noon-hour recitals. Further information on the Fountain School of Performing Arts can be found at dal.ca/performingarts.

Dalhousie Student Union (DSU)

Every Dalhousie student is automatically a member of the Dalhousie Student Union (DSU). The student union is recognized by an Act of the Nova Scotia legislature as the single voice of Dalhousie students. All student activities on campus are organized through the Dalhousie Student Union, and the DSU is the focus of all student representation. The business of the DSU is conducted by a Council made up of approximately 40 members.

One of the most important resources of the DSU is the Student Union Building (SUB) located at 6136 University Avenue between Seymour and LeMarchant Streets. The SUB 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, The Grawood, Campus Copy, food services, the Society Hub, and much more.

Every student has the opportunity to take advantage of the Union’s financial, physical, and organizational resources whether by coming to events, applying for grants, or getting involved in a committee or campaign. The DSU also oversees almost 400 student societies. All students are invited to satisfy their curiosity by visiting the DSU offices located on the second floor of the SUB and is open from 8:30 am to 4:30 pm Monday through Friday.

Telephone number (902) 494-1106, email info@dsu.ca. Check out the website at www.dsu.ca.

Dalhousie Agriculture Students' Association (DASA)

The Dalhousie Agriculture Students' Association (DASA) is the official organization of students on the Agricultural Campus. In addition to representing the students to the administration, DASA spends much of their time organizing events, clubs, groups and committees to improve student life on the Agricultural Campus. They are also responsible for publications such as the Golden Ram (student newspaper), yearbook and student agendas. The Students' Association can be found in Room 32 of the

Cox Institute.

All members of the Dalhousie Agriculture Students' Association are automatically also members of the Dalhousie Student Union. Visit www.dsu.ca to learn more about the DSU.

DSU 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 is billed to each student's account and is compulsory unless the student has comparable private health insurance. If students have comparable coverage, they may be eligible to opt out of the DSU Health and Dental Plan during the appropriate opt out period. Please contact the DSU Health Plan Office for the opt out period dates.

All part-time, distance, co-op, and students who begin their studies in January are not automatically billed and enrolled for the DSU Health and Dental Plan and must manually opt in during the appropriate opt in period. Students are also eligible to add immediate family members to the plan during the opt in period by completing an application and paying an additional fee each year.

The DSU Health and Dental Plan Office is located in the basement of the Student Union Building at 6136 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. Visit the website for more information regarding coverage, opt out/in procedures and deadlines www.studentvip.ca/dsu.

DSU International Health Plan

The DSU International Health Plan is provided to all international students. Please note that all co-op students are not billed and enrolled for the International Health Plan and must opt in should they wish to have coverage. The fee for the DSU International Health Plan is billed 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 6136 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.

Email, Computer and Tech Support

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, My.Dal, the central information system (Banner), online learning systems, wired and wireless network connections and student computer labs.

Need help with a technical problem? Visit one of three Help Desks located on the Halifax campus, or our Help Desk at the Dalhousie Agricultural Campus in Truro.

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 dal.ca/its for more information.

First Year Experience

There's a lot to know about your first year at university; from choosing the right courses to juggling student life, if you've got questions - First Year Advising has answers! We're here to help you navigate the transition through your first year of university life. We can help you with questions such as:

- What can I expect in my first year of university?
- How can I become more involved in activities on campus?
- I'm feeling overwhelmed with all my work - what should I do?
- How do I get the most out of my university experience?

In addition to one-on-one advising, we offer ongoing workshops and support programming to assist with a successful transition through the first year of university.

Find out more: www.dal.ca/fya
Email: first.year.advisor@dal.ca (Halifax Campuses) fye@dal.ca (Agricultural Campus)
Phone: (902) 494-3077 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

Health Services

Maintaining your overall health is important while you are at university. In Halifax, Dalhousie operates a medical clinic on the second floor of 1246 LeMarchant Street staffed by Family Doctors, Nurses, a Nurse Practitioner and Psychiatrists. Further specialists' services are available and will be arranged through Health Services when required. Health Services on the Agricultural Campus provides confidential nursing assessments and referral services for students. They offer a wide range of services including cold and flu assessments, first aid, sexual health counselling, stress management counselling, blood glucose monitoring and select immunizations. The clinic accepts walk-in patients and appointments.

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.

Find out more: www.dal.ca/livewell
Make an appointment: (902) 494-2171 (Halifax Campuses) (902) 893-6300 (Agricultural Campus)

Housing/Residence

General Information

A non-refundable $50 fee is payable when applying for residence. Please note that you will not be able to submit an application without paying the $50 non-refundable deposit.

All new Dalhousie undergraduate students are guaranteed a place in residence if they complete the residence application process by June 30th.

For further information on living at Dalhousie, do not hesitate to contact:

The Residence Office

Halifax location:

6230 Coburg Road
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-1054
Email: residence@dal.ca
Website: dal.ca/residence

Truro location:

10 Horseshoe Crescent
PO Box 550
Truro, NS B2N 5E3

Telephone: (902) 893-7519
Fax: (902) 893-4258
Email: resdalac@dal.ca

Off-Campus Housing

Location:

Risley Hall, Room 1024
1233 LeMarchant Street
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-2429

Email: och@dal.ca
Website: dal.ca/och

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) 494-1054, 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.

It is the responsibility of the individual student in all cases to make a separate online application to the university housing of her/his choice.

Living Off-Campus

Dalhousie's Off-Campus Housing has a website dal.ca/och. 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 campuses located in Risley Hall and offers help to students in finding off-campus accommodations.

The Off-Campus Housing office provides centralized information on available housing in the Halifax metro area including apartments, shared accommodations, rooms, condos and houses.

Based on of the relatively low vacancy rate in Halifax, it is advised that students start looking for off-campus housing well ahead of the academic year.

Traditional On-Campus Residence

Studley (Main) Campus

Howe Hall

Howe Hall is centrally located on Studley Campus and is the largest residence. Howe Hall is broken into six houses: Bronson House (1959), Cameron House (1967), Fountain House (2002), Henderson House (1964), Smith House (1958), Studley House (1967). Each house has its own identity and student government. The houses are all co-ed and feature a single and double (two single beds) rooms. Facilities include a 24-hour front desk, dining hall, television lounges, kitchenettes, a large multi-function study area/common lounge, laundry rooms, hockey equipment and bike storage room. ResNet (high speed internet/wireless), *local telephone service and *cable TV are provided within each room.
** These services are subject to change.*

Shirreff Hall

Shirreff Hall provides accommodation to 440+ students. Located in a quiet corner of the campus, it is minutes from classes, the library, Dalplex and other facilities. Shirreff Hall is divided into four areas: the Annex, Newcombe House (female only), Old Eddy and New Eddy. Old Eddy and New Eddy have mostly single and double rooms while Newcombe and the Annex have single rooms only.

Shirreff Hall offers a dining room, an elegant library and visitors' lounge, study areas, games room, television lounges, kitchenettes, laundry room, and 24-hour front

desk. ResNet (high speed Internet/wireless), *local telephone service and *cable TV service are provided within each room. Students also have access to a piano.
** These services are subject to change.*

Residence Houses

Dalhousie also has two residence houses, which are co-ed. Formerly single family homes, each house has kitchen, living room and washroom 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. 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.*

Risley Hall

Risley 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, hockey equipment and bike storage rooms 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.*

Lyall 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 co-ed living environment. Like Residence Houses, these houses have all single rooms. 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.

LeMarchant Place

LeMarchant Place opened in the 2014/2015 Academic Year and is Dalhousie's newest residence.

The bottom two floors of LeMarchant Place are occupied by several student services, while the top five floors serve as a home for 326 students.

LeMarchant Place features a mix of two, three and four-bedroom suites. Single rooms sharing private bathrooms are available as well as accessible rooms. Each floor has a full communal kitchen, a lounge and a laundry room.

LeMarchant Place has wireless internet access throughout the building, as well as storage space for bicycles and hockey gear in the basement.

The residence space has its own secure lobby, separate from the other student services offices. Residents are able to collect their mail before getting onto one of two elevators dedicated specifically to the residence floors. ResNet (high speed internet/wireless), *local telephone service and *cable TV service are provided.
** These services are subject to change.*

Sexton Campus

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 on the corner of Morris and Queen 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'Brien Hall dining hall, only seconds away, or may use the dining halls in Howe, or Shirreff Halls.
** These services are subject to change.*

O'Brien Hall

O'Brien Hall is a co-ed residence located in the heart of downtown Halifax. There are approximately 115 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.*

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 Horseshoe Crescent, within a few minutes walk of classes, labs, meal hall, the library, the farm and our athletic center. 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.*

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.

Chapman House

Chapman House accommodates 123 students in single, super single, and double rooms. Services include comfortable lobby area, TV/games lounge, quiet/study lounge, laundry room and kitchenette.

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.

Non-Traditional On-Campus Housing

Studley (Main) Campus

Glengary Apartments

Located on the Studley Campus on Edward Street, Glengary Apartments is a four-storey brick building offering co-ed accommodation for 40+ students.

Glengary 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, where 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 not mandatory, but may be purchased for use at the O'Brien, Howe or Shirreff Dining Halls.

Sexton Campus

Graduate House

This residence is home to 13 returning students, 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.

Agricultural Campus - Truro

Trueman House Mature/Graduate Unit

Located on the ground level in Trueman House, this unit accommodates 12 students in single and super single rooms. Services include a fully equipped kitchen, tv lounge and laundry room (shared with all students living in Trueman House). Each room is equipped with ResNet (high speed internet/wireless), *local phone and *cable tv service. A meal plan is not mandatory
** These services are subject to change.*

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; the Statement on Prohibited Discrimination; the Personal Harassment Policy; and the Sexual Harassment Policy. The Human Rights & Equity Advisor and the Harassment Prevention/Conflict Management Advisor liaise with the Office of the Vice-Provost, Student Affairs, regarding the Code of Student Conduct and the University's Hazing Policy.

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 via our Education Advisor; workshop request forms are available online.

The website for the Office of Human Rights, Equity & Harassment Prevention offers downloadable versions of each of the policies, Sexual Assault Response Guidelines and additional resources including posters and an annual Mosaic Calendar featuring a variety of religious and cultural holidays.

Contact:

Human Rights & Equity Advisor
(902) 494-2704

Harassment Prevention/Conflict Management Advisor
(902) 494-1137

Education Advisor
(902) 494-7704

Telephone: (902) 494-6672 (office line)
Fax: (902) 494-1179
Email: dalrespect@dal.ca
Website: www.dal.ca/dalrespect

International Student Support

Dalhousie University 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 when necessary.

Orientation activities are organized to 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, by appointment, to meet with students.

Student exchange and study-abroad services 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; providing pre-departure and re-entry services; administering several funding programs for international study; and maintaining the International Opportunities Resource Library.

Find out more: www.dal.ca/international
Drop by: International Centre, 1246 LeMarchant Street (Halifax Campuses); the Agricultural Campus International Centre, 157 College Road (Agricultural Campus)
Email: international.centre@dal.ca (Halifax Campuses) ssdalac@dal.ca (Agricultural Campus)
Phone: (902) 494-1566 (Halifax Campuses) (902) 893-6905 (Agricultural Campus)

Leadership

Leadership isn't about being in charge. It's about being confident and capable, showing initiative, and assuming responsibility.

At Dalhousie we know how important those traits are to your future success, and we work together to create an environment in which they can develop and flourish.

You don't have to be a varsity team captain or on the Student Union executive to be a leader – there are plenty of things on campus you can do to develop your skills and have your achievements recognized. But you need to take charge of your future and get involved early -- we're here to help!

A key component in preparing for a career is building the right skills and experience. **DalConnects** is a free leadership program for Halifax students that connects you with the off-campus community and develops your leadership potential. By pairing interactive workshops, conferences, and teambuilding retreats with community volunteer opportunities, you develop practice skills that help you become a stronger leader in the classroom, the community, your future career, and in everyday life. In Truro, the Student Advancement in Leadership program offers the opportunity for students to develop skills in areas such as career exploration, personal growth, communication and leadership development. Students participate in volunteer activities, attend professional development seminars, participate in international and cultural events and learn the process of program development.

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.

Find out more: www.dal.ca/leadwell
Email: cldc@dal.ca (Halifax Campuses) ssdalac@dal.ca (Agricultural Campus)
Phone: (902) 494-3537 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

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 Kellogg Health Sciences Library; the MacRae Library – Agriculture, and 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).

In addition, the libraries have two new spaces: the Wallace McCain Learning Commons and the Kellogg Library Learning Commons in the Collaborative Health Education Building. These learning commons provide study spaces for both silent study and vibrant collaborative engagement, access to computers, information resources, and research assistance.

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 WiFi. Most of the libraries have bookable study rooms for groups as well as individual carrels for private study.

The website dal.ca/libraries provides access to collections, databases, 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 Desks that offer general computer and software support, and 3D printing.

The Dalhousie Libraries are a member of Novanet, a network of all Nova Scotian 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.

Multifaith

The Dalhousie Multifaith Centre strives to explore the fundamental issues and concerns of the world from a religious perspective in a setting that encourages open and free discussion, values the raising of questions and doubts, and appreciates divergent histories, attitudes, options, and values. A complete education addresses the whole person: body, mind, and spirit.

The Centre is 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, call (902) 494-2287, or visit us online at dal.ca/dmc.

Native Student Support

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 (Room 407, Student Union Building) 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. Visit dal.ca/native for more information.

Personal Counselling

As a student you'll find that most of the time you can deal with the everyday issues that pop up while attending university. But life can sometimes challenge you in unexpected ways.

On the Halifax Campuses, Dalhousie Counselling Services 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 Counselling 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 where 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.

On the Agricultural Campus, students can meet with nurses and receive confidential referrals to community psychologists and psychiatrists.

If you have feelings of depression, anxiety or stress, but you're not in Halifax or Truro, or are uncomfortable about sitting down one-on-one with a counsellor, you can use WellTrack, an online self-help program. It includes modules that you work through at your own pace, either independently or with a WellTrack coach, via email or phone.

Find out more: www.dal.ca/counselling
Make an appointment: (902) 494-2081 (Halifax Campuses) (902) 893-6300 (Agricultural Campus)

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 convocation. 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 Counselling Services.

Students can access the services of the Registrar’s Office at three locations.

Main office (Studley Campus):
Room 130, Henry Hicks Academic Administration Building
6299 South Street
Halifax, NS

Enrolment Services Centre (Sexton Campus):
Building B, 1360 Barrington Street
Halifax, NS

Enrolment Services Centre (Agricultural Campus):
Room 100, Cox Institute, 21 Cox Road
Truro, NS

Enquiries may be directed to:
The Registrar
Dalhousie University
PO Box 15000
Halifax, NS Canada B3H 4R2
Telephone: (902) 494-2450

Fax: (902) 494-1630
Email: admissions@dal.ca

Safety
Safety

Dal Security operates in a uniform capacity 24/7, 365 days of the year as the on-campus emergency first responders across all four Dal campuses (including three in Halifax and one in Truro). We pride ourselves in offering approachable and accessible services to all members of the Dal community. We have a robust social media presence where you can find updates on events, safety tips, and information on campus closures.

Follow us at @DalSecurity on Twitter and dal_security on Instagram. Through collaboration with our on-campus partners, services are quickly and conveniently accessible by downloading our free DalSAFE app. Come visit us in person at one of our three offices; our main office is located in the parkade of the Marion McCain Arts and Social Sciences building on the Studley campus in Halifax, a secondary office is located in the Dairy building on the Truro campus, and a third satellite office is located at the Sexton campus in Halifax.

Dalhousie Security can also be reached at (902) 494-6400 (Halifax Campuses) and (902) 893-4190 (Truro Campus) in any emergency.

South House
A DSU service and Halifax's only full-time gender justice 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, wheelchair-accessible space that offers a resource centre, library, and free meeting space for woman-positive and anti-oppression organizing and gathering. Visit us online at www.southhousehalifax.ca or drop by the Centre on the basement floor of 1443 Seymour Street.

Student Advocacy
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 edit any written submissions, prepare them for hearings and formal appeals, and provide support through the process and articulates matters of importance during the oral hearing. This year-round service is confidential and operated entirely by students. Contact us at the Student Union Building (Room 310), by phone at (902) 494-2205 or visit us online at www.dsu.ca.

Student Clubs and Organizations
With so many clubs and organizations on campus, not only will you find plenty of people who share **common interests,** but you'll have an opportunity to **try something completely new.** TigerSociety offers a searchable listing of hundreds of student clubs and societies. Browse the listings and find societies that suit your interests.

Also, be sure to watch for the **Society Fair in September.** The fair is a chance for all societies to showcase their activities and objectives to other Dal students. Drop in, visit society booths and discover clubs, societies and organizations that may be of interest to you. Watch for details on the DSU website. And, if you don't find a society of interest, **start your own!**

In Halifax, Dal After Dark gives Dal students fun and free/low cost on-campus activities on Thursday, Friday and Saturday nights.

Find out more: www.dal.ca/studentlife
Email: dsumemberservices@dal.ca or studentlife@dal.ca
Phone: (902) 494-1106 (Halifax Campuses) or drop by Room 32 of the Cox Institute (Agricultural Campus)

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 Prosecutors 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.

Student Health Promotion

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 other areas of student wellness.

Find out more:
The **Student Health Promotion Office** is located on the second floor of 1246 LeMarchant Street in Halifax.

The RESPECT **(R**eal **Energy Supporting Peer Education on Current Topics) office** is located in the Dairy Building office (Agricultural Campus)

Email: livewell@dal.ca (Halifax Campuses) respect@dal.ca (Agricultural Campus)
Phone: (902) 494-6830 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

Student Services

The Vice-Provost, Student Services (VPSA), is Dalhousie University's chief officer of student affairs. Working with an integrated team of specialists across campus, the office of the VPSA coordinates programs and delivers services in support of students' academic achievement, 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.

Study Skills/Academic Support

At Dalhousie, we have dedicated staff available to assist students in becoming more efficient and effective learners. In Halifax, the Studying for Success program offers workshops to small groups of students to develop or enhance personal learning strategies and, when applicable, workshops 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 and will refer students to other academic resources when appropriate.

On the Agricultural Campus, the Student Success Coordinator helps students reach their potential through a variety of programs and events. Students benefit from attending formal training in study skills and can make an appointment to meet with the Coordinator for one-on-one coaching or attend Study Skills offered regularly throughout the semester.

Find out more: www.dal.ca/learnwell
Email: sfs@dal.ca (Halifax Campuses) sspdalac@dal.ca (Agricultural Campus)
Phone: (902) 494-3077 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

University Bookstore

Dalhousie's Bookstores are all owned and operated by the university and service the needs of students, faculty, staff and the larger community surrounding Dalhousie.

The Bookstore offers school supplies and course materials in new, used and custom textbook format as well as digital and rental. In addition, the Bookstore is the go-to hub for your Tiger-inspired gear, like black and gold hoodies, t-shirts and scarves! Also popular is the Bookstore's grad gear, like class rings and frames.

The Bookstore offers custom screenprinting and embroidery on a wide array of clothing and giftware items. This service is popular amongst classes, societies, sports teams and other campus groups.

The Bookstore provides a number of supports to residence students, like a huge supply of Bed Bath & Beyond products for residence rooms, mini fridges and free delivery of textbooks to student's buildings before they arrive.

The Bookstore also offers opportunities for students to save money. Once you've purchased your textbooks, learn more about the Book Buyback program. If you're looking for an alternative to buying your textbooks, the Bookstore offers online textbook rental. The textbooks are shipped directly to you, and when you're finished, you simply ship them back.

When you pay for items at the Bookstore with your DalCard, 5% of the purchase price is put back on your account to use towards future purchases.

The Bookstore has locations on both the Halifax Campus (in the Student Union Building) and the Agricultural Campus (in the Cox Institute). There is also a Bookstore

located in the Main Administration Building on the Sexton Campus in Halifax.

Learn more and order Bookstore products online at dal.ca/bookstore

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;
- Proposing 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 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 relating to University governance; and
- Facilitating communication and collaboration with key stakeholders.

Visit the website at dal.ca/secretariat

Writing Skills

Students in all disciplines at Dalhousie 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 can benefit from discussing their work with supportive instructors and peer tutors.

The Writing Centre offers a number of services. The office in the Killam Library's Learning Commons allows students to obtain advice on writing issues. Tutors are also available for office hours on the Sexton Campus and at the Law School Library.

Students on the Agricultural Campus can visit the Writing Centre on the main floor of the MacRae Library. Seminars are held throughout the year on topics such as essay writing, science writing, mechanics of writing, English as a second language, admission applications, etc.

Find out more: www.dal.ca/learnwell
Email: writingcentre@dal.ca (Halifax Campuses) marg.rovers@dal.ca (Agricultural Campus)
Phone: (902) 494-1963 (Halifax Campuses) (902) 893-6672 (Agricultural Campus)

Financial Aid

Financial Aid

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 or Quebec, you must be registered in 80% of the normal class 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, e.g. nine. 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 governmental student loan(s).

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 Students Finance
PO Box 28000
Station Main
Edmonton, AB T5J 4R4
Fax: (780) 422-4516
Tel: (780) 427-3722
1-800-222 6485 (toll free in Canada)
www.alis.gov.ab.ca

British Columbia

Student Services Branch
Ministry of Advanced Education
PO Box 9173
Stn Provincial Government
Victoria, BC V8W 9H7
Fax: 1-800-262-2112
1-800-561-1818 (toll free in Canada/US)
http://studentaidbc.ca

Manitoba

Manitoba Student Aid Advanced Education
409 - 1181 Portage Avenue
Winnipeg, MB R3G 0T3
Fax: (204) 948-3421
Tel: (204) 945-2313 (outside Manitoba)
1-800-204-1686 (toll free in Manitoba)
www.edu.gov.mb.ca/msa

New Brunswick

Student Financial Services

Department of Education
PO Box 6000
440 King Street, Suite 420
Fredericton, NB E3B 5H1
Fax: (506) 444-4333
Tel: (506) 453-2577 or
1-800-667-5626 (Atlantic Provinces, Ontario and Quebec only)
www.studentaid.gnb.ca

Newfoundland & Labrador

Newfoundland and Labrador
Student Financial Assistance
PO Box 8700
St. John's, NL A1C 4J6
Fax: (709) 729-2298
1-888-657-0800
www.aes.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: 1-800-661-0893
Tel: (867) 873-7190
1-800-661-0793
www.nwtsfa.gov.nt.ca

Nova Scotia

Labour and Advanced Education Student Assistance
PO Box 2290, Halifax Central
Halifax, NS B3J 3C8
Fax: (902) 424-0540
Tel: (902) 424-8420 (metro)
1-800-565-8420 (within province)
(Street location: Trade Mart Building, 2021 Brunswick at Cogswell Street, Halifax, NS)
http://novascotia.ca/studentassistance

Nunavut

Adult Learning & Post-Secondary Services
Nunavut Department of Education
Box 390
Arviat, NU X0C 0E0
Fax: 1-877-860-0167
1-877-860-0680
www.gov.nu.ca/education

Ontario

Ontario Student Assistance Program
Student Support Branch
Ministry of Training,
Colleges and Universitie
PO Box 4500
Thunder Bay, ON P7B 6G9
Fax: (807) 343-7278

Tel: (807) 343-7260
http://osap.gov.on.ca

Prince Edward Island

Student Financial Services
Department of Education
PO Box 2000
16 Fitzroy St
Charlottetown, PE C1A 7N8
Fax: (902) 368-6144
Tel: (902) 368-4640
www.studentloan.pe.ca

Québec

Residents of Québec apply to:
Ministère de l'Éducation
Aide financière aux études
1035, rue De La Chevrotière
Québec, QC G1R 5A5
Tel: (418) 646-4505
1-888-345-4505
www.afe.gouv.qc.ca

Saskatchewan

Student Financial Assistance Branch Saskatchewan Learning
3085 Albert Street, Walter Scott Building
Regina, SK S4P 3V7
Tel: (306) 787-5620
1-800-597-8278
www.saskatchewan.ca

Yukon Territory

Students Financial Assistance
Advanced Education Branch
Department of Education
Government of Yukon
PO Box 2703
Whitehorse, YT Y1A 2C6
Fax: (867) 667-8555
Tel: (867) 667-5929
1-800-661-6408 Local 5929 (within Yukon)
www.education.gov.yk.ca

Temporary Loans

The University has established a temporary loan program to assist all 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 Academic Administration Building, the Sexton Campus Student Service Centre, the Enrolment Services Centre (Agricultural Campus), or online at www.dal.ca/moneymatters

Fees

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 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 2016/2017 Academic Fee Schedule will be available in June 2016, at 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 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.

Location:
Building/Room: Henry Hicks Academic Administration Building
Street Address 1: 6299 South Street, Room 29
Street Address 2: PO Box 15000
P.O. Box:
Halifax, NS B3H 4R2
Telephone:
Fax:
Website: www.moneymatters.dal.ca
Email Address:

Service Locations

Studley Campus
Henry Hicks Academic Administration Building, Rm 29
Monday to Friday, 9am - 4pm
tel: (902) 494-3998
fax: (902) 494-2839
email: Student.Accounts@dal.ca

Sexton Campus
Enrolment Services Centre
Monday to Friday, 9am - 4pm
tel: (902) 494-3998
fax: (902) 494-2839
email: Student.Accounts@dal.ca

Agricultural Campus
Enrolment Services Centre
Monday to Friday, 8:30am - 4pm
tel: (902) 893-6361
fax: (902) 895-5529
email: enrolment.services@dal.ca

2016/2017 Important Dates

September	
19	Fees due for fall term Last day to pay without late registration fee of $50 Last day for complete refund
October	
20	$50 reinstatement fees assessed to accounts with balances of $100 or more
November	
4	Last day for partial refund fall term

January

20	Fees due for winter term and second installment of regular session Last day to pay without late registration fee of $50 Last day for complete refund
February	
21	$50 reinstatement fee assessed to accounts with balances of $100 or more
March	
27	Last day for partial refund for winter term

NOTE: Please consult the online summer school timetable for the summer school registration schedule.

Website www.moneymatters.dal.ca

Student Accounts Office

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: 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 are not to exceed the annual charges associated with tuition and ancillary fees. Funding for off-campus and personal expenses is to be sent directly to the student. Overpayment on a student's account may result in funds being withheld and applied toward future term fees for up to one academic year.
- 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 permitted to re-register, 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.

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 $500 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 later credited towards tuition fees for the applicable term.

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.

Identification Cards (DalCard)

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.

Audit Courses

All students auditing a course pay one-half of the regular tuition fee plus full auxiliary 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 for audit information.

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.

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 ensure courses are dropped. Refunds due to class withdrawals will be effective the date a course(s) is dropped online at dalonline.dal.ca 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 these faculties should continue to attend classes until their withdrawal has been approved.

Academic Fees

Note: These rates are for 2015/2016 (for information only)

Fee Schedule

Upon approval of the 2016/2017 academic fees, a complete schedule showing the payment dates will be available in June 2016 at www.moneymatters.dal.ca. Students are advised that fees are subject to change by approval of the Board of Governors, and it is likely that tuition and fees will increase during each year of study.

NOTE: Students registered in more than one program are required to pay separate academic fees for each program. Additional course specific auxiliary fees may apply, as well as fees for online courses (or programs) related to distance delivery.

APPROVED TUITION FEES 2015/2016

Degree Program	Program Fee	Per Course Fee
UNDERGRADUATUNDERGRADUATUNDERGRADUATEEE		
Architecture, Community Design		730.50
Arts and Social Sciences		699.00
Computer Science		793.20
Dentistry		
Dentistry - Year 1, 2	20,826	
Dentistry - Year 3, 4	18,600	
Dental Hygiene Diploma	8,732	
Dental Hygiene Degree		883.80
International and Qualifying	46,680	
Engineering		793.20
Health Professions		
Disability Management Diploma		900.00
Emergency Health Services Management Diploma		700.00
Health Science		814.20

Health Services Administration Diploma		793.20
Nursing & Kinesiology		814.20
Pharmacy		838.20
Recreation & Health Promotion		814.20
Social Work		772.50
Law	14,193	
Management		
Commerce		800.40
Management		703.20
Medicine		
MD		
Year 1, 2	18,300	
Year 3, 4	17,616	
Post-Graduate	2,895	
Science		793.20
Sustainability		810.00
GRADUATGRADUATGRADUATEEE		
MasterMasterMastersss		
Architecture and Planning		
Architecture (Post-Professional)	8,412	
Architecture		841.80
Environmental Design Studies	8,412	
Planning		883.80
Planning Studies	8,412	
Arts and Social Sciences	7,401	
Computer Science	8,412	
Dentistry		
MD/MSc (Oral and Maxillofacial)	21,420	
Periodontics	19,131	
Electronic Commerce	9,327	
Engineering, Applied Science, Biomedical Engineering & Food Science	8,412	
Engineering - Internet Working (per class)		2,070
Health Informatics	9,327	
Health Professions		
Applied Health Services Research	7,509	
Clinical Vision Science	9,117	
Health Promotion, Leisure Studies	8,412	
Health Administration		848.70
Human Communication Disorders (Years 1 and 2)	10,566	
Human Communication Disorders (Year 3)	8,754	
Kinesiology and Nursing	9,117	
Pharmaceutical Sciences	10,563	
Occupational Therapy		
Entry Level	13,017	
Post Professional	10,563	
Physiotherapy		
Entry Level	13,017	
Rehabilitation Research	10,563	
Social Work		817.50
Law	10,068	
Management		
MBA Corporate Residency	22,038	
Environmental Studies	7,488	
Library and Information Studies		932.40
Public Administration		741.00
Resource and Environmental Management		741.00
Medicine		
Community Health & Epidemiology	9,117	
Medicine - Except Community Health & Epidemiology	8,412	
Science	8,412	
Marine Management	7,488	
DoctoratDoctoratDoctorateee		
Arts and Social Sciences	7,764	
Computer Science	8,790	

Engineering, Applied Science & Biomedical Engineering	8,790
Law	10,728
Medicine	8,790
Nursing	9,492
Science	8,790
Continuing FeContinuing FeContinuing Feeee	
All Programs	2,301
International Student Differential FeInternational Student Differential FeInternational Student Differential Feeee	
All Programs except Graduate Thesis-based *	8,703
Graduate Thesis-based ProgramsInternational Dentistry, Qualifying Dentistry and Internet working are exempt.	6,015
International Health Insurance	491 per year
Agricultural CampuAgricultural CampuAgricultural Campusss	
Degree (undergraduate)	636.60
Technical	392.40
Introductory Studies	360.00
Workplace Readiness	115.00
Veterinary Technology	527.40

Note: Per course fees are based on a three credit hour course. Complete fee schedules are available online www.moneymatters.dal.ca. The 2015/2016 fee schedule currently online is expected to be updated in June of 2016 with the approved academic fees for 2016/2017.* The cost for international students is twice that of the approved domestic tuition rate for Truro coursesNote: Per course fees are based on a three credit hour course. Complete fee schedules are available online www.moneymatters.dal.ca. The 2015/2016 fee schedule currently online is expected to be updated in June of 2016 with the approved academic fees for 2016/2017.* The cost for international students is twice that of the approved domestic tuition rate for Truro coursesNote: Per course fees are based on a three credit hour course. Complete fee schedules are available online www.moneymatters.dal.ca. The 2015/2016 fee schedule currently online is expected to be updated in June of 2016 with the approved academic fees for 2016/2017.* The cost for international students is twice that of the approved domestic tuition rate for Truro courses...

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.

International Students

Differential Fee

Registered students, who are not Canadian Citizens or permanent residents are required to pay an additional “Differential Fee” to a maximum of $4,351.50 per term, subject to increase in 2016/2017. There is a proportional 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 retroactive 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.

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, 2016. 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 (2015/2016 rates, for information only)

- Single - $491 per year
- Family - $1,227 per year

Student Fees

In addition to tuition and course related fees, the following mandatory incidental fees may apply. These fees are non-refundable beyond the due date for each term. In cases of late cancellations or retro-active withdrawal, the mandatory incidental fees remain payable. Rates provided as information only, subject to change for 2016/2017.

Student Union Fee

Every student registered at Dalhousie is a member of the Student Union and required to pay a Student Union fee as part of their registration procedure. These fees have been approved by students in referenda and, along with other revenue of the Union, are allocated each year by the Student Council budget.

For information only, 2015/2016 full-time student union fees are $72.18 per term.

Health and Dental Insurance

Every fall term, full time students are assessed the DSU Health and Dental Plan. This provides extended coverage from September through August. The current rate is $253 per year.

Students with separate health insurance may apply to the DSU for reimbursement. For more information please contact the Student Union Office in Room 344 of the Student Union Building (SUB), phone: (902) 494-2850 or visit their website at www.dsu.ca.

Student Service Fee

Student Service provides and supports various Dalhousie Services including health services and athletics. For information only, 2015/2016 Student Service fee is $148.70 per term for full-time students.

The following services will be provided without additional charges unless specified:

- Change from Audit to Credit
- Confirmation of Enrolment
- Confirmation of Fee Payment
- Dalplex Membership
- Leave of Absence Fee
- Letter of Permission
- Replacement Tax Receipt
- Transcripts (maximum of five requested at one time)

All students are assessed a facilities renewal fee of $84.35 per term; $28.10 per term for part-time students. 2015/2016 rates provided for information only; subject to increase with approval from the Board of Governors.

University Bus Pass Fee (UPass)

All eligible, full-time students will receive a Metro-Transit bus pass (UPass). The fee in 2015/2016 is $151.40 and is effective September through April. Please refer to www.upass.dal.ca for further information.

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.

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.

Miscellaneous fees are charged as outlined in the table below.

Miscellaneous Fees 2015/2016

Fee	Amount	Payable at
Late Registration	$50	Student Accounts

Reinstatement Fee	$50	Student Accounts
Returned Cheque	$20	Student Accounts
Admission Deposit	$200	Student Accounts
Undergraduate Medicine Admission Deposit	$500	Student Accounts
Application Fee	$70	Registrar
Late Graduation Application	$50	Registrar
Replacement ID	$15	DalCard Office
Replacement Bus Pass	$15	DalCard Office or Student Accounts
Transcript	*$5	Registrar
Fax Fees		
Metro	$5	Registrar
Canadian	$10	Registrar
International	$15	Registrar
Residence Application Fee	$50	Residence

* Where appropriate, contact Registrar's Office for details Note: Fees are subject to change after publication of this calendar.

Statements and Monthly Notices

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 www.moneymatters.dal.ca for more information.

Release of Student Financial Information

Student Accounts is often asked to disclose financial information on a student's account by parents and others so 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) 494-3998 or in Truro at (902) 893-6361 www.moneymatters.dal.ca.

Payment

The payment of academic fees will be received at the Student Accounts Office located on the basement level of the Henry Hicks Academic Administration building, the Enrolment Services Centre on Sexton Campus or the Enrolment Services Centre, Truro.

For the convenience of students, Canadian cheques and money orders, payable to Dalhousie University, are accepted by mail. Fees paid by mail must be received by Student Accounts on or before the term due date to avoid late payment and/or delinquency charges.

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 holding external scholarships or awards paid by, or through, Dalhousie must provide documentation of the scholarship or award before term fees are due.
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 20 for the respective term. This form is available online at www.moneymatters.dal.ca
d. Those paying the account balance by Canada Student Loan must negotiate the loan by September 19 or January 20 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 20, 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.

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 fees/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 20, 2017 for students registered for winter term and May 12, 2017 for students registering for the summer term).

Provincial Bursaries and University Scholarships

These cheques 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 in order to receive cheques. Please contact the appropriate provincial office to determine eligibility as well as courseload 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 130.

Receipts

The amount of academic fees constituting an income tax credit is determined by Canada Revenue Agency.

A special income tax certificate (T2202A) will be available annually through Web for Student at dalonline.dal.ca no later than February 28 for the previous calendar year.

Refunds

Students withdrawing from all courses must submit written notification to the Registrar's Office. Non 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 www.dalonline.dal.ca 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 these faculties should continue to attend class until their withdrawal has been approved.

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 www.moneymatters.dal.ca.
b. No fee adjustment will be made for a student changing their degree or program as follows:

Regular (Sept - April) and Fall Terms	After September 19, 2016
Winter Term	After January 20, 2017
Summer Term	After May 12, 2017

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 waiver.
g. A valid Dalhousie University ID must be presented in order for the student to collect a refund cheque.

Refund Schedule

The most current version of the refund schedule is available at www.moneymatters.dal.ca.

Important Information Regarding Refunds

- A portion of fees as outlined in the refund schedule will be assessed if withdrawal from a course occurs after September 19 (Fall Term) and January 20 (Winter Term). Withdrawals before these dates will be completely refunded, but no substitutions will be allowed from a financial perspective after these dates
- Non-attendance does not constitute withdrawal and fees will be payable.
- The refund schedule above does not apply to the University of King's College Master of Fine Arts in Creative Nonfiction Journalism Program.
- For financial charge inquiries, contact Student Accounts at (902) 494-3998 or Student.Accounts@dal.ca.

Delinquent Accounts

Accounts are considered delinquent when the balance of fees has not been paid by September 19 for the fall term or January 20 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 5.85% per annum, compounded monthly.

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.

Residence Fees

Residence rates vary depending on the location and style of accommodations available. For up-to-date residence options and rates, please visit 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, Gerard Hall, LeMarchant Place, 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 dal.ca/foodservices.

Important:

- Once offered admission to an academic program of study at Dalhousie, students are eligible to submit a residence application. **Application can be made within 48 hours of the $200 admission deposit being 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 $500 residence confirmation deposit can be paid by credit card (Mastercard, Visa, Amex) by visiting

dal.ca/admissions.html. For more payment options, please visit 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.

Residence Term

The residence term commences the Saturday 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.

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 Monday, September 19, 2016. Interest is assessed weekly at a rate as set by the University and will be charged on all accounts outstanding after Monday, September 19, 2016 and on any second instalment outstanding after

Friday, January 20, 2017. The student will not 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 arrears interest, and a $50 reinstatement fee. For additional information regarding outstanding or delinquent accounts, please see II. Fees, Section K.

All residence fees can be paid at the Student Accounts Office, the Student Service Centre (Sexton Campus), or online at 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.

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.
**These services are subject to change.*

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 www.dal.ca/rescomm.
*These services are subject to change.

Awards

Scholarships and Fellowships

General Disciplines

Each department has a limited number of scholarships available for students pursuing a degree program on a full-time basis. Scholarships are not offered to anyone on leave from a job with salary continuation. Those wishing to be considered for scholarship assistance are advised to contact the Graduate Coordinator in the department to which they are applying for details on eligibility and deadlines (NOT the Faculty of Graduate Studies). Graduate Coordinator contact information can be found at dalgrad.dal.ca/programs/.

In general, Faculty of Graduate Studies Scholarships will be paid to the student in regular monthly payments on the 27th of each month, after University tuition and fees have been deducted. Payments are made by automatic bank deposit. Deposit advice statements are available on DalOnline. Where warranted, with permission of the Dean of Graduate Studies, a student may receive scholarship funding for a maximum of 12 months while pursuing research off-campus.

Very well qualified scholars who receive awards from federal agencies may also receive Dalhousie supplements within the limits set down by the Faculty of Graduate Studies and/or agencies offering the awards.

There are no appeals on decisions on scholarships, grants or bursaries.

External Scholarships

There are numerous scholarships available from external funding agencies that can be held by students pursuing graduate studies at Dalhousie (and other Universities). A database containing information about these scholarships is available at dalgrad.dal.ca/currentstudents/funding/external.

Bursaries

General Information about Bursaries

Canada Student Loans (with or without provincial bursaries and/or loans) are expected, by provincial authorities, to meet the financial deficiencies of the students. Bursaries subsequently awarded by the University must be reported and are liable to be deducted (in part or in whole) from the amounts originally allocated under the Canada Student Loan Plan or provincial aid program.

Government Notification

Holders of Dalhousie University bursaries should note that the University is required, upon written request, to report its award winners to the respective Provincial Student Aid Authority.

Faculty of Graduate Studies Emergency Bursaries

Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs.

Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered.

Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Awards are for a maximum of $1,000, lower amounts may be awarded. Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal.

The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student

Services.

Research and Travel Grants

Research Grants

Research grants to assist thesis research are available for PhD graduate students in disciplines where such funding would not be available through the research grant(s) of their supervisor or through external grants or awards to the student. In most cases this will be for minor research expenses in disciplines covered by the mandate of the Social Sciences and Humanities Research Council (SSHRC). Students in other disciplines may also apply to the Faculty of Graduate Studies for research grants but in all cases Faculty of Graduate Studies grants can be awarded only when the student has not secured external funding, the supervisor does not have research grant support and no funding is available from the department.

Guidelines and application forms are available on the Faculty of Graduate Studies website at dalgrad.dal.ca/currentstudents/funding/grants. If applicable, students must secure Ethics approval for their research. Further information is available from the Office of Research Ethics Administration Website at http://researchservices.dal.ca/research_7776.html. Students may simultaneously apply for a research grant and ethics approval; however, funds will not be approved until Ethics Approval has been received. Research grants will be established under their supervisor's signing authority.

Conference Travel Grants

Conference travel grants can be awarded to graduate students in thesis programs. In order to be eligible, students must be presenting a poster or paper based on their current program thesis research at a scholarly meeting or conference.

A letter of acceptance from the conference organizers, or a copy of the conference program must accompany the application. The letter of acceptance or conference program must include the name of the applicant, the title of the poster or paper to be presented, and the dates and location of the conference. Department approval must be given to applications.

Travel costs can be claimed only for travel from Halifax to and from the location of the conference, and must be based on the lowest available fares. For conferences held in Nova Scotia only registration costs can be claimed, travel costs and per diem costs are not eligible.

Applications must be received in the Faculty of Graduate Studies office a minimum of one month in advance of the conference. Applications will not be accepted retroactively or for a conference that occurs in the term following the completion of their degree requirements.

Students are eligible to apply for one travel grant during the period of their graduate degree program at Dalhousie.

Guidelines and application forms are available on the Faculty of Graduate Studies website at dalgrad.dal.ca/currentstudents/funding/grants.

Killam Postdoctoral Fellowships

Killam funds provide for postdoctoral fellowships in many fields of study. The annual stipend is $44,000 plus travel, research grants and certain benefits. There are no restrictions regarding nationality of applicants, but non-Canadian candidates must meet all Canadian Immigration requirements. Qualifying applicants should have recently completed a PhD degree at a recognized university and should not hold a permanent academic position to which they will return. Since these Fellowships are intended to attract new scholars to Dalhousie, scholars already at Dalhousie are not eligible to apply, including Dalhousie PhDs, Dalhousie or King's employees, and researchers in residence at Dalhousie or King's with external sources of funding. These awards may be taken up between May 1st and January 15th. Fellows may engage in limited teaching duties in the University. Completed applications and supporting documents must be submitted to the Department in which the applicant wishes to work, no later than December 15th. The results of the competition are usually announced in mid-February, and all applicants nominated by their department are notified of the results.

Awards on Graduate Transcripts

A select number of scholarships and awards are recorded on the official Dalhousie transcript for graduate students. The list of such scholarships and awards is available from the Faculty of Graduate Studies.

Entrance Awards

Faculty of Agriculture Association of Graduate Students Bursary
Any graduate student of the Faculty of Agriculture is eligible to apply (any year; full time or part time). This award is selected based on financial need.
Eligibility: Available to graduate students in the Faculty of Agriculture. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information

The Architects' Association of New Brunswick Scholarship
This scholarship of $1,000 was established by colleagues to the Heinz Fleckenstein Memorial Fund, with additional contributions from the AANB and Dalhousie Architecture Alumni. The scholarship is awarded to a student who is a permanent resident of New Brunswick and is entering the Master of Architecture program. The recipient must demonstrate strong design ability with functional solutions, and an aptitude and knowledge in areas beyond design.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

Black Business Initiative (BBI) Entrance Scholarship
The BBI Entrance Scholarship is awarded to one black Nova Scotian enrolled in the Corporate Residency MBA program.
Eligibility: Candidates must be entering the Corporate Residency MBA program, have lived in Nova Scotia for the past 24 months, have demonstrated academic excellence, strong citizenship, character, and a desire to make a meaningful contribution to the community.
Application Type: Contact the Department, School, or College for more information
Value: $10,000

Centre for International Business Studies First Year Graduate Scholarship
One scholarship is offered to a first year MBA student majoring in International Business. The scholarship recipient is selected on the basis of a career interest in international business and academic performance.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

Chartwells Graduate Student Scholarship
Awarded to a student entering the Master of Science degree program in the Faculty of Agriculture on a full-time basis. The scholarship will be awarded on the basis of academic performance.
Application Type: Automatic Consideration – No Application Required

Design and Construction Institute Engineering and Architecture Scholarship
This scholarship is awarded to a student who shows a commitment to pursuing a career in the design and construction industries in Nova Scotia. The award alternates between the Faculty of Engineering and the School of Architecture, starting with Engineering in 2011. The selection will be based on academic achievement and recommendations from professors.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

Shirley B. Elliott Scholarship
Shirley Burnham Elliott's mother was the first professionally qualified librarian in Nova Scotia. Following in her mother's footsteps, Ms Elliott obtained her library science degree from Simmons College (Boston) in 1940. In 1954 Shirley became Nova Scotia's Legislative Librarian and, during the following 28 years, transformed that library and its services into a modern research library. In 1985 Shirley was awarded an honourary Doctor of Laws degree from Dalhousie; in 2003 she was awarded the Order of Nova Scotia. The Shirley B. Elliott Scholarship is competitive. The minimum grade required to be considered for the Shirley B. Elliott Scholarship is A- (3.70 GPA).
Eligibility: Awarded to an incoming full-time Master of Library and Information Studies student on the basis of academic merit.
Application Type: Automatic Consideration – No Application Required

Exxon Mobil Canada Ltd. Post-Graduate Scholarship
Awarded to an entering graduate student accepted to an advanced research degree in the Faculty of Engineering based on undergraduate academic record. Preference is given to Canadian citizens and permanent residents.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: May 31

FGS Scholarships
Each department has a limited number of scholarships available for students pursuing a degree program on a full-time basis. Scholarships are not offered to anyone on leave from a job with salary continuation. Those wishing to be considered for scholarship assistance are advised to contact the graduate coordinator in the department to which they are applying for details on eligibility and deadlines. Maximum eligibility for scholarships is two Master's years and the first five Doctoral years, but some departments may have a shorter period.
Application Type: Contact the Department, School, or College for more information

Fountain Graduate Fellowships in Music
Fountain Graduate Fellowships have been created in honour of the establishment of the Fountain School of Performing Arts. Applicants to the MA in Musicology program with an academic standing of at least an A- should contact the Graduate Coordinator, Fountain School of Performing Arts, for additional information.
Eligibility: Students entering the MA in Musicology program.
Application Type: Contact the Department, School, or College for more information
Value: $15,000

The Gerald and Margaret Godsoe Scholarship
Established by the Godsoe family to support a highly qualified and motivated individual entering the Master of Environmental Studies (MES) program at Dalhousie. The recipient must hold an honours degree in Natural or Social Sciences, Engineering, Architecture or its equivalent, with first-class standing in his/her course of study or have proof of exceptional merit. Further, the recipient must have made significant contributions through community service, leadership and education on environmental issues. Eligibility is limited to Canadian citizens and permanent residents of Canada living in the country. The recipient will be selected by the Admissions Committee at the School for Resource and Environmental Studies. Students wishing to be considered for this award must append a clearly marked, separate typewritten page to the admission application containing a brief description of activities and community involvement in environmental issues.
Application Type: Contact the Department, School, or College for more information

John Eldon Green Scholarship
This scholarship is awarded to the highest ranking student entering the MSc (OT) program.
Eligibility: Available to students entering the Master of Science - Occupational Therapy program at Dalhousie University. Applicants must be permanent residents of

Prince Edward Island.
Application Type: Contact the Department, School, or College for more information

Mary and John Eldon Green Scholarship
The Mary and Eldon Green Scholarship was established to sustain the pioneering legacy of John Eldon Green and is awarded annually to two Prince Edward Island Masters students, one admitted to enter the School of Social Work and the other to enter the MSc (OT) "entry to practice" program in Occupational Therapy at Dalhousie University. Awards will be presented to the highest ranked student who is a resident of Prince Edward Island on entering each of the two programs.
Application Type: Contact the Department, School, or College for more information

The Professor F. Ronald Hayes International Scholarship
This scholarship fund was established in memory of Professor F. Ronald Hayes, founder and first director of the Institute of Oceanography of Dalhousie University, and in commemoration of the Joint Oceanographic Assembly which was held at Dalhousie during August, 1982. The purpose of the scholarship is to provide financial support. The recipient will be nominated through the normal screening process by the Departmental Graduate Admission Committee.
Eligibility: Available to students entering the first year of the Master of Science or Doctor of Philosophy programs in Oceanography at Dalhousie University. Applicants must be from a developing country.
Application Type: Contact the Faculty of Graduate Studies for more information

The D. O. Hebb Post-Graduate Prize
To honour the memory of Donald Olding Hebb (BA 1925), Professor Emeritus (1977-1985), the Psychology Department established the D. O. Hebb Post- Graduate Prize, which is awarded by the Graduate Program Committee, to an entering Masters and/or PhD student who has demonstrated the best potential to make a significant scientific contribution to the field of Psychology.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

School of Information Management Alumni Award
The Alumni Scholarship is sponsored by SIM's Associated Alumni. The Alumni Scholarship is competitive and is The minimum grade required to be considered for the SIM Alumni Scholarship is A- (3.70 GPA).
Eligibility: Awarded to an incoming full-time MLIS student who has achieved high academic standing, and demonstrated an interest in the profession, and/or experience working or volunteering in the field, through his/her admission essay.
Application Type: Automatic Consideration – No Application Required

School of Information Management New Brunswick Award
The SIM New Brunswick Award was created to support students from New Brunswick who are pursuing the MLIS or combined degree. The SIM New Brunswick Award is competitive. A New Brunswick (NB) student is defined as an individual who declares a NB address on their application. Such an applicant will be an individual who was born in NB, or is a resident of NB, and/or completed high school or a university degree in NB. The minimum grade required to be considered for the SIM New Brunswick Award is B+ (3.30 GPA) in the last two years of undergraduate study.
Eligibility: Awarded to an incoming full-time Master of Library and Information Studies student from New Brunswick on the basis of academic merit.
Application Type: Automatic Consideration – No Application Required

School of Information Management Student Assistantships
SIM's Student Assistants provide support, to a maximum of 60 hours per year, to one or more SIM faculty or staff members.
Eligibility: Awarded to incoming full-time Master of Library and Information students on the basis of academic merit.
Application Type: Automatic Consideration – No Application Required

International Student Awards
Awarded to international students admitted to the MSc program. Awards are given based on academic merit and financial need.
Eligibility: Available to international students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: See dal.ca/scholarships for more information

Barry Johns Scholarship for Design
This $1,000 scholarship, donated by Barry Johns (BArch 1972), is awarded to the student entering the Master of Architecture program who completed the entire BEDS program at Dalhousie University with the highest average grade in Design courses.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

Patricia Keene Scholarship in English
Awarded to deserving students in English in memory of Patricia (Pat) Keene (1924 - 2006).
Application Type: Automatic Consideration – No Application Required

Killam Predoctoral Scholarships
Killam scholars are selected on the basis of nominations made by departments. It is required that nominees also have applied directly for or been nominated for funding from relevant national or international agencies for which they are eligible. Canadian students are eligible for nomination for the Killam Scholarships only if they have applied directly for or been nominated for the relevant national scholarship (NSERC, SSHRC, CIHR, etc.).Only those students registered in a program with a thesis requirement are eligible to hold the Killam Predoctoral Scholarship.Killam scholarship holders must be eligible to receive scholarship support for at least two years. This means that at the Masters level only newly entering students will be considered. Renewal is upon evidence of satisfactory performance at a required minimum level. Masters students may hold a Killam Scholarship for 24 months and Doctoral students for up to 36 months except when holding an honourary award. Then the scholarship can be held for 48 months (only if no Master's Killam was held). The scholarships will be valued at $20,000 for a Master's program and $25,000 for a Doctoral program. Tuition/fees are not waived and must be paid out of the award, but additional funds to assist with transportation to Halifax, and differential fees for foreign students will be supplied. Killam scholars may perform instructing or demonstrating duties, and, if they do, will be given additional remuneration for these services through the employing department.Killam scholarships are open to both Canadians and non- Canadians. PLEASE NOTE: Candidates do not apply for these scholarships. On the basis of the information in a completed application for admission the graduate department concerned may nominate the student to the selection committee. Contact the department Graduate Coordinator for further information.
Application Type: Automatic Consideration – No Application Required
Value: $20,000 (Master's) and $25,000 (PhD)

The Dr. L. F. Kirkpatrick Scholarship
In honour of the dedicated service rendered by Dr. Kirkpatrick as President of Nova Scotia Power Inc., one scholarship is awarded to a student accepted as a full- time graduate student in Engineering (field of study: Power Engineering). The scholarship is awarded based on the academic record of the applicant in the final two years of their undergraduate engineering degree. Preference will be given to a candidate with research interests in the power utility field.
Eligibility: Available to full-time students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

John P. Laba Memorial Research Award
This award is provided through a fund established in memory of John P. Laba by family, friends, patients and colleagues, and may be given annually. The recipient is to be the dentist accepted in the Graduate Program in Oral and Maxillofacial Surgery, and is intended exclusively for the presentation, dissemination and/or publication of research related to Oral and Maxillofacial Surgery. For further information, please contact the Department of Oral and Maxillofacial Surgery.
Eligibility: Available to dentists accepted to the Graduate Program in Oral and Maxillofacial Surgery.
Application Type: Contact the Department, School, or College for more information

Robert P. Longley Memorial Graduate Scholarships
Awarded to Nova Scotia residents entering the Master of Science degree program on a full-time basis at the Faculty of Agriculture. The scholarships will be awarded on the basis of academic performance (cumulative GPA from undergraduate degree).
Application Type: Automatic Consideration – No Application Required

William P. Lydon Scholarship
This scholarship was established in memory of William P. Lydon, a founder of Lydon Lynch. An insightful natural leader, Bill gently encouraged people to realize their potential. He understood the societal value of architecture and its capacity to uplift the human spirit. Bill himself, it seemed, elevated nearly all who knew him. The award is given to a student who has completed the Bachelor of Environmental Design Studies and is entering the Master of Architecture program. The recipient must demonstrate goodwill, kindness, generosity and respect for others, qualities that defined Bill's character, be actively involved in community services, and have a higher than average academic standing.
Application Type: Contact the Department, School, or College for more information
Value: $1,200

Dr. R. M. MacDonald Scholarship
The scholarship pays tribute to Dr. MacDonald's concern to prepare students for the nurse practitioner role. The scholarship is awarded annually to one or more students entering the nurse practitioner stream.
Eligibility: Available to current students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Douglas C. Mackay Scholarship
The Douglas C. Mackay Entrance Scholarships recognize students who express interest in a career in the financial industry. Students wishing to be considered for this scholarship should clearly indicate interest in a career in the financial industry in their application essay.
Eligibility: Available to entering Corporate Residency MBA students with a GPA of 3.70 or greater, a GMAT score of 600 or greater, and an excellent entrance interview.
Application Type: Contact the Department, School, or College for more information
Value: $5,000 - $15,000

Kim MacNutt Scholarship in Planning
One or more scholarships for students entering full-time studies in the Master of Planning program. Recipients will have demonstrated strong academic qualifications, evidence of financial need and a commitment to community service/capacity building.
Application Type: Contact the Department, School, or College for more information

Kim McNutt Scholarship
To honour the memory of Kim Donald McNutt, for a student who has demonstrated strong academic qualifications, evidence of financial need, and a commitment to community service/capacity building.
Eligibility: Awarded to a student entering full-time studies in the Master of Planning program.
Application Type: Contact the Department, School, or College for more information

G. G. Meyerhof Graduate Fellowship
One scholarship is awarded annually, with the possibility of renewal subject to satisfactory performance, to a student accepted in a graduate program in Civil Engineering (field of study: Geotechnical Engineering). Preference is given to Canadian citizens who are graduates in Engineering of recognized Canadian universities.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Lottie M. Morrison Scholarship
The scholarship is awarded to a student entering a Dalhousie University graduate Nursing program who intends to further their studies in the area of Mental Health.
Eligibility: Available to current students in the Master of Nursing or Doctor of Philosophy in Nursing programs at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Nova Scotia Association of Architects Scholarship
Awarded based on academic excellence to a final year Master of Architecture student who is a permanent resident of Nova Scotia and who plans to enter the architectural profession upon graduating.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Black and First Nations Students Graduate Entrance Scholarships
Dalhousie University offers two entrance scholarships, awarded annually, to First Nations and Indigenous Black students entering a Dalhousie graduate program for the first time following graduation from a Dalhousie University undergraduate program. The objective of these scholarships is to increase the representation of Indigenous

Black and First Nations communities in the university's wide diversity of graduate programs, and ultimately in the academy and in advanced professional occupations. To be eligible, applicants must have been accepted, by the application deadline, into a graduate program at Dalhousie. This may be at the Master's or Doctoral level, and may include professional, course-based or thesis- based programs. Students must have been accepted with an admission GPA of 3.3 (B+) or higher. Admission GPA's are based on the last two years (six terms) of undergraduate study. Recipients of this scholarship must begin full-time academic study at Dalhousie in the academic year for which it has been awarded. Successful candidates for an initial award and for renewal will be evaluated by a special Scholarship Committee constituted by the Dean of the Faculty of Graduate Studies. The general rules for Dalhousie Graduate Scholarships will be applied except that, in the case of this scholarship, the award must be taken up in the first year of the degree program. These scholarships are valued at $15,000 each and are renewable for a maximum of one year (three academic terms) for students maintaining good standing in the first year of their program. Renewal is not automatic, but must be applied for using the renewal application forms. Eligibility, conditions and application forms for new and renewal awards are available from the Faculty of Graduate Studies website at dalgrad.dal.ca/currentstudents/funding/nsbfn. The deadline for receipt of new and renewal applications is May 15th.
Eligibility: Available to Black and First Nations students who have completed an undergraduate program at Dalhousie and are staying to pursue graduate studies.
Application Type: Contact the Faculty of Graduate Studies for more information

School of Nursing MN Scholarship
One or more annual scholarships are awarded to students entering, for part-time study, the Master of Nursing program at Dalhousie University. Applicants must have a minimum grade point average of 3.66 and submit an application letter outlining the contribution they can make to nursing and health care as an outcome of graduate study in nursing.
Eligibility: Available to current part-time students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

School of Occupational Therapy Graduate Scholarships
This scholarship supports full or part-time students who are entering the School's Master of Science program. Selection will be based on the student's scholarly achievement to date and is decided by the Committee of the Whole, School of Occupational Therapy, or a sub-committee of selected faculty. One or more scholarships of approximately $250 each are offered annually.
Application Type: Contact the Department, School, or College for more information
Value: $250

Parkin Family Nurse Practitioner Scholarship
This renewable scholarship was established by Dr. Robert Parkin in recognition of his appreciation for the Nurse Practitioner role.
Eligibility: Open to Master of Nursing students entering the Nurse Practitioner option. The recipient will have demonstrated a high level of academic achievement (3.70 GPA or higher) and will have shown ability, interest, and commitment to work in underserviced communities.
Application Type: Automatic Consideration – No Application Required

President's Award
At Dalhousie we actively recruit the brightest minds and deepest thinkers; graduate students who will push the innovation agenda and shape the future. The President's Awards provide a competitive edge at Dalhousie to attract and retain those PhD students who are successful in the competition for national scholarships. This award is targeted to students starting PhD programs who have a full doctoral scholarship from one of the specified agencies. The Specified Agencies are NSERC (PGSD or CGSD), SSHRC (Doctoral or CGSD), CIHR (Doctoral or CGSD), Killam (Doctoral) and/or Vanier. The award will cover tuition but not international differential fees or other student fees. It will be granted for up to the first two years for PhD students. The award will be granted for each term that the student is registered as a full time student, paying full tuition (i.e., not continuing fees) provided that the student is receiving a full doctoral scholarship from one of the specified agencies and that tuition is not covered by any other award, agency or government. The Faculty of Graduate Studies will notify eligible students and departments following admission. The Award will be verified and applied to the student's tuition each term for the duration of the award.
Application Type: Automatic Consideration – No Application Required

George C. Reid and Lucille M. Reid Scholarships
Awarded to students accepted to a research degree graduate program in the Department of Mechanical Engineering. Preference will be given to new applicants for MASc degree. The scholarship may be renewed based on satisfactory performance, once for the MASc degree and twice for the PhD degree. Selection will be made by the Engineering Graduate Studies Coordinator, based on recommendations from the Department of Mechanical Engineering.
Eligibility: Available to graduate students entering research degree programs in Mechanical Engineering, with preference given to new applicants to the MASc program.
Application Type: Contact the Faculty of Graduate Studies for more information

Eliza Ritchie Doctoral Scholarship for Women
The Eliza Ritchie Doctoral Scholarship was established to commemorate Women's Centennial Year (1985) and to recognize the contribution to Dalhousie of one of its most important nineteenth-century graduates. After completing her undergraduate studies at Dalhousie in 1887, Eliza Ritchie (1856-1933) became one of the first Canadian women to receive a PhD degree (Cornell University, 1889). She cut short her professional career at Wellesley College to return to Halifax in 1899, where she devoted her energies to feminist and cultural causes, and to Dalhousie, for the rest of her life. She was the first warden of a Dalhousie women's residence (Forrest Hall, 1912-1913), the first woman to serve as a member of the Dalhousie Board of Governors (1919-1925), a founding member of the editorial board of the Dalhousie Review, and the first woman to receive an honorary degree from Dalhousie (LLD 1927). Scholarships are awarded to Canadians and permanent residents only and preference given to candidates fromthe Atlantic provinces. Among such applicants preference will be given to those in disciplines in which women are under represented. The award will have a value of $24,000 for a 12 month academic period at Dalhousie and is renewable (upon application) for two additional years. One scholarship may be awarded each year.
Eligibility: Available to female students in the Doctor of Philosophy program at Dalhousie University. The deadline for receipt of the prescribed application is March 15th. Additional information and application forms (new or renewal) are available on the Faculty of Graduate Studies website
(http://www.dal.ca/faculty/gradstudents/funding/scholarships/eliza.html
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: March 15
Value: $24,000

James Robinson Johnston Graduate Scholarship for African Canadians (Master's)
The James Robinson Johnston Graduate Scholarship is supported by the Faculty of Graduate Studies and the Endowment for the James Robinson Johnston Chair in Black Canadian Studies at Dalhousie as part of the commitment of the Johnston endowment and the university to support the development of Black Canadian scholars in graduate studies and the professions. James R. Johnston was Dalhousie's first Black graduate in the Law Faculty in 1898 and was a major figure in the legal profession and the Black community throughout his short life. Today young African Canadians can be found pursuing studies in the Arts, Sciences, Health Professions

and Management as well as the traditional professions of Law, Dentistry and Medicine. This scholarship is intended to provide an opportunity for promising African Canadian students to pursue their work at the graduate level. Successful candidates for an initial award and for renewals will be identified by the James Robinson Johnston Scholarship Committee. The general rules for Dalhousie Graduate Scholarships will be applied except that, in the case of this scholarship, the award must be taken up initially in the first year of the degree program. Scholarships are valued at $15,000 (Master's level) and $19,000 (Doctoral level) per year for a 12 month academic year of full-time study. The tuition and fees are not waived and must be paid out of the award. Scholarships may be renewed, subject to satisfactory annual progress review, for one additional year (Master's level) or two additional years (Doctoral level). Scholarship awards can not extend beyond two years of Master's level study or four years of doctoral level study. Renewal is not automatic, but must be applied for using the renewal application forms.
Eligibility: Available to Black students in any Master's degree program.
Application Type: Contact the Faculty of Graduate Studies for more information

James Robinson Johnston Graduate Scholarship for African Canadians (PhD)
The James Robinson Johnston Graduate Scholarship is supported by the Faculty of Graduate Studies and the Endowment for the James Robinson Johnston Chair in Black Canadian Studies at Dalhousie as part of the commitment of the Johnston endowment and the university to support the development of Black Canadian scholars in graduate studies and the professions. James R. Johnston was Dalhousie's first Black graduate in the Law Faculty in 1898 and was a major figure in the legal profession and the Black community throughout his short life. Today young African Canadians can be found pursuing studies in the Arts, Sciences, Health Professions and Management as well as the traditional professions of Law, Dentistry and Medicine. This scholarship is intended to provide an opportunity for promising African Canadian students to pursue their work at the graduate level. Successful candidates for an initial award and for renewals will be identified by the James Robinson Johnston Scholarship Committee. The general rules for Dalhousie Graduate Scholarships will be applied except that, in the case of this scholarship, the award must be taken up initially in the first year of the degree program. Scholarships are valued at $15,000 (Master's level) and $19,000 (Doctoral level) per year for a 12 month academic year of full-time study. The tuition and fees are not waived and must be paid out of the award. Scholarships may be renewed, subject to satisfactory annual progress review, for one additional year (Master's level) or two additional years (Doctoral level). Scholarship awards can not extend beyond two years of Master's level study or four years of doctoral level study. Renewal is not automatic, but must be applied for using the renewal application forms.
Eligibility: Available to Black students in any Doctor of Philosophy degree program at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information

George W. Rogers Award
This award of up to $1,000 was established in memory of Donald L. Dunkee, Professor of Architecture at the University of Manitoba for 25 years. The award was named in honour of his student, George W. Rogers, a successful Halifax architect who has been an RAIC member, active in the community, and has received a Governor General's Award for Architecture. The award is given to a Canadian student who has earned a Bachelor of Environmental Design Studies degree and is entering the MArch program. The recipient must be active in student life, extracurricular and community activities; demonstrate potential to contribute to the architecture profession; and display exceptional academic standing. Financial need may be a consideration.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

Rowe Scholarships (MBA)
Our Rowe Scholarships recognize undergraduate academic excellence and high performance in both the GMAT and interview process.
Eligibility: Available to students entering the Corporate Residence MBA program, with a strong GPA (3.70 or better), GMAT score (600 or greater), and entrance interview.
Application Type: Contact the Department, School, or College for more information
Value: $2,500 - $15,000

Walter Gardner Stanfield Scholarships
Awarded to students entering the first term of a graduate program in the School of Architecture or the School of Planning based on the quality of work submitted in support of their application for admission, academic excellence, and outstanding preparedness for the program to be undertaken in the Faculty. All applications for graduate study received by the first day of the summer term prior to entering the program will be considered automatically.
Application Type: Automatic Consideration – No Application Required

Hilda and Albert Tyler Prize
Awarded annually to a the leading Honours graduate in the Department of English who intends to proceed to a Master's degree in English at Dalhousie University. Emphasis will be placed on the depth of scholarship and meticulous research work. The recipient will have deomonstrated sound scholarship and good literary style.
Eligibility: Honours English student from Dalhousie who intends to pursue an MA in English at Dalhousie.
Application Type: Automatic Consideration – No Application Required

H.W. Wilson Foundation Grant
Since 1957, the H.W. Wilson Foundation has supported U.S. and Canadian library and information science schools accredited by the American Library Association through a scholarship grant program. In the School of Information Management, the H.W. Wilson Grant is competitive. The minimum grade required to be considered for the H.W. Wilson Foundation Grant is A- (3.70 GPA).
Eligibility: Awarded to an incoming full-time Master of Library and Information Studies student on the basis of academic merit.
Application Type: Automatic Consideration – No Application Required

In Course Awards

In-Course Awards

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

Faculty of Agriculture

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Agriculture Awards

Faculty of Agriculture Graduate Entrance Scholarships
Students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered. Evaluation is based on academic performance.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Faculty of Agriculture International Graduate Entrance Scholarships
International students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered for these awards. Evaluation is based on academic performance.
Eligibility: Available to full-time international students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Stuart and Ruth Allaby Graduate Studies Scholarship
Awarded to a Master of Science student concentrating on animal research.
Application Type: Faculty of Agriculture In-Course Award Application

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering

Eligibility: Open to MSc Agriculture students from Atlantic Canada conducting research in an engineering discipline.
Application Type: Faculty of Agriculture In-Course Award Application

Edward Brown Memorial Graduate Scholarship
In memory of Edward Brown, Class of 1954, a scholarship is awarded annually to an outstanding graduate of an undergraduate degree from the Dalhousie Faculty of Agriculture (formerly NSAC), studying in the second year of the Master of Science in the same faculty.
Eligibility: Available to second year Master of Science students at the Faculty of Agriculture with preference given to residents of Nova Scotia, followed by residents of one of the Atlantic provinces (NB, NS, NL, PEI). See award description for specific eligibility requirements.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Canard Graduate Conservation Fund Scholarship
Awarded to a graduate student conducting research work on environmental issues. Selection criteria include: research aptitude and experience relevant of the applicant's research to conservation issues and sound academic performance.
Eligibility: Available to all full-time graduate students in the Faculty of Agriculture at Dalhousie, with preference given to students in the second year of study in the MSc program. Applicants must be conducting research relating to environmental issues.
Application Type: Faculty of Agriculture In-Course Award Application

Class of '58 Scholarship

Eligibility: Awarded to a MSc Agriculture student based on strong academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application

Class of 1956 Graduate Student Scholarship
Awarded to a graduate student conducting a research project in one of the following areas of study: agricultural economics and policy, social sciences, engineering and environmental sciences. The scholarship is intended to stimulate research on rural water supply and rural watershed management in Atlantic Canada.
Application Type: Contact the Faculty of Graduate Studies for more information

Dalhousie Agricultural Students' Association Awards
Dalhousie Agricultural Students' Association (DASA) is the student association for all students at the Dalhousie Agricultural Campus. DASA is the official voice of the student body, and provides leadership and vision for the students of the Agricultural Campus. DASA promotes student engagement and leadership through various campus activities including Orientation, Shinerama, College Royal and Winter Carnival. DASA also promotes student engagement within the surrounding communities of Truro and Bible Hill. DASA works closely with Student Services and Administration to collectively provide a welcoming community dedicated to higher learning and service to the community.
Eligibility: Awarded to students enrolled in the Faculty of Agriculture who have demonstrated, in the current academic year, exceptional school spirit and involvement in any or all of the following: DASA sponsored events, volunteering, campus community leadership.
Application Type: Automatic Consideration – No Application Required
Value: 2 @ $300

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Agriculture Graduate Scholarship

Eligibility: Awarded to a MSc Agriculture or PhD student whose primary supervisor is in the Faculty of Agriculture. The award is based on strong academic performance and demonstrated financial need.
Application Type: Faculty of Agriculture In-Course Award Application

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

Graduate Research Training Initiative (GRTI) Scholarships
This program provides scholarships to high caliber students who are engaged in a research-based Master of Science program and who are conducting research that will benefit Nova Scotia's agriculture and agri-food industry. This initiative is intended to ensure a reliable supply of highly-qualified personnel to meet the future needs of Nova Scotia's agri-food industry.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie. Applicants must be conducting research relating to Nova Scotia's Agriculture and Agri-Food industry.
Application Type: Contact the Faculty of Graduate Studies for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Gordon B. Kinsman Memorial Graduate Scholarships
Awarded to graduate students registered in the MSc Agriculture program who are conducting research work related to the blueberry industry.
Application Type: Faculty of Agriculture In-Course Award Application

Dr. Herbert F. MacRae Memorial Dalhousie Faculty of Agriculture/ Macdonald College Exchange Award
This award is designed to support student exchange between the Faculty of Agriculture and Macdonald College of McGill University.
Eligibility: Available to all graduate students in the Faculty of Agriculture participating in an exchange program at McGill University.
Application Type: Contact awards@dal.ca for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Allan A. Saunders Memorial Graduate Scholarship
Awarded annually to a graduate student conducting research relating to the dairy industry. Applicants who have completed their undergraduate degree at the Faculty of Agriculture who wish to pursue their Masters at another post-secondary institution will be considered. Selection criteria include academic performance, dairy farm background and/or demonstrated interest in the dairy industry and financial need.
Application Type: Faculty of Agriculture In-Course Award Application

Dr. Chesley E. Smith Memorial Graduate Scholarship
Awarded annually, with preference to students whose course and project work reflect an interest in plant science or agronomy. Selection criteria include academic performance and financial need.
Eligibility: Available to all graduate students in the Faculty of Agriculture at Dalhousie, with preference given to those with a demonstrated interest in Plant Science or Agronomy.
Application Type: Faculty of Agriculture In-Course Award Application

Syngenta Graduate Student Scholarship
Awarded annually to an Master of Science student conducting research pertaining to sustainable agriculture. For the purposes of this award, 'sustainable agriculture' will be described as a balance between social, environmental and economic priorities. Project areas eligible for support will focus on environmental quality and resource management, land management, integrated pest management, introduction of new technologies, economic viability and rural community sustainability. Selection criteria include academic performance and research goals consistent with sustainable agriculture.
Eligibility: Available to current Master of Science students at the Faculty of Agriculture.

Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Zhuhui Ye Memorial Award
This fund was established by classmates of Zhuhui Ye (Kevin) to honour his memory. Kevin attended the former Nova Scotia Agricultural College as part of the FAFU 2+2 program, earning his BSc(Agr) in Aquaculture in 2012. Kevin continued his studies with the Dalhousie MSc. program. On September 8, 2012, Kevin lost his life in a drowning accident at Dollar Lake Provincial Park. Kevin is well remembered as an intelligent, popular, and outgoing man whose generosity touched the lives of many friends. The intent of the Zhuhui Ye Memorial Award is to further the understanding of culture and relationship between Chinese and Canadian students by supporting the FAFU/DAC 2+2 program.
Eligibility: Award to a Chinese student in the FAFU 2+2 program or another student demonstrating a commitment to and involvement with the FAFU 2+2 program at the Faculty of Agriculture, in addition to academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check dal.ca/scholarships for application deadlines
Value: $500

Business and Social Sciences

Faculty of Agriculture Graduate Entrance Scholarships
Students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered. Evaluation is based on academic performance.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Faculty of Agriculture International Graduate Entrance Scholarships
International students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered for these awards. Evaluation is based on academic performance.
Eligibility: Available to full-time international students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Stuart and Ruth Allaby Graduate Studies Scholarship
Awarded to a Master of Science student concentrating on animal research.
Application Type: Faculty of Agriculture In-Course Award Application

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering

Eligibility: Open to MSc Agriculture students from Atlantic Canada conducting research in an engineering discipline.
Application Type: Faculty of Agriculture In-Course Award Application

Edward Brown Memorial Graduate Scholarship
In memory of Edward Brown, Class of 1954, a scholarship is awarded annually to an outstanding graduate of an undergraduate degree from the Dalhousie Faculty of Agriculture (formerly NSAC), studying in the second year of the Master of Science in the same faculty.
Eligibility: Available to second year Master of Science students at the Faculty of Agriculture with preference given to residents of Nova Scotia, followed by residents of one of the Atlantic provinces (NB, NS, NL, PEI). See award description for specific eligibility requirements.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Canard Graduate Conservation Fund Scholarship
Awarded to a graduate student conducting research work on environmental issues. Selection criteria include: research aptitude and experience relevant of the applicant's research to conservation issues and sound academic performance.
Eligibility: Available to all full-time graduate students in the Faculty of Agriculture at Dalhousie, with preference given to students in the second year of study in the MSc program. Applicants must be conducting research relating to environmental issues.
Application Type: Faculty of Agriculture In-Course Award Application

Class of '58 Scholarship

Eligibility: Awarded to a MSc Agriculture student based on strong academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application

Class of 1956 Graduate Student Scholarship
Awarded to a graduate student conducting a research project in one of the following areas of study: agricultural economics and policy, social sciences, engineering and environmental sciences. The scholarship is intended to stimulate research on rural water supply and rural watershed management in Atlantic Canada.
Application Type: Contact the Faculty of Graduate Studies for more information

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Eligibility: Awarded to students enrolled in the Faculty of Agriculture who have demonstrated, in the current academic year, exceptional school spirit and involvement in any or all of the following: DASA sponsored events, volunteering, campus community leadership.
Application Type: Automatic Consideration – No Application Required
Value: 2 @ $300

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Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Agriculture Graduate Scholarship

Eligibility: Awarded to a MSc Agriculture or PhD student whose primary supervisor is in the Faculty of Agriculture. The award is based on strong academic performance and demonstrated financial need.
Application Type: Faculty of Agriculture In-Course Award Application

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying “good human conduct”. Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

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This program provides scholarships to high caliber students who are engaged in a research-based Master of Science program and who are conducting research that will benefit Nova Scotia’s agriculture and agri-food industry. This initiative is intended to ensure a reliable supply of highly-qualified personnel to meet the future needs of Nova Scotia’s agri-food industry.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie. Applicants must be conducting research relating to Nova Scotia’s Agriculture and Agri-Food industry.
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

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Awarded annually to a graduate student conducting research relating to the dairy industry. Applicants who have completed their undergraduate degree at the Faculty of Agriculture who wish to pursue their Masters at another post-secondary institution will be considered. Selection criteria include academic performance, dairy farm background and/or demonstrated interest in the dairy industry and financial need.
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Awarded annually, with preference to students whose course and project work reflect an interest in plant science or agronomy. Selection criteria include academic performance and financial need.
Eligibility: Available to all graduate students in the Faculty of Agriculture at Dalhousie, with preference given to those with a demonstrated interest in Plant Science or Agronomy.
Application Type: Faculty of Agriculture In-Course Award Application

Syngenta Graduate Student Scholarship
Awarded annually to an Master of Science student conducting research pertaining to sustainable agriculture. For the purposes of this award, 'sustainable agriculture' will be described as a balance between social, environmental and economic priorities. Project areas eligible for support will focus on environmental quality and resource management, land management, integrated pest management, introduction of new technologies, economic viability and rural community sustainability. Selection criteria include academic performance and research goals consistent with sustainable agriculture.

Eligibility: Available to current Master of Science students at the Faculty of Agriculture.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Zhuhui Ye Memorial Award
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Eligibility: Award to a Chinese student in the FAFU 2+2 program or another student demonstrating a commitment to and involvement with the FAFU 2+2 program at the Faculty of Agriculture, in addition to academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check dal.ca/scholarships for application deadlines
Value: $500

Engineering

Dalhousie Agricultural Students' Association Awards
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Value: 2 @ $300

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Application Deadline: mid-February

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Value: $500

Environmental Sciences

Faculty of Agriculture Graduate Entrance Scholarships
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Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
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Eligibility: Available to full-time international students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
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Eligibility: Available to all full-time graduate students in the Faculty of Agriculture at Dalhousie, with preference given to students in the second year of study in the MSc program. Applicants must be conducting research relating to environmental issues.
Application Type: Faculty of Agriculture In-Course Award Application

Class of '58 Scholarship

Eligibility: Awarded to a MSc Agriculture student based on strong academic performance and financial need.
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Value: 2 @ $300

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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
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Application Deadline: mid-February

Graduate Research Training Initiative (GRTI) Scholarships
This program provides scholarships to high caliber students who are engaged in a research-based Master of Science program and who are conducting research that will benefit Nova Scotia's agriculture and agri-food industry. This initiative is intended to ensure a reliable supply of highly-qualified personnel to meet the future needs of Nova Scotia's agri-food industry.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie. Applicants must be conducting research relating to Nova Scotia's Agriculture and Agri-Food industry.
Application Type: Contact the Faculty of Graduate Studies for more information

Gordon B. Kinsman Memorial Graduate Scholarships
Awarded to graduate students registered in the MSc Agriculture program who are conducting research work related to the blueberry industry.
Application Type: Faculty of Agriculture In-Course Award Application

Dr. Herbert F. MacRae Memorial Dalhousie Faculty of Agriculture/ Macdonald College Exchange Award
This award is designed to support student exchange between the Faculty of Agriculture and Macdonald College of McGill University.
Eligibility: Available to all graduate students in the Faculty of Agriculture participating in an exchange program at McGill University.
Application Type: Contact awards@dal.ca for more information

The Allan A. Saunders Memorial Graduate Scholarship
Awarded annually to a graduate student conducting research relating to the dairy industry. Applicants who have completed their undergraduate degree at the Faculty of Agriculture who wish to pursue their Masters at another post-secondary institution will be considered. Selection criteria include academic performance, dairy farm background and/or demonstrated interest in the dairy industry and financial need.
Application Type: Faculty of Agriculture In-Course Award Application

Dr. Chesley E. Smith Memorial Graduate Scholarship
Awarded annually, with preference to students whose course and project work reflect an interest in plant science or agronomy. Selection criteria include academic performance and financial need.
Eligibility: Available to all graduate students in the Faculty of Agriculture at Dalhousie, with preference given to those with a demonstrated interest in Plant Science or Agronomy.
Application Type: Faculty of Agriculture In-Course Award Application

Syngenta Graduate Student Scholarship
Awarded annually to an Master of Science student conducting research pertaining to sustainable agriculture. For the purposes of this award, 'sustainable agriculture' will be described as a balance between social, environmental and economic priorities. Project areas eligible for support will focus on environmental quality and resource management, land management, integrated pest management, introduction of new technologies, economic viability and rural community sustainability. Selection criteria include academic performance and research goals consistent with sustainable agriculture.
Eligibility: Available to current Master of Science students at the Faculty of Agriculture.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Zhuhui Ye Memorial Award
This fund was established by classmates of Zhuhui Ye (Kevin) to honour his memory. Kevin attended the former Nova Scotia Agricultural College as part of the FAFU 2+2 program, earning his BSc(Agr) in Aquaculture in 2012. Kevin continued his studies with the Dalhousie MSc. program. On September 8, 2012, Kevin lost his life in a drowning accident at Dollar Lake Provincial Park. Kevin is well remembered as an intelligent, popular, and outgoing man whose generosity touched the lives of many friends. The intent of the Zhuhui Ye Memorial Award is to further the understanding of culture and relationship between Chinese and Canadian students by supporting the FAFU/DAC 2+2 program.
Eligibility: Award to a Chinese student in the FAFU 2+2 program or another student demonstrating a commitment to and involvement with the FAFU 2+2 program at the Faculty of Agriculture, in addition to academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check dal.ca/scholarships for application deadlines
Value: $500

Plant and Animal Science

Faculty of Agriculture Graduate Entrance Scholarships
Students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered. Evaluation is based on academic performance.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Faculty of Agriculture International Graduate Entrance Scholarships
International students who have applied for admission to the graduate program at the Dalhousie Faculty of Agriculture by June 30th each year will be considered for these awards. Evaluation is based on academic performance.
Eligibility: Available to full-time international students entering the Master of Science program in the Faculty of Agriculture at Dalhousie.
Application Type: Automatic Consideration – No Application Required

Stuart and Ruth Allaby Graduate Studies Scholarship
Awarded to a Master of Science student concentrating on animal research.
Application Type: Faculty of Agriculture In-Course Award Application

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering

Eligibility: Open to MSc Agriculture students from Atlantic Canada conducting research in an engineering discipline.
Application Type: Faculty of Agriculture In-Course Award Application

Edward Brown Memorial Graduate Scholarship
In memory of Edward Brown, Class of 1954, a scholarship is awarded annually to an outstanding graduate of an undergraduate degree from the Dalhousie Faculty of Agriculture (formerly NSAC), studying in the second year of the Master of Science in the same faculty.
Eligibility: Available to second year Master of Science students at the Faculty of Agriculture with preference given to residents of Nova Scotia, followed by residents of one of the Atlantic provinces (NB, NS, NL, PEI). See award description for specific eligibility requirements.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Canard Graduate Conservation Fund Scholarship
Awarded to a graduate student conducting research work on environmental issues. Selection criteria include: research aptitude and experience relevant of the applicant's research to conservation issues and sound academic performance.
Eligibility: Available to all full-time graduate students in the Faculty of Agriculture at Dalhousie, with preference given to students in the second year of study in the MSc program. Applicants must be conducting research relating to environmental issues.
Application Type: Faculty of Agriculture In-Course Award Application

Class of '58 Scholarship

Eligibility: Awarded to a MSc Agriculture student based on strong academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application

Class of 1956 Graduate Student Scholarship

Awarded to a graduate student conducting a research project in one of the following areas of study: agricultural economics and policy, social sciences, engineering and environmental sciences. The scholarship is intended to stimulate research on rural water supply and rural watershed management in Atlantic Canada.
Application Type: Contact the Faculty of Graduate Studies for more information

Dalhousie Agricultural Students' Association Awards
Dalhousie Agricultural Students' Association (DASA) is the student association for all students at the Dalhousie Agricultural Campus. DASA is the official voice of the student body, and provides leadership and vision for the students of the Agricultural Campus. DASA promotes student engagement and leadership through various campus activities including Orientation, Shinerama, College Royal and Winter Carnival. DASA also promotes student engagement within the surrounding communities of Truro and Bible Hill. DASA works closely with Student Services and Administration to collectively provide a welcoming community dedicated to higher learning and service to the community.
Eligibility: Awarded to students enrolled in the Faculty of Agriculture who have demonstrated, in the current academic year, exceptional school spirit and involvement in any or all of the following: DASA sponsored events, volunteering, campus community leadership.
Application Type: Automatic Consideration – No Application Required
Value: 2 @ $300

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Agriculture Graduate Scholarship

Eligibility: Awarded to a MSc Agriculture or PhD student whose primary supervisor is in the Faculty of Agriculture. The award is based on strong academic performance and demonstrated financial need.
Application Type: Faculty of Agriculture In-Course Award Application

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying “good human conduct”. Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

Graduate Research Training Initiative (GRTI) Scholarships
This program provides scholarships to high caliber students who are engaged in a research-based Master of Science program and who are conducting research that will benefit Nova Scotia’s agriculture and agri-food industry. This initiative is intended to ensure a reliable supply of highly-qualified personnel to meet the future needs of Nova Scotia’s agri-food industry.
Eligibility: Available to all students entering the Master of Science program in the Faculty of Agriculture at Dalhousie. Applicants must be conducting research relating to Nova Scotia’s Agriculture and Agri-Food industry.
Application Type: Contact the Faculty of Graduate Studies for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Gordon B. Kinsman Memorial Graduate Scholarships
Awarded to graduate students registered in the MSc Agriculture program who are conducting research work related to the blueberry industry.
Application Type: Faculty of Agriculture In-Course Award Application

Dr. Herbert F. MacRae Memorial Dalhousie Faculty of Agriculture/ Macdonald College Exchange Award
This award is designed to support student exchange between the Faculty of Agriculture and Macdonald College of McGill University.
Eligibility: Available to all graduate students in the Faculty of Agriculture participating in an exchange program at McGill University.
Application Type: Contact awards@dal.ca for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Allan A. Saunders Memorial Graduate Scholarship
Awarded annually to a graduate student conducting research relating to the dairy industry. Applicants who have completed their undergraduate degree at the Faculty of Agriculture who wish to pursue their Masters at another post-secondary institution will be considered. Selection criteria include academic performance, dairy farm background and/or demonstrated interest in the dairy industry and financial need.

Application Type: Faculty of Agriculture In-Course Award Application

Dr. Chesley E. Smith Memorial Graduate Scholarship
Awarded annually, with preference to students whose course and project work reflect an interest in plant science or agronomy. Selection criteria include academic performance and financial need.
Eligibility: Available to all graduate students in the Faculty of Agriculture at Dalhousie, with preference given to those with a demonstrated interest in Plant Science or Agronomy.
Application Type: Faculty of Agriculture In-Course Award Application

Syngenta Graduate Student Scholarship
Awarded annually to an Master of Science student conducting research pertaining to sustainable agriculture. For the purposes of this award, 'sustainable agriculture' will be described as a balance between social, environmental and economic priorities. Project areas eligible for support will focus on environmental quality and resource management, land management, integrated pest management, introduction of new technologies, economic viability and rural community sustainability. Selection criteria include academic performance and research goals consistent with sustainable agriculture.
Eligibility: Available to current Master of Science students at the Faculty of Agriculture.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check moneymatters.dal.ca for application deadline

Zhuhui Ye Memorial Award
This fund was established by classmates of Zhuhui Ye (Kevin) to honour his memory. Kevin attended the former Nova Scotia Agricultural College as part of the FAFU 2+2 program, earning his BSc(Agr) in Aquaculture in 2012. Kevin continued his studies with the Dalhousie MSc. program. On September 8, 2012, Kevin lost his life in a drowning accident at Dollar Lake Provincial Park. Kevin is well remembered as an intelligent, popular, and outgoing man whose generosity touched the lives of many friends. The intent of the Zhuhui Ye Memorial Award is to further the understanding of culture and relationship between Chinese and Canadian students by supporting the FAFU/DAC 2+2 program.
Eligibility: Award to a Chinese student in the FAFU 2+2 program or another student demonstrating a commitment to and involvement with the FAFU 2+2 program at the Faculty of Agriculture, in addition to academic performance and financial need.
Application Type: Faculty of Agriculture In-Course Award Application
Application Deadline: Check dal.ca/scholarships for application deadlines
Value: $500

Faculty of Architecture and Planning

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Architecture and Planning Awards

The Henry Adams Medal and The Henry Adams Certificate
Awarded by the American Institute of Architects to top-ranking graduating students from the MArch program who have achieved general excellence throughout the program. Application not required.
Application Type: Automatic Consideration – No Application Required

Adjeleian Award in the Aesthetics of Structures
Awarded to a graduating student in either the Master of Architecture program or the Civil Engineering degree program who demonstrates in a project both aesthetic principles in buildings or bridges and unified roots of Architecture and Structural Engineering. The award alternates between Architecture and Engineering, with the next award to Architecture in 2017. Application not required (for Architecture).
Eligibility: Available to a Master of Architecture or a Bachelor of Engineering (Civil Engineering) student.
Application Type: Contact the Faculty for more information

The Alpha Rho Chi Medal
Alpha Rho Chi, National Social-Professional Fraternity of Architecture, awards the Alpha Rho Chi Medal to a graduating senior of the School of Architecture who has shown an ability for leadership, performed willing service for the School, and gives promise of real professional merit through attitude and personality.
Application Type: Automatic Consideration – No Application Required

The Alumni Memorial Award
This award, which was initiated in 1984 in the memory of Mr. Michael Kravosky (BArch 1983), is awarded each year to a graduating student elected by the graduating class for outstanding service to the school in student activities and affairs. The award is made from the proceeds of the Architecture Alumni Memorial Fund, and is subject to annual review.
Application Type: Automatic Consideration – No Application Required

School of Architecture Thesis Prize
The School of Architecture awards a prize to one or more students who have completed an outstanding design thesis in the Master of Architecture program.
Application Type: Automatic Consideration – No Application Required

Architecture and Planning Bursaries
Proceeds from the former TUNS Board of Governors Fund are used at the Dean's discretion. They provide up to five $1,000 bursaries to assist full-time students

entering the winter term of the Bachelor of Environmental Design Studies or Master of Architecture program in the School of Architecture or the Bachelor of Community Design or Master of Planning program in the School of Planning. Applicants must be making satisfactory academic progress and must demonstrate financial need by submitting a bursary application. Selections are made by the Scholarship Committees of the School of Architecture and the School of Planning.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

Brant Wishart Memorial Scholarship
Brant Wishart Memorial Scholarship is given to a student of Planning who has demonstrated academic excellence and leadership. Value $1,000, awarded annually in April.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

H. Allen Brooks Traveling Fellowship
This award is made periodically to an exceptionally promising student who is graduating from (or has recently graduated from) a professional architecture or planning degree program in the Faculty of Architecture and Planning. It enables the recipient to travel and contemplate while observing, sketching, reading, or writing. It provides time to think and mature, while acquiring knowledge that will be useful for their future work and contribution to the profession and society.
Eligibility: Available to graduate students completing their studies in the Faculty of Architecture and Planning at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

Canadian Institute of Planners Student Scholarships
Awarded to a student member in good standing with the CIP and enrolled full-time in a recognized planning program. Applications forms are available from the School of Planning and must be received by the CIP national office by the date indicated on the application. Applications are judged on the basis of a student's potential contribution to the planning profession (in theory or in practice) and their potential service to a community or community group.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Canadian Institute of Planners Student Award for Academic Excellence
Awarded to a full-time student member of the Canadian Institute of Planners who has achieved the highest academic standing over the length of the MPlan program.
Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Floyd Dykeman Prize in Rural Planning
A planning student in the final year of study who engages in innovative research on rural planning, who conducts a special project, who develops an inspiring thesis or who shows outstanding service to others.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

Exxon Mobil Canada Ltd. Scholarship

Awarded to a student entering a graduate program in the School of Planning with academic excellence and an interest in studying the impacts and design-related issues of energy developments.
Application Type: Contact the Department, School, or College for more information
Value: $7,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Jonathan Hart Memorial Fund
This fund was established in memory of Jonathan Hart (MArch 1996) by Mr. Justice Gordon Hart and Mrs. Catherine Hart, following Jonathan's request to support architecture in the community. Proceeds from this fund are used periodically to bring architectural work to the public, and to encourage young architects and businesses to work together on projects for the betterment of the community. Selection is made by the School of Architecture.
Eligibility: Available to Master of Architecture students.
Application Type: Contact the Department, School, or College for more information

George Lawen / Dexel Developments Scholarship
Dexel Developments is an award-winning mixed-use property developer focused primarily on residential apartments and the regeneration of existing heritage properties located in the Halifax business district. The George Lawen/Dexel Developments Scholarship was created in 2010 by Louis Lawen to recognize and support the crucial role of planning to the future development of Halifax and the surrounding area by supporting a student who intends to pursue a career in the Maritimes. The scholarship is named in honour of Louis' father, George Lawen. The scholarship will provide a $5,000 award to a student entering the final year of the Master of Planning program, with second preference to a student entering the final year of the Master of Architecture program. The student will have demonstrated active involvement in community service, and will have a high academic standing and an interest in urban design or urban planning.
Application Type: Contact the Department, School, or College for more information
Value: $5,000

Dorothy Leslie Prize
This prize, named after the former secretary of the School of Planning, is awarded to a student finishing the first year of the Masters program who has made a significant contribution to the life of the School.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Nova Scotia Association of Architects Prize
The Nova Scotia Association of Architects gives a prize to a student who, in the final year of the Master of Architecture program, displays an outstanding awareness of the architect's responsibility to society by demonstration in his/her scholarly and design work.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Association of Architects - Ojars Biskaps Award
The Ojars Biskaps Award honours the memory of Professor Ojars Biskaps, who provided distinguished service to both the academic and professional architecture communities of Nova Scotia. Professor Biskaps was a beloved teacher at the School of Architecture, a significant designer working in collaboration with local architecture practices, and past president of the Nova Scotia Association of Architects. His love of drawing, as a means of documentation, inquiry, storytelling, and humour, characterized his work and life. This $1,000 award is given by the School of Architecture to a student who has completed the Bachelor of Environmental Design Studies program and is entering the Master of Architecture program, based on a year four portfolio that integrates academic study and design practice, and uses drawing for architectural inquiry and expression.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

The William Nycum and Associates Limited Scholarship
Awarded to the student who has successfully completed the first term of the Master of Architecture program and who most strongly demonstrates creative thinking and a passion for architecture. Candidates should submit a one-page application demonstrating their commitment to architecture.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January

Salvatore Paradise Scholarship
Two scholarships 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' practicality 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 (BEDS) and first week of May (MArch).
Eligibility: Available to full-time students in the Bachelor of Environmental Design Studies or Master of Architecture programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $4,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The School of Planning Prize
The School of Planning awards a book prize to a student who has achieved academic excellence in the program and contributed to the life of the school.
Application Type: Automatic Consideration – No Application Required

School of Planning Achievement in Planning Studies Award
This prize is awarded in recognition of academic excellence upon completing the first year of the Master of Planning degree program.
Application Type: Automatic Consideration – No Application Required

The Master of Planning Prize
This is a book prize given to a graduating student on the basis of academic excellence as well as a demonstrated commitment to community planning.
Application Type: Automatic Consideration – No Application Required

The School of Planning Project Prize
The School of Planning Project Prize is awarded to the graduate who has produced the best individual project.
Application Type: Automatic Consideration – No Application Required

School of Planning Team Project Prize
The prize is awarded to graduating students in the team completing the most outstanding senior team project.
Application Type: Automatic Consideration – No Application Required

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Scholarships - Planning
Awarded on the basis of academic excellence to students enrolled in the Master of Planning program.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: April 15

Bruce and Dorothy Rossetti Scholarships - Architecture
Awarded to one or more students in the first year of the Master of Architecture program who have a consistently high record of performance. The award is intended to assist students in carrying out supervised research.
Eligibility: Available to current students in first year of the MArch program at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January

The Royal Architectural Institute of Canada Honour Roll
For each School of Architecture, a maximum of four students, from the top 10 percent of the graduating class in the professional degree program, shall receive honour roll certificates from the RAIC, in addition to the student who receives the RAIC Student Medal.
Application Type: Automatic Consideration – No Application Required

The Royal Architectural Institute of Canada Student Medal
The Royal Architectural Institute of Canada's Student Medal is awarded annually to a student graduating from a professional degree program in each School of Architecture in Canada who, in the judgment of the faculty of the respective School, has achieved the highest level of academic excellence and/or has completed the outstanding final design thesis for that academic year.
Application Type: Automatic Consideration – No Application Required

Steel Structures Education Foundation Scholarship for Excellence in Steel Design
This scholarship, donated by the Steel Structures Education Foundation, is awarded to a Master of Architecture student who has completed MArch Thesis Preparation. It is intended to support subsequent thesis design work that uses structural steel in a critical way. Applications are due at the end of the fall term. Selection is made by the School of Architecture. Following the completion of the thesis, a report is required for publication by SSEF.
Eligibility: Available to current students in the Master of Architecture program at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Application Deadline: December 1
Value: $3,000

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

John D. Watson Memorial Scholarship
This scholarship is awarded in remembrance of John D. Watson (MArch 1990), who passed away in 1998. It provides $3,000 for a Master of Architecture student to pursue thesis-related research in green design, sustainability, and/or new technologies. These funds may be used for travel. Applicants must have a satisfactory academic record, demonstrate financial need, and submit a proposal of study to be carried out during the following work term, followed by a research report a month after the end of the work term.
Eligibility: Available to students in the first year of the Master of Architecture program.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January
Value: $3,000

Architecture

The Henry Adams Medal and The Henry Adams Certificate
Awarded by the American Institute of Architects to top-ranking graduating students from the MArch program who have achieved general excellence throughout the program. Application not required.
Application Type: Automatic Consideration – No Application Required

Adjeleian Award in the Aesthetics of Structures
Awarded to a graduating student in either the Master of Architecture program or the Civil Engineering degree program who demonstrates in a project both aesthetic principles in buildings or bridges and unified roots of Architecture and Structural Engineering. The award alternates between Architecture and Engineering, with the next award to Architecture in 2017. Application not required (for Architecture).
Eligibility: Available to a Master of Architecture or a Bachelor of Engineering (Civil Engineering) student.
Application Type: Contact the Faculty for more information

The Alpha Rho Chi Medal
Alpha Rho Chi, National Social-Professional Fraternity of Architecture, awards the Alpha Rho Chi Medal to a graduating senior of the School of Architecture who has shown an ability for leadership, performed willing service for the School, and gives promise of real professional merit through attitude and personality.
Application Type: Automatic Consideration – No Application Required

The Alumni Memorial Award
This award, which was initiated in 1984 in the memory of Mr. Michael Kravosky (BArch 1983), is awarded each year to a graduating student elected by the graduating class for outstanding service to the school in student activities and affairs. The award is made from the proceeds of the Architecture Alumni Memorial Fund, and is subject to annual review.
Application Type: Automatic Consideration – No Application Required

School of Architecture Thesis Prize
The School of Architecture awards a prize to one or more students who have completed an outstanding design thesis in the Master of Architecture program.
Application Type: Automatic Consideration – No Application Required

Architecture and Planning Bursaries
Proceeds from the former TUNS Board of Governors Fund are used at the Dean's discretion. They provide up to five $1,000 bursaries to assist full-time students entering the winter term of the Bachelor of Environmental Design Studies or Master of Architecture program in the School of Architecture or the Bachelor of Community Design or Master of Planning program in the School of Planning. Applicants must be making satisfactory academic progress and must demonstrate financial need by submitting a bursary application. Selections are made by the Scholarship Committees of the School of Architecture and the School of Planning.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

H. Allen Brooks Traveling Fellowship
This award is made periodically to an exceptionally promising student who is graduating from (or has recently graduated from) a professional architecture or planning degree program in the Faculty of Architecture and Planning. It enables the recipient to travel and contemplate while observing, sketching, reading, or writing. It provides time to think and mature, while acquiring knowledge that will be useful for their future work and contribution to the profession and society.
Eligibility: Available to graduate students completing their studies in the Faculty of Architecture and Planning at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Jonathan Hart Memorial Fund
This fund was established in memory of Jonathan Hart (MArch 1996) by Mr. Justice Gordon Hart and Mrs. Catherine Hart, following Jonathan's request to support architecture in the community. Proceeds from this fund are used periodically to bring architectural work to the public, and to encourage young architects and businesses to work together on projects for the betterment of the community. Selection is made by the School of Architecture.
Eligibility: Available to Master of Architecture students.
Application Type: Contact the Department, School, or College for more information

George Lawen / Dexel Developments Scholarship
Dexel Developments is an award-winning mixed-use property developer focused primarily on residential apartments and the regeneration of existing heritage properties located in the Halifax business district. The George Lawen/Dexel Developments Scholarship was created in 2010 by Louis Lawen to recognize and support the crucial role of planning to the future development of Halifax and the surrounding area by supporting a student who intends to pursue a career in the Maritimes. The scholarship is named in honour of Louis' father, George Lawen. The scholarship will provide a $5,000 award to a student entering the final year of the Master of Planning program, with second preference to a student entering the final year of the Master of Architecture program. The student will have demonstrated active involvement in community service, and will have a high academic standing and an interest in urban design or urban planning.
Application Type: Contact the Department, School, or College for more information
Value: $5,000

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Nova Scotia Association of Architects Prize

The Nova Scotia Association of Architects gives a prize to a student who, in the final year of the Master of Architecture program, displays an outstanding awareness of the architect's responsibility to society by demonstration in his/her scholarly and design work.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Association of Architects - Ojars Biskaps Award
The Ojars Biskaps Award honours the memory of Professor Ojars Biskaps, who provided distinguished service to both the academic and professional architecture communities of Nova Scotia. Professor Biskaps was a beloved teacher at the School of Architecture, a significant designer working in collaboration with local architecture practices, and past president of the Nova Scotia Association of Architects. His love of drawing, as a means of documentation, inquiry, storytelling, and humour, characterized his work and life. This $1,000 award is given by the School of Architecture to a student who has completed the Bachelor of Environmental Design Studies program and is entering the Master of Architecture program, based on a year four portfolio that integrates academic study and design practice, and uses drawing for architectural inquiry and expression.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

The William Nycum and Associates Limited Scholarship
Awarded to the student who has successfully completed the first term of the Master of Architecture program and who most strongly demonstrates creative thinking and a passion for architecture. Candidates should submit a one-page application demonstrating their commitment to architecture.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January

Salvatore Paradise Scholarship
Two scholarships 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' practicality 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 (BEDS) and first week of May (MArch).
Eligibility: Available to full-time students in the Bachelor of Environmental Design Studies or Master of Architecture programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $4,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Scholarships - Architecture
Awarded to one or more students in the first year of the Master of Architecture program who have a consistently high record of performance. The award is intended to assist students in carrying out supervised research.
Eligibility: Available to current students in first year of the MArch program at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January

The Royal Architectural Institute of Canada Honour Roll
For each School of Architecture, a maximum of four students, from the top 10 percent of the graduating class in the professional degree program, shall receive honour roll certificates from the RAIC, in addition to the student who receives the RAIC Student Medal.
Application Type: Automatic Consideration – No Application Required

The Royal Architectural Institute of Canada Student Medal
The Royal Architectural Institute of Canada's Student Medal is awarded annually to a student graduating from a professional degree program in each School of Architecture in Canada who, in the judgment of the faculty of the respective School, has achieved the highest level of academic excellence and/or has completed the outstanding final design thesis for that academic year.
Application Type: Automatic Consideration – No Application Required

Steel Structures Education Foundation Scholarship for Excellence in Steel Design
This scholarship, donated by the Steel Structures Education Foundation, is awarded to a Master of Architecture student who has completed MArch Thesis Preparation. It is intended to support subsequent thesis design work that uses structural steel in a critical way. Applications are due at the end of the fall term. Selection is made by the School of Architecture. Following the completion of the thesis, a report is required for publication by SSEF.
Eligibility: Available to current students in the Master of Architecture program at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: December 1
Value: $3,000

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

John D. Watson Memorial Scholarship
This scholarship is awarded in remembrance of John D. Watson (MArch 1990), who passed away in 1998. It provides $3,000 for a Master of Architecture student to pursue thesis-related research in green design, sustainability, and/or new technologies. These funds may be used for travel. Applicants must have a satisfactory academic record, demonstrate financial need, and submit a proposal of study to be carried out during the following work term, followed by a research report a month after the end of the work term.
Eligibility: Available to students in the first year of the Master of Architecture program.
Application Type: Contact the Department, School, or College for more information
Application Deadline: first Monday in January
Value: $3,000

Planning

Architecture and Planning Bursaries
Proceeds from the former TUNS Board of Governors Fund are used at the Dean's discretion. They provide up to five $1,000 bursaries to assist full-time students entering the winter term of the Bachelor of Environmental Design Studies or Master of Architecture program in the School of Architecture or the Bachelor of Community Design or Master of Planning program in the School of Planning. Applicants must be making satisfactory academic progress and must demonstrate financial need by submitting a bursary application. Selections are made by the Scholarship Committees of the School of Architecture and the School of Planning.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

Brant Wishart Memorial Scholarship
Brant Wishart Memorial Scholarship is given to a student of Planning who has demonstrated academic excellence and leadership. Value $1,000, awarded annually in April.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $1,000

H. Allen Brooks Traveling Fellowship
This award is made periodically to an exceptionally promising student who is graduating from (or has recently graduated from) a professional architecture or planning degree program in the Faculty of Architecture and Planning. It enables the recipient to travel and contemplate while observing, sketching, reading, or writing. It provides time to think and mature, while acquiring knowledge that will be useful for their future work and contribution to the profession and society.
Eligibility: Available to graduate students completing their studies in the Faculty of Architecture and Planning at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

Canadian Institute of Planners Student Award for Academic Excellence
Awarded to a full-time student member of the Canadian Institute of Planners who has achieved the highest academic standing over the length of the MPlan program.
Application Type: Automatic Consideration – No Application Required

Canadian Institute of Planners Student Scholarships
Awarded to a student member in good standing with the CIP and enrolled full-time in a recognized planning program. Applications forms are available from the School of Planning and must be received by the CIP national office by the date indicated on the application. Applications are judged on the basis of a student's potential contribution to the planning profession (in theory or in practice) and their potential service to a community or community group.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Floyd Dykeman Prize in Rural Planning
A planning student in the final year of study who engages in innovative research on rural planning, who conducts a special project, who develops an inspiring thesis or who shows outstanding service to others.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses.

In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

Exxon Mobil Canada Ltd. Scholarship
Awarded to a student entering a graduate program in the School of Planning with academic excellence and an interest in studying the impacts and design-related issues of energy developments.
Application Type: Contact the Department, School, or College for more information
Value: $7,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Jonathan Hart Memorial Fund
This fund was established in memory of Jonathan Hart (MArch 1996) by Mr. Justice Gordon Hart and Mrs. Catherine Hart, following Jonathan's request to support architecture in the community. Proceeds from this fund are used periodically to bring architectural work to the public, and to encourage young architects and businesses to work together on projects for the betterment of the community. Selection is made by the School of Architecture.
Eligibility: Available to Master of Architecture students.
Application Type: Contact the Department, School, or College for more information

George Lawen / Dexel Developments Scholarship
Dexel Developments is an award-winning mixed-use property developer focused primarily on residential apartments and the regeneration of existing heritage properties located in the Halifax business district. The George Lawen/Dexel Developments Scholarship was created in 2010 by Louis Lawen to recognize and support the crucial role of planning to the future development of Halifax and the surrounding area by supporting a student who intends to pursue a career in the Maritimes. The scholarship is named in honour of Louis' father, George Lawen. The scholarship will provide a $5,000 award to a student entering the final year of the Master of Planning program, with second preference to a student entering the final year of the Master of Architecture program. The student will have demonstrated active involvement in community service, and will have a high academic standing and an interest in urban design or urban planning.
Application Type: Contact the Department, School, or College for more information
Value: $5,000

Dorothy Leslie Prize
This prize, named after the former secretary of the School of Planning, is awarded to a student finishing the first year of the Masters program who has made a significant contribution to the life of the School.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

Salvatore Paradise Scholarship
Two scholarships 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' practicality 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 (BEDS) and first week of May (MArch).
Eligibility: Available to full-time students in the Bachelor of Environmental Design Studies or Master of Architecture programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $4,500

The Phi Kappa Pi Joe Ghiz Memorial Award

A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The School of Planning Prize
The School of Planning awards a book prize to a student who has achieved academic excellence in the program and contributed to the life of the school.
Application Type: Automatic Consideration – No Application Required

School of Planning Achievement in Planning Studies Award
This prize is awarded in recognition of academic excellence upon completing the first year of the Master of Planning degree program.
Application Type: Automatic Consideration – No Application Required

The Master of Planning Prize
This is a book prize given to a graduating student on the basis of academic excellence as well as a demonstrated commitment to community planning.
Application Type: Automatic Consideration – No Application Required

The School of Planning Project Prize
The School of Planning Project Prize is awarded to the graduate who has produced the best individual project.
Application Type: Automatic Consideration – No Application Required

School of Planning Team Project Prize
The prize is awarded to graduating students in the team completing the most outstanding senior team project.
Application Type: Automatic Consideration – No Application Required

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Scholarships - Planning
Awarded on the basis of academic excellence to students enrolled in the Master of Planning program.
Eligibility: Available to current students in the Master of Planning and Master of Planning Studies programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: April 15

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

Faculty of Arts and Social Sciences

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Arts and Social Sciences Awards

The Bowes Scholarship in History
This scholarship has been endowed by Janeen E. Bowes to support a graduate student in the history of the Halifax Explosion, of Halifax, or Nova Scotia more generally, or, in the absence of qualifying students working in these areas, in the history of Atlantic Canada.
Eligibility: To be eligible, students must have earned marks of A- or better in Master's course work of Doctoral field exams.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

The Douglas Butler Memorial Prize
The Butler Memorial fund was established in memory of Dr. Douglas Butler, a good friend of the Philosophy Department who had taught Summer Session courses with us, and who died suddenly in Halifax in 1991 at the age of 34. The prize is awarded annually for the best MA student term paper.

Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The C. Bruce Fergusson Prize
This prize was established to honour the memory of C. Bruce Fergusson, Provincial Archivist, and associate professor of History at Dalhousie University. The selection criteria emphasize depth of scholarship, meticulous research, and excellent writing.
Eligibility: Awarded annually to the History Department's leading Honours student who enrolls in a Master's degree at Dalhousie in the field of Nova Scotia history.
Application Type: Automatic Consideration – No Application Required

The Linda Marie Gillingwater Rainsberry Bursary/Scholarship
The bursary was established in 2009 to honor the memory of Linda Gillingwater Rainsberry - student, writer, editor, educator, fundraiser, conflict mediator, television producer and curriculum designer. The bursary, valued at $1,500, will be used to assist single mothers whose area of study is in the Faculty of Arts and Social Sciences and whose research incorporates a social justice analysis. Preference is given to a student whose research is on women studies, however, single mothers enrolled in any graduate program at Dalhousie, are eligible to apply. Dalhousie University also offers a Linda Marie Gillingwater Rainsberry Scholarship in the amount of $1,500. The same preference is given as the Bursary, but the recipient must also show academic excellence. The same student can apply for and hold both the bursary and scholarship.
Eligibility: Available to a female graduate student in the Faculty of Arts & Social Sciences who is a single mother.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Dr. P. Anthony Johnstone Memorial Bursary
The donors established this fund in 1994 to honour the memory of Dr. P. Anthony (Tony) Johnstone (1931-1989), scholar, educator and Director of the Nova Scotia Human Rights Commission, 1985-1989. It is used to assist a humanities or social science graduate student who has a record of interest and involvement in social justice and human rights.
Eligibility: Available to a graduate student in the Faculty of Arts & Social Sciences.
Application Type: Contact the Faculty of Graduate Studies for more information

The Mohini Mathur Memorial Bursary in Indian Philosophical Systems
This bursary celebrates the interests of Mohini Mathur in Indian philosophical systems and is to be awarded to a student who demonstrates a genuine interest in furthering their study in Hindu Religion or Indian philosophy and those systems of thought and intellectual culture emerging from the Indian subcontinent. The award was established in the memory of Mrs. Mohini Mathur by her family. Mohini was born on 17 March 1939 in Patna, India. She was an educator with a passion for higher learning. She immigrated to Canada in 1969 to join her husband Kripa Shanker Mathur, P. Eng. They brought up two children, their son Dave and daughter Sunita.

Mohini was a lifelong learner and maintained an active interest in religion, astronomy, and philosophy. Until her death in 2011, she was a student of Religion and Philosophy at Dalhousie University.
Eligibility: Available to an undergraduate or graduate student with a sincere and demonstrated interest in achieving higher education in the study of Indian thought and ideas and with a clear plan to continue in this field of scholarship and plans to publish or present the results of their studies at an academic conference. The recipient will have demonstrated financial need and satisfactory academic standing.
Application Type: Contact the Faculty for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

The Malcolm Ross Award in Canadian Literature
Established to honour the late Malcolm Ross, founding editor of the New Canadian Library and long-time member of the Department of English, a prize to be awarded to an outstanding Master of Arts or Doctor of Philosophy thesis on Canadian Literature. McClelland and Stewart have generously provided the funding to recognize Professor Ross' role in forwarding the study of Canadian literature.
Application Type: Automatic Consideration – No Application Required

The Malcolm Ross Graduate Scholarship in English
Established by his colleagues and friends in memory of Malcolm Ross, distinguished literary scholar and editor and long-time member of the English Department. A graduate scholarship will be awarded by the department's Graduate Committee to an outstanding student entering the MA program in English.
Application Type: Automatic Consideration – No Application Required

The James W. Tupper Graduate Fellowship in English
Two or three fellowships are awarded by the English Department, on the recommendation of the Undergraduate Committee, to students selected on the criteria of the GPA of all English courses at the 2000 level and beyond and a clear indication that the student(s) will go on to do graduate work. The work must be done at a university approved by the faculty; it need not be held at Dalhousie.
Eligibility: Available to a final year undergraduate English student from Dalhousie or King's.
Application Type: Contact the Department, School, or College for more information

Classics

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

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Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

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Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Linda Marie Gillingwater Rainsberry Bursary/Scholarship
The bursary was established in 2009 to honor the memory of Linda Gillingwater Rainsberry - student, writer, editor, educator, fundraiser, conflict mediator, television producer and curriculum designer. The bursary, valued at $1,500, will be used to assist single mothers whose area of study is in the Faculty of Arts and Social Sciences and whose research incorporates a social justice analysis. Preference is given to a student whose research is on women studies, however, single mothers enrolled in any graduate program at Dalhousie, are eligible to apply. Dalhousie University also offers a Linda Marie Gillingwater Rainsberry Scholarship in the amount of $1,500. The same preference is given as the Bursary, but the recipient must also show academic excellence. The same student can apply for and hold both the bursary and scholarship.
Eligibility: Available to a female graduate student in the Faculty of Arts & Social Sciences who is a single mother.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

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English

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Application Deadline: December 15
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French

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Value: $1,500

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A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

History

The Bowes Scholarship in History
This scholarship has been endowed by Janeen E. Bowes to support a graduate student in the history of the Halifax Explosion, of Halifax, or Nova Scotia more generally, or, in the absence of qualifying students working in these areas, in the history of Atlantic Canada.
Eligibility: To be eligible, students must have earned marks of A- or better in Master's course work of Doctoral field exams.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.

Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The C. Bruce Fergusson Prize
This prize was established to honour the memory of C. Bruce Fergusson, Provincial Archivist, and associate professor of History at Dalhousie University. The selection criteria emphasize depth of scholarship, meticulous research, and excellent writing.
Eligibility: Awarded annually to the History Department's leading Honours student who enrolls in a Master's degree at Dalhousie in the field of Nova Scotia history.
Application Type: Automatic Consideration – No Application Required

The Linda Marie Gillingwater Rainsberry Bursary/Scholarship
The bursary was established in 2009 to honor the memory of Linda Gillingwater Rainsberry - student, writer, editor, educator, fundraiser, conflict mediator, television producer and curriculum designer. The bursary, valued at $1,500, will be used to assist single mothers whose area of study is in the Faculty of Arts and Social Sciences and whose research incorporates a social justice analysis. Preference is given to a student whose research is on women studies, however, single mothers enrolled in any graduate program at Dalhousie, are eligible to apply. Dalhousie University also offers a Linda Marie Gillingwater Rainsberry Scholarship in the amount of $1,500. The same preference is given as the Bursary, but the recipient must also show academic excellence. The same student can apply for and hold both the bursary and scholarship.
Eligibility: Available to a female graduate student in the Faculty of Arts & Social Sciences who is a single mother.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
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The Dr. P. Anthony Johnstone Memorial Bursary
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Eligibility: Available to a graduate student in the Faculty of Arts & Social Sciences.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

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Application Deadline: October 31
Value: $750

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International Development Studies

Dalhousie Student Union Student Accessibility Fund Award
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
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Value: $750

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Application Type: Contact the Department, School, or College for more information

Music - Fountain School of Performing Arts

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Application Type: Contact the Department, School, or College for more information

Philosophy

The Douglas Butler Memorial Prize
The Butler Memorial fund was established in memory of Dr. Douglas Butler, a good friend of the Philosophy Department who had taught Summer Session courses with us, and who died suddenly in Halifax in 1991 at the age of 34. The prize is awarded annually for the best MA student term paper.
Application Type: Automatic Consideration – No Application Required

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Value: Maximum of $1,000

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Application Deadline: December 15
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Eligibility: Available to a graduate student in the Faculty of Arts & Social Sciences.
Application Type: Contact the Faculty of Graduate Studies for more information

The Mohini Mathur Memorial Bursary in Indian Philosophical Systems
This bursary celebrates the interests of Mohini Mathur in Indian philosophical systems and is to be awarded to a student who demonstrates a genuine interest in furthering their study in Hindu Religion or Indian philosophy and those systems of thought and intellectual culture emerging from the Indian subcontinent. The award was established in the memory of Mrs. Mohini Mathur by her family. Mohini was born on 17 March 1939 in Patna, India. She was an educator with a passion for higher learning. She immigrated to Canada in 1969 to join her husband Kripa Shanker Mathur, P. Eng. They brought up two children, their son Dave and daughter Sunita. Mohini was a lifelong learner and maintained an active interest in religion, astronomy, and philosophy. Until her death in 2011, she was a student of Religion and Philosophy at Dalhousie University.
Eligibility: Available to an undergraduate or graduate student with a sincere and demonstrated interest in achieving higher education in the study of Indian thought and ideas and with a clear plan to continue in this field of scholarship and plans to publish or present the results of their studies at an academic conference. The recipient will have demonstrated financial need and satisfactory academic standing.
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Political Science

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Linda Marie Gillingwater Rainsberry Bursary/Scholarship
The bursary was established in 2009 to honor the memory of Linda Gillingwater Rainsberry - student, writer, editor, educator, fundraiser, conflict mediator, television producer and curriculum designer. The bursary, valued at $1,500, will be used to assist single mothers whose area of study is in the Faculty of Arts and Social Sciences and whose research incorporates a social justice analysis. Preference is given to a student whose research is on women studies, however, single mothers enrolled in any graduate program at Dalhousie, are eligible to apply. Dalhousie University also offers a Linda Marie Gillingwater Rainsberry Scholarship in the amount of $1,500. The same preference is given as the Bursary, but the recipient must also show academic excellence. The same student can apply for and hold both the bursary and scholarship.
Eligibility: Available to a female graduate student in the Faculty of Arts & Social Sciences who is a single mother.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Dr. P. Anthony Johnstone Memorial Bursary
The donors established this fund in 1994 to honour the memory of Dr. P. Anthony (Tony) Johnstone (1931-1989), scholar, educator and Director of the Nova Scotia Human Rights Commission, 1985-1989. It is used to assist a humanities or social science graduate student who has a record of interest and involvement in social justice and human rights.
Eligibility: Available to a graduate student in the Faculty of Arts & Social Sciences.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.

Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Sociology and Social Anthropology

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Linda Marie Gillingwater Rainsberry Bursary/Scholarship
The bursary was established in 2009 to honor the memory of Linda Gillingwater Rainsberry - student, writer, editor, educator, fundraiser, conflict mediator, television producer and curriculum designer. The bursary, valued at $1,500, will be used to assist single mothers whose area of study is in the Faculty of Arts and Social Sciences and whose research incorporates a social justice analysis. Preference is given to a student whose research is on women studies, however, single mothers enrolled in any graduate program at Dalhousie, are eligible to apply. Dalhousie University also offers a Linda Marie Gillingwater Rainsberry Scholarship in the amount of $1,500. The same preference is given as the Bursary, but the recipient must also show academic excellence. The same student can apply for and hold both the bursary and scholarship.
Eligibility: Available to a female graduate student in the Faculty of Arts & Social Sciences who is a single mother.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: December 15
Value: $1,500

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Dr. P. Anthony Johnstone Memorial Bursary
The donors established this fund in 1994 to honour the memory of Dr. P. Anthony (Tony) Johnstone (1931-1989), scholar, educator and Director of the Nova Scotia Human Rights Commission, 1985-1989. It is used to assist a humanities or social science graduate student who has a record of interest and involvement in social justice and human rights.
Eligibility: Available to a graduate student in the Faculty of Arts & Social Sciences.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Faculty of Computer Science

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Computer Science Awards

Ada Byron Award
The Ada Byron Award recognizes the leadership and contributions of an individual to increase and promote the involvement of women in Computer Science.
Eligibility: Available to undergraduate and graduate students registered in the Faculty of Computer Science.
Application Type: Contact the Faculty for more information
Application Deadline: Awarded by nomination in the fall term. Contact undergrad@cs.dal.ca for details.

Citizenship Award
The Citizenship Award recognizes the contributions of an individual to build a community atmosphere within the Faculty of Computer Science.
Eligibility: Available to undergraduate and graduate students registered in the Faculty of Computer Science.
Application Type: Contact the Faculty for more information
Application Deadline: Awarded by nomination in the fall term. Contact undergrad@cs.dal.ca for details.

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary

Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Leadership Award
The Leadership Award recognizes the leadership and contributions of an individual in building a community atmosphere within the Faculty of Computer Science.
Eligibility: Available to undergraduate and graduate students registered in the Faculty of Computer Science.
Application Type: Contact the Faculty for more information
Application Deadline: Awarded by nomination in the fall term. Contact undergrad@cs.dal.ca for details.

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

OZ Optics Limited Graduate Scholarship
The OZ Optics Limited Graduate Scholarship was established to provide an annual scholarship to a Master's or PhD student studying in the area of physics, electrical engineering or computer science. First preference will be given to applicants working in the area of fibre optics or closely related field. Second preference will be given to any graduate student enrolled in physics, electrical engineering or computer science. Thesis Master's and Doctoral students with a first class average who intend to or are pursuing studies and research related to fibre optics or a closely related field are eligible to apply. Scholarships will be for one year only. Award recipients will be identified by the Faculty of Graduate Studies Scholarship Committee, including an employee of OZ Optics. The general Dalhousie Graduate Award Rules are applied. The Award is valued at $10,000 for a 12 month academic year (one award per year). It is tenable only at Dalhousie University. Fees are not waived and must be paid out of the award and students must be accepted to Dalhousie before they apply.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 15
Value: $10,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

Faculty of Engineering

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Engineering Awards

Adjeleian Award in the Aesthetics of Structures
Awarded to a graduating student in either the Master of Architecture program or the Civil Engineering degree program who demonstrates in a project both aesthetic principles in buildings or bridges and unified roots of Architecture and Structural Engineering. The award alternates between Architecture and Engineering, with the next award to Architecture in 2017. Application not required (for Architecture).
Eligibility: Available to a Master of Architecture or a Bachelor of Engineering (Civil Engineering) student.
Application Type: Contact the Faculty for more information

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.

Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Dr. S. K. Malhotra Graduate Scholarship
The scholarship was established by his family and friends in memory of Dr. S. K. Malhotra, former Dean of Graduate Studies and Professor of Civil Engineering at TUNS. Awarded to a student accepted to the Civil Engineering graduate program, with preference to a student from India. The area of research carried out shall be in the field of Structural Engineering.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

OZ Optics Limited Graduate Scholarship
The OZ Optics Limited Graduate Scholarship was established to provide an annual scholarship to a Master's or PhD student studying in the area of physics, electrical engineering or computer science. First preference will be given to applicants working in the area of fibre optics or closely related field. Second preference will be given to any graduate student enrolled in physics, electrical engineering or computer science. Thesis Master's and Doctoral students with a first class average who intend to or are pursuing studies and research related to fibre optics or a closely related field are eligible to apply. Scholarships will be for one year only. Award recipients will be identified by the Faculty of Graduate Studies Scholarship Committee, including an employee of OZ Optics. The general Dalhousie Graduate Award Rules are applied. The Award is valued at $10,000 for a 12 month academic year (one award per year). It is tenable only at Dalhousie University. Fees are not waived and must be paid out of the award and students must be accepted to Dalhousie before they apply.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 15
Value: $10,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering

Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Civil and Resource Engineering

Adjeleian Award in the Aesthetics of Structures
Awarded to a graduating student in either the Master of Architecture program or the Civil Engineering degree program who demonstrates in a project both aesthetic principles in buildings or bridges and unified roots of Architecture and Structural Engineering. The award alternates between Architecture and Engineering, with the next award to Architecture in 2017. Application not required (for Architecture).
Eligibility: Available to a Master of Architecture or a Bachelor of Engineering (Civil Engineering) student.
Application Type: Contact the Faculty for more information

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Dr. S. K. Malhotra Graduate Scholarship
The scholarship was established by his family and friends in memory of Dr. S. K. Malhotra, former Dean of Graduate Studies and Professor of Civil Engineering at TUNS. Awarded to a student accepted to the Civil Engineering graduate program, with preference to a student from India. The area of research carried out shall be in the field of Structural Engineering.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Electrical and Computer Engineering

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award

The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

OZ Optics Limited Graduate Scholarship
The OZ Optics Limited Graduate Scholarship was established to provide an annual scholarship to a Master's or PhD student studying in the area of physics, electrical engineering or computer science. First preference will be given to applicants working in the area of fibre optics or closely related field. Second preference will be given to any graduate student enrolled in physics, electrical engineering or computer science. Thesis Master's and Doctoral students with a first class average who intend to or are pursuing studies and research related to fibre optics or a closely related field are eligible to apply. Scholarships will be for one year only. Award recipients will be

identified by the Faculty of Graduate Studies Scholarship Committee, including an employee of OZ Optics. The general Dalhousie Graduate Award Rules are applied. The Award is valued at $10,000 for a 12 month academic year (one award per year). It is tenable only at Dalhousie University. Fees are not waived and must be paid out of the award and students must be accepted to Dalhousie before they apply.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 15
Value: $10,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Engineering Mathematics and Internetworking

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
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Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Environmental Engineering

Faculty of Graduate Studies Emergency Bursaries

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

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Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
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Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Industrial Engineering

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

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Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.

Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Mechanical Engineering

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Design and Construction Institute of Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a volunteer organization consisting of over 75 industry leaders whose common goal is to promote, foster and advocate for the design and construction industry in Nova Scotia. This fund was established to recognize and support engineering and architecture students who are enrolled in both the undergraduate and graduate programs. The award will rotate between the Faculties of Architecture & Planning and Engineering, beginning with Engineering.
Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and

interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Medjuck Scholarship in Energy Studies
Awarded based on academic achievement by Scotia Energey Resources Limited, an affiliate of The Centennial Group of Companies Limited, to a student accepted to a graduate program in the Faculty of Engineering with a research project in the field of Energy Studies. The scholarship may be renewed subject to satisfactory progress. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
The fund was established with a generous donation from Professor and Mrs. Surain S. Sarwal, a member of Dalhousie Faculty along with students, staff, faculty, and friends of Dalhousie. 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 committee will decide upon the distribution of funds. Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs. Applications are made to the Dean of the student's respective Faculty.
Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Petroleum Engineering

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are

based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

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Application Type: Contact the Department, School, or College for more information

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A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Process Engineering and Applied Science

Atlantic Farm Mechanization Show Graduate Scholarship in Engineering
Presented annually to the student graduating in Environmental Engineering.
Eligibility: Available to students completing the Master of Engineering or Master of Applied Science programs in Environmental Engineering at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

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Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

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Eligibility: Awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. Recipients 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. Candidates will be in the 3rd or 4th year of Engineering, or the 1st year of the Masters of Architecture.
Application Type: Faculty of Engineering: Undergraduate In-Course Scholarship Application
Application Deadline: September 30

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
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Application Deadline: mid-February

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Application Type: Contact the Faculty of Graduate Studies for more information

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Eligibility: Available to students entering the Master of Engineering, Master of Applied Science, or Doctor of Philosophy programs at Dalhousie University. See award description for specific eligibility requirements.
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

Bruce and Dorothy Rossetti Engineering Research Scholarships
Awarded based on a student's academic achievement, letters of reference, and other financial support currently being received. International students are not eligible for this award during their first year of graduate study at Dalhousie. This scholarship may be renewed subject to satisfactory academic progress.
Eligibility: Available to a graduate student in financial need in the Faculty of Engineering.
Application Type: Contact the Faculty for more information
Application Deadline: May 31

Student's Medical Response Trust Fund
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Eligibility: Available to any student registered in the Faculty of Architecture & Planning, Computer Science, or Engineering.
Application Type: Contact the Faculty for more information

The Dr. Stirling Whiteway Graduate Scholarship in Materials Engineering
Established in memory of Dr. Stirling Whiteway, former Principal Research Officer, NRC Halifax and adjunct professor of Metallurgical Engineering. Awarded based on academic record to an outstanding applicant, based on the academic record of the applicant in the final two years of their undergraduate engineering degree, with preference to a candidate from Nova Scotia who is registered in the Materials Engineering graduate program. Selection will be made by the Faculty of Engineering Graduate Studies Committee.
Eligibility: Available to an entering graduate student in the Faculty of Engineering.
Application Type: Contact the Department, School, or College for more information

Faculty of Health Professions

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Health Professions Awards

Association of Black Social Workers Bursary
The Association of Black Social Workers (ABSW) is a volunteer charitable organization consisting of Black Social Workers and Human Service Workers throughout the Province. ABSW offers a bursary to assist full and part time African Canadian students who are attending the Dalhousie School of Social Work and who are studying towards a social work degree. The applicant must apply in writing to the Chairperson of the Bursary Committee annually, before October 15th. The application should be accompanied by a cover letter, demonstrating your need for this bursary; a complete resume, outlining the applicant's paid and unpaid work in the social field; and two letters of reference, one academic and one work or community related. Each reference should speak to the applicant's suitability to the social work field.
Eligibility: Available to current Black students in the Master of Social Work program at Dalhousie. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 15

Elizabeth Bell Scholarship MSc (OT) Entry level and Post-Professional Awards
This award was established to encourage students at all level of occupational therapy education to promote the integration of theory and practice in occupational therapy. The Elizabeth Bell Scholarship supports the rapid expansion of occupational therapy knowledge development and knowledge transfer through entry level, post-professional and PhD studies. In the Entry-level program, the award will be given to a student who has achieved excellent evaluations in all fieldwork courses. Occupational therapists in the Post-professional masters who achieve a grade of A or higher in OCCU 5020 are eligible for this award. Occupational therapists in a Dalhousie PhD program are eligible for consideration based on their PhD application Statement of Interest.
Application Type: Automatic Consideration – No Application Required

Canadian Physiotherapy Association Award
A certificate and first year membership in the Canadian Physiotherapy Association constitute this annual award. It is presented to the student who has achieved the highest aggregate percentage in academic and clinical physiotherapy education.
Application Type: Automatic Consideration – No Application Required

Canadian Physiotherapy Cardio-Respiratory/CPA Student Excellence Award
This award is given at convocation in recognition of outstanding achievement in cardio-respiratory physiotherapy.
Application Type: Automatic Consideration – No Application Required

CAOT Student Award
This award is given to the student who has achieved the highest academic standing in occupational therapy theory courses.
Application Type: Automatic Consideration – No Application Required

Cardio-Respiratory Award
This award initiated by an anonymous donor recognizes excellence in cardiorespiratory physiotherapy. It is awarded to the student who achieves the highest academic and clinical standing in all components of cardiorespiratory physiotherapy.

Application Type: Automatic Consideration – No Application Required

Margaret Cragg Award
This award was established by the family and friends in honour of Margaret M. Cragg, who pioneered the movement against violence toward women and in the practice of preventative interdisciplinary health care. An annual financial award is made available to a graduate student in Nursing.
Eligibility: Available to current students in the Master of Nursing or Doctor of Philosophy in Nursing programs at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Margaret Cragg Award
Family, friends and others interested in assisting in the study of violence against women and/or children established the Margaret Cragg Award. The fund will be used to support one or more annual awards for a graduate student(s) enrolled in the MSW program in the School of Social Work, who is studying in the area of violence against women and/or children, or people living in high risk/disadvantaged environments. The recipients will be individuals who, in the judgment of the MSW Scholarship Committee meet the criteria.
Eligibility: Available to current students in the Master of Social Work program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Joan Cummings Memorial Award
Through a bequest to the University from the late Dr. Cummings, the Joan Cummings Memorial Award was established. Dr. Cummings was a highly respected social work academic, who made significant contributions to dis(Ability) scholarship and practice in human rights, access, and inclusion within the academy and the community. Dr. Cummings identified as a woman with a dis(Ability), and made it her life's work to improve the lives of those with dis(Abilities).
Eligibility: Available to current undergraduate and graduate students enrolled in the School of Social Work, in good academic standing, and who show promise of leadership and service. Preference will be given to a student with a dis(Ability). The recipient will be engaged in dis(Ability) scholarship, evident within the school and community.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 15

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Elsevier Canada Award
This award is given to the student with the second highest cumulative grade point average (GPA) and percentage score throughout the program.
Application Type: Automatic Consideration – No Application Required

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

Eva Mary and Judge Hiram S. Farquhar Bursary
To provide an annual bursary(s) for one (or more) student(s) enrolled in the Bachelor or Master of Social Work Program at Dalhousie University who demonstrates financial need.
Eligibility: Available to current students in the Bachelor and Master of Social Work programs at Dalhousie, with preference given to a student born in or resident of Hants County, Nova Scotia. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find

themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Grainger Award
This award is given to a second year Master of Science (OT) student who has shown outstanding demonstration of application and integration of theoretical biomedical knowledge with professional therapeutic application.
Application Type: Automatic Consideration – No Application Required

The Lawrence T. Hancock Scholarship
Dr. Hancock was the first full time Director of the Maritime School of Social Work and held this position from 1949 until his retirement in 1973. Contributions were made to this fund by the friends and colleagues of Lawrence Hancock. The funds will be used to provide an annual scholarship to a student in the Master of Social Work program, who achieves high academic standing, and shows promise of leadership and service as exemplified in Dr. Hancock's work. The recipient of the Hancock Scholarship will have demonstrated a high level of academic achievement and the potential for leadership in the field of social work. Applications for the scholarship must be supported by letters of references from the applicant's university, place of employment and any relevant volunteer experience.
Eligibility: Available to current students in the Master of Social Work program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Ken Hill Electrotherapy Award
This award, established by the ERP Group, is in honour of Mr. Ken Hill, retired Professor of Dalhousie University and who also received an honorary Doctorate from the University in 2002. The award is given to the member of the graduating class who demonstrates excellence in electrotherapy.
Application Type: Automatic Consideration – No Application Required

Alexandra Hirth Award for Excellence in Nursing Research
This award was established in memory of and in recognition of Alexandra Hirth's commitment to excellence. The award will provide financial support for students in the thesis stream of the Master of Nursing program. The annual award will be made to an outstanding student whose thesis has the potential to contribute to the development of nursing knowledge and whose research is focused on issues related to individuals or families living with chronic illness.
Eligibility: Available to current students in the Master of Nursing or Doctor of Philosophy in Nursing program.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Margaret Inglis Hagerman Graduate Scholarships in Nursing
These scholarships are awarded annually to Master of Nursing students who have demonstrated leadership.
Eligibility: Available to current students in the Master of Nursing program.
Application Type: Contact the Department, School, or College for more information

Phyllis Kennedy Memorial Bursary
This is awarded to a deserving second year Master of Science (OT) entry level program student who is in good academic standing and who demonstrates an interest in their studies and the School.
Application Type: Automatic Consideration – No Application Required

Morris B. Kohler Award in Physiotherapy
This prize is awarded to the student who has demonstrated the greatest interest in the treatment of long-term rehabilitation patients, while attending the Nova Scotia Rehabilitation Centre.
Application Type: Automatic Consideration – No Application Required

Raoul Leger Memorial Humanitarian Award
This award was established to honour the memory of Raoul Leger, who received a Master'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. This 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.
Application Type: Automatic Consideration – No Application Required

Hazel Lloyd Memorial Prize
The Hazel Lloyd Foundation was established by Miss Aphra Lloyd in memory of her sister, Miss Hazel A. Lloyd (1930-1985), Associate Professor, School of Physiotherapy. Friends, associates and alumni have made additional contributions. The purpose is to foster interest in geriatrics and gerontology, Professor Lloyd's major areas of interest. The Foundation awards an annual prize to the student with the highest standing in Integrated Practice.
Application Type: Automatic Consideration – No Application Required

Katherine and Robert MacDonald Scholarship
The scholarship is intended to provide financial assistance to a student who is studying in a non-thesis option of the Master of Nursing program at Dalhousie University and who has demonstrated excellence in clinical nursing practice at the end of the first year of study. The applicant must have a grade point average of 3.6 or greater, have completed a minimum of one credit of nursing clinical courses and demonstrated excellence in nursing practice, and must supply a statement of career goals explaining how the selected graduate program will contribute to excellence in clinical nursing practice.
Eligibility: Available to current students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Electa MacLennan Memorial Scholarship
The scholarship pays tribute to Dr. MacLennan's outstanding contribution to nursing education. Applicants must be a graduate of the School of Nursing, Dalhousie University baccalaureate or Master's program, have a grade point average of 3.66 or greater, clearly state her/his career and educational goals and how the particular program will contribute to their development, be accepted as a full-time student or have completed three full credits in a recognized School of Nursing, and demonstrate potential for or show active involvement in advancing the nursing profession in Canada.
Eligibility: Available to current students in the Master of Nursing, Doctor of Philosophy in Nursing, or entering a graduate nursing program.

Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Hanna G. Matheson Bursaries
These bursaries are available to students enrolled in the Bachelor of Social Work or Master of Social Work degree programs on the basis of need. The fund is administered by the Registrar's Office.
Eligibility: Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: General Online Bursary Application
Application Deadline: October 15

Ruth May Award
The scholarship recognizes Dr. May's commitment to the education of outpost nurses and nurse practitioners. The award is given annually to one or more nursing students in the nurse practitioner stream in recognition of clinical excellence and professional growth.
Eligibility: Available to current students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Jean McAloney Memorial Prize
This prize is awarded annually to the student in the graduating class who has demonstrated the highest clinical standing. The prize is sponsored by the College of Physiotherapists of New Brunswick.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

Donna Myers Memorial Award
This award is given by the Nova Scotia Branch of the Canadian Physiotherapy Association in memory of Donna Myers, one of the founding members of the Physiotherapy Professional Association of Nova Scotia. This award is presented to the student who exemplifies dedication and professionalism by achieving the greatest improvement in overall academic standing who consistently demonstrates professionalism and enthusiasm for physiotherapy. Recipient must be a student CPA member.
Application Type: Automatic Consideration – No Application Required

NBAOT Awards for Fieldwork
This award recognizes high achievement on fieldwork performance ratings, quality of application of theoretical knowledge and therapeutic principles in a variety of fieldwork settings in New Brunswick.
Application Type: Automatic Consideration – No Application Required

New Brunswick Student Professionalism Award
This award was established to recognize the graduating student who exemplifies professional behaviour and attributes within the academic and clinical settings. It is sponsored by the New Brunswick Physiotherapy Association.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Association of Occupational Therapists (NLAOT) Book Prize
This award is given to a Master of Science (OT) student from Newfoundland with the highest cumulative grade point average (GPA) entering the second year of the standard Master of Science (OT) program sequencing. A student is determined to be from Newfoundland based upon their admission residency.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador College of Physiotherapy Prize
This prize is given to the student in the graduating class who has attained the highest academic standing in Musculoskeletal studies.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Occupational Therapy Board Prize
This award is given to the Newfoundland and Labrador student with the highest GPA throughout the standard two year Master of Science (OT) occupational therapy program.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Physiotherapy Association Prize
This prize is awarded to the member of the graduating class who has attained the highest standing in Neuroscience studies.
Application Type: Automatic Consideration – No Application Required

Nova Scotia College of Physiotherapists Prize
This is an annual award given to a graduating student who has demonstrated the greatest degree of leadership within their class. The recipient is chosen by his/her classmates by secret ballot.
Application Type: Automatic Consideration – No Application Required

NSSOT Student Society Award
This award recognizes outstanding contribution with the Dalhousie Occupational Therapy Student Society (DOTSS) and involvement with the NSSOT.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Section of Orthopedic Division, CPA Award
Established by the Nova Scotia Section of the Orthopedic Division of CPA, this annual award is given to the student in the graduating class with the best overall achievement in all Orthopedics/Musculo-Skeletal components of the Physiotherapy Program. The recipient of this award has demonstrated a consistently high skill level in the practical and clinical components of musculo- skeletal physiotherapy.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Society of Occupational Therapists (NSSOT) Book Prize
This award is given to the student who has demonstrated outstanding promotion of class spirit and contribution to extracurricular activities (professional and social) in the School of Occupational Therapy and the community.
Application Type: Automatic Consideration – No Application Required

School of Nursing PhD Scholarship
The scholarship is awarded annually to one or more full-time students enrolled in the PhD (Nursing) program who demonstrates potential for and/or shows active involvement in advancing the nursing profession in Canada.
Eligibility: Available to current students in the Doctor of Philosophy program in Nursing at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Barbara O'Shea Graduate Award (Post-Professional Award)
This award was established in recognition of contributions made by Barbara O'Shea to the School of Occupational Therapy as founding director and to the profession of occupational therapy. This award will be awarded to one or two full time or part-time students entering the first year of the Post-Professional Master of Science program at Dalhousie University. Selection will be based on the student's scholarly achievement to date and on a combination of contribution to the profession and potential for graduate studies (evidence taken from the Letter of Intent). In selecting, preference will be given to graduates of the Bachelor of Science
Eligibility: Available to students entering first year in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Dalhousie Occupational Therapy Student Involvement Award
This award is given to a second year Master of Science (OT) student in good academic standing, who is a member of the Dalhousie Occupational Therapy Student Society (DOTSS) and has clearly demonstrated leadership qualities, actively participated in DOTSS and the promotion of School and/or DOTSS spirit.
Eligibility: Available to students entering second year in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Sheila Poole Run for the Rock Award
This award is given to the student who clearly demonstrates balance among sound academic achievement, professional growth, athletics and community involvement.
Application Type: Automatic Consideration – No Application Required

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

PEI Occupational Therapy Society Award for Community Occupational Therapy PEI OT Soc and Reg Board Award
This award is given to the student who shows interest, enthusiasm, sensitivity and advocacy for community practice together with high academic achievement.
Application Type: Automatic Consideration – No Application Required

Prince Edward Island Physiotherapy Association Prize
This prize is awarded annually to the student of the graduating class who has the highest academic standing in Human Anatomy.
Application Type: Automatic Consideration – No Application Required

Cardwell Robinson Award
This award is given to the student who demonstrates academic achievement, aptitude and interest in courses related to psychiatry and mental health with at least one full-time fieldwork placement in a mental health setting.
Application Type: Automatic Consideration – No Application Required

Calvin Ruck Scholarship
This scholarship is for Bachelor of Social Work and Master of Social Work 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 NSAACP and to the qualities of courage, generosity, persistence, and leadership that characterizes Dr. Ruck's life and work.
Eligibility: Available to current Black students in the Bachelor and Master of Social Work programs. Applicants must be residents of Nova Scotia.
Application Type: Contact the Department, School, or College for more information

Fred Sammons Scholarship (MSc OT Entry level and Post-Professional Awards)
In 1986, Fred Sammons an occupational therapist and entrepreneur, donated money to Dalhousie University to establish a scholarship award for student research. With

the closure of the Bachelor of Science (OT) program in 2007, the Fred Sammons Scholarship was revised. The purpose of the revised, combined Fred Sammons Scholarship is true to the spirit of the original awards. The two Fred Sammons Scholarship awards will a) inspire students learning about research as they enter occupational therapy through Dalhousie's Master of Science (OT) degree, and b) inspire clinicians in Atlantic Canada who are advancing their research background through completion of Dalhousie's Master of Science (OT - Post-Professional) degree.In the spirit of the existing two endowed awards supported by Mr. Fred Sammons, a Fred Sammons Scholarship will be awarded annually to:i. one full-time student in Year two of the Master of Science (OT) program, and has the highest academic standing in the following Year one courses: OCCU 5006.03, Wellness and Inclusion by Design and Technology, OCCU 5005.04 Enabling Occupation 2 will also be considered given that its course content also includes technology and design elements. ii. one full-time OR part-time qualified occupational therapy clinician who is registered to practice in one of the four Atlantic Provinces, enrolled in the Master of Science (OT - Post-Professional) thesis program. Priority will be given to the student whose proposed research combines excellence in research design, relevance to Atlantic Canada, and interests related to technology and design solutions that promote health well-being and inclusion in everyday living.
Eligibility: Available to current students in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

School of Physiotherapy and CPA Pediatric Division
This award is given by the School of Physiotherapy and CPA Pediatric Division to recognize a graduating student who has shown a keen interest in pediatrics physiotherapy. The recipient is selected chosen based on both academic and practical excellence in the pediatric portions of the physiotherapy program.
Application Type: Automatic Consideration – No Application Required

The School of Social Work MSW Alumni Scholarship
This alumni scholarship has been established to support financial awards given to a student in the Master of Social Work degree program who demonstrates 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 scholarship.
Application Type: Automatic Consideration – No Application Required

The Patricia Stanfield Covert Award in Physiotherapy
An endowment has been established to provide an annual prize to a physiotherapy student who is entering the final year of the program. The recipient is to be nominated by classmates on the basis of extra curricular activities, interpersonal skills and scholarship proficiency.
Application Type: Automatic Consideration – No Application Required

Student Research Award
This award is given annually by the School of Physiotherapy. It recognizes student research efforts, and is presented to the research group who achieves the highest evaluation on their podium presentation at the School of Physiotherapy Annual Research Day.
Application Type: Automatic Consideration – No Application Required

Anna Trenholm Memorial Prize
The prize is awarded to one or more graduates of the nurse practitioner program who in the judgment of the faculty shows the most promise for contributing to the health of a disadvantaged Canadian community.
Application Type: Automatic Consideration – No Application Required

Unsung Hero Award
This award is given to the graduating student who has generously contributed her/ his time and efforts to School activities and has demonstrated a positive and enthusiastic school spirit.
Application Type: Automatic Consideration – No Application Required

Helen Watson Memorial Scholarship
The scholarship is awarded annually to a full-time student enrolled in the PhD in Nursing program who demonstrates potential for or shows active involvement in advancing the nursing profession in Canada. Applicants must normally have a grade point average of 3.66 in their previous work (baccalaureate or masters). Their letter of application will outline their contribution to nursing leadership and how their research will improve health outcomes and influence health and social policy.
Eligibility: Available to current students in the Doctor of Philosophy program in Nursing at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Sonja R. Weil Memorial Bursary
Family and friends established this endowment in memory of Sonja Weil and in tribute to her work as a social worker and psychotherapist. This bursary is open to students in the Bachelor of Social Work and Master iof Social Work programs, although first priority is given to graduate students who demonstrate financial need, satisfactory academic standing, and interest in those areas which most closely reflect Sonja Weil's work in child and family therapy.
Eligibility: Available to current students in the Bachelor and Master of Social Work programs at Dalhousie, with preference given to graduate students. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 15

Health Sciences

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.

Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Human Communication Disorders

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

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Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Nursing

Margaret Cragg Award
This award was established by the family and friends in honour of Margaret M. Cragg, who pioneered the movement against violence toward women and in the practice of preventative interdisciplinary health care. An annual financial award is made available to a graduate student in Nursing.
Eligibility: Available to current students in the Master of Nursing or Doctor of Philosophy in Nursing programs at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

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Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the

office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Alexandra Hirth Award for Excellence in Nursing Research
This award was established in memory of and in recognition of Alexandra Hirth's commitment to excellence. The award will provide financial support for students in the thesis stream of the Master of Nursing program. The annual award will be made to an outstanding student whose thesis has the potential to contribute to the development of nursing knowledge and whose research is focused on issues related to individuals or families living with chronic illness.
Eligibility: Available to current students in the Master of Nursing or Doctor of Philosophy in Nursing program.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Margaret Inglis Hagerman Graduate Scholarships in Nursing
These scholarships are awarded annually to Master of Nursing students who have demonstrated leadership.
Eligibility: Available to current students in the Master of Nursing program.
Application Type: Contact the Department, School, or College for more information

Katherine and Robert MacDonald Scholarship
The scholarship is intended to provide financial assistance to a student who is studying in a non-thesis option of the Master of Nursing program at Dalhousie University and who has demonstrated excellence in clinical nursing practice at the end of the first year of study. The applicant must have a grade point average of 3.6 or greater, have completed a minimum of one credit of nursing clinical courses and demonstrated excellence in nursing practice, and must supply a statement of career goals explaining how the selected graduate program will contribute to excellence in clinical nursing practice.
Eligibility: Available to current students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Electa MacLennan Memorial Scholarship
The scholarship pays tribute to Dr. MacLennan's outstanding contribution to nursing education. Applicants must be a graduate of the School of Nursing, Dalhousie University baccalaureate or Master's program, have a grade point average of 3.66 or greater, clearly state her/his career and educational goals and how the particular program will contribute to their development, be accepted as a full-time student or have completed three full credits in a recognized School of Nursing, and demonstrate potential for or show active involvement in advancing the nursing profession in Canada.
Eligibility: Available to current students in the Master of Nursing, Doctor of Philosophy in Nursing, or entering a graduate nursing program.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 31

Ruth May Award
The scholarship recognizes Dr. May's commitment to the education of outpost nurses and nurse practitioners. The award is given annually to one or more nursing students in the nurse practitioner stream in recognition of clinical excellence and professional growth.
Eligibility: Available to current students in the Master of Nursing program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

School of Nursing PhD Scholarship
The scholarship is awarded annually to one or more full-time students enrolled in the PhD (Nursing) program who demonstrates potential for and/or shows active involvement in advancing the nursing profession in Canada.
Eligibility: Available to current students in the Doctor of Philosophy program in Nursing at Dalhousie.
Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award

A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Anna Trenholm Memorial Prize
The prize is awarded to one or more graduates of the nurse practitioner program who in the judgment of the faculty shows the most promise for contributing to the health of a disadvantaged Canadian community.
Application Type: Automatic Consideration – No Application Required

Helen Watson Memorial Scholarship
The scholarship is awarded annually to a full-time student enrolled in the PhD in Nursing program who demonstrates potential for or shows active involvement in advancing the nursing profession in Canada. Applicants must normally have a grade point average of 3.66 in their previous work (baccalaureate or masters). Their letter of application will outline their contribution to nursing leadership and how their research will improve health outcomes and influence health and social policy.
Eligibility: Available to current students in the Doctor of Philosophy program in Nursing at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Occupational Therapy

Elizabeth Bell Scholarship MSc (OT) Entry level and Post-Professional Awards
This award was established to encourage students at all level of occupational therapy education to promote the integration of theory and practice in occupational therapy. The Elizabeth Bell Scholarship supports the rapid expansion of occupational therapy knowledge development and knowledge transfer through entry level, post-professional and PhD studies. In the Entry-level program, the award will be given to a student who has achieved excellent evaluations in all fieldwork courses. Occupational therapists in the Post-professional masters who achieve a grade of A or higher in OCCU 5020 are eligible for this award. Occupational therapists in a Dalhousie PhD program are eligible for consideration based on their PhD application Statement of Interest.
Application Type: Automatic Consideration – No Application Required

CAOT Student Award
This award is given to the student who has achieved the highest academic standing in occupational therapy theory courses.
Application Type: Automatic Consideration – No Application Required

Elsevier Canada Award
This award is given to the student with the second highest cumulative grade point average (GPA) and percentage score throughout the program.
Application Type: Automatic Consideration – No Application Required

Grainger Award
This award is given to a second year Master of Science (OT) student who has shown outstanding demonstration of application and integration of theoretical biomedical knowledge with professional therapeutic application.
Application Type: Automatic Consideration – No Application Required

Phyllis Kennedy Memorial Bursary
This is awarded to a deserving second year Master of Science (OT) entry level program student who is in good academic standing and who demonstrates an interest in their studies and the School.
Application Type: Automatic Consideration – No Application Required

NBAOT Awards for Fieldwork
This award recognizes high achievement on fieldwork performance ratings, quality of application of theoretical knowledge and therapeutic principles in a variety of fieldwork settings in New Brunswick.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Association of Occupational Therapists (NLAOT) Book Prize
This award is given to a Master of Science (OT) student from Newfoundland with the highest cumulative grade point average (GPA) entering the second year of the standard Master of Science (OT) program sequencing. A student is determined to be from Newfoundland based upon their admission residency.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Occupational Therapy Board Prize
This award is given to the Newfoundland and Labrador student with the highest GPA throughout the standard two year Master of Science (OT) occupational therapy program.
Application Type: Automatic Consideration – No Application Required

NSSOT Student Society Award
This award recognizes outstanding contribution with the Dalhousie Occupational Therapy Student Society (DOTSS) and involvement with the NSSOT.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Section of Orthopedic Division, CPA Award
Established by the Nova Scotia Section of the Orthopedic Division of CPA, this annual award is given to the student in the graduating class with the best overall achievement in all Orthopedics/Musculo-Skeletal components of the Physiotherapy Program. The recipient of this award has demonstrated a consistently high skill level in the practical and clinical components of musculo- skeletal physiotherapy.
Application Type: Automatic Consideration – No Application Required

Nova Scotia Society of Occupational Therapists (NSSOT) Book Prize
This award is given to the student who has demonstrated outstanding promotion of class spirit and contribution to extracurricular activities (professional and social) in the School of Occupational Therapy and the community.
Application Type: Automatic Consideration – No Application Required

Barbara O'Shea Graduate Award (Post-Professional Award)
This award was established in recognition of contributions made by Barbara O'Shea to the School of Occupational Therapy as founding director and to the profession of occupational therapy. This award will be awarded to one or two full time or part-time students entering the first year of the Post-Professional Master of Science program at Dalhousie University. Selection will be based on the student's scholarly achievement to date and on a combination of contribution to the profession and potential for graduate studies (evidence taken from the Letter of Intent). In selecting, preference will be given to graduates of the Bachelor of Science
Eligibility: Available to students entering first year in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Dalhousie Occupational Therapy Student Involvement Award
This award is given to a second year Master of Science (OT) student in good academic standing, who is a member of the Dalhousie Occupational Therapy Student Society (DOTSS) and has clearly demonstrated leadership qualities, actively participated in DOTSS and the promotion of School and/or DOTSS spirit.
Eligibility: Available to students entering second year in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Sheila Poole Run for the Rock Award
This award is given to the student who clearly demonstrates balance among sound academic achievement, professional growth, athletics and community involvement.
Application Type: Automatic Consideration – No Application Required

PEI Occupational Therapy Society Award for Community Occupational Therapy PEI OT Soc and Reg Board Award
This award is given to the student who shows interest, enthusiasm, sensitivity and advocacy for community practice together with high academic achievement.
Application Type: Automatic Consideration – No Application Required

Cardwell Robinson Award
This award is given to the student who demonstrates academic achievement, aptitude and interest in courses related to psychiatry and mental health with at least one full-time fieldwork placement in a mental health setting.
Application Type: Automatic Consideration – No Application Required

Fred Sammons Scholarship (MSc OT Entry level and Post-Professional Awards)
In 1986, Fred Sammons an occupational therapist and entrepreneur, donated money to Dalhousie University to establish a scholarship award for student research. With the closure of the Bachelor of Science (OT) program in 2007, the Fred Sammons Scholarship was revised. The purpose of the revised, combined Fred Sammons Scholarship is true to the spirit of the original awards. The two Fred Sammons Scholarship awards will a) inspire students learning about research as they enter occupational therapy through Dalhousie's Master of Science (OT) degree, and b) inspire clinicians in Atlantic Canada who are advancing their research background through completion of Dalhousie's Master of Science (OT - Post-Professional) degree.In the spirit of the existing two endowed awards supported by Mr. Fred Sammons, a Fred Sammons Scholarship will be awarded annually to:i. one full-time student in Year two of the Master of Science (OT) program, and has the highest academic standing in the following Year one courses: OCCU 5006.03, Wellness and Inclusion by Design and Technology, OCCU 5005.04 Enabling Occupation 2 will also be considered given that its course content also includes technology and design elements. ii. one full-time OR part-time qualified occupational therapy clinician who is registered to practice in one of the four Atlantic Provinces, enrolled in the Master of Science (OT - Post-Professional) thesis program. Priority will be given to the student whose proposed research combines excellence in research design, relevance to Atlantic Canada, and interests related to technology and design solutions that promote health well-being and inclusion in everyday living.
Eligibility: Available to current students in the Master of Science - Occupational Therapy program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

The Patricia Stanfield Covert Award in Physiotherapy
An endowment has been established to provide an annual prize to a physiotherapy student who is entering the final year of the program. The recipient is to be nominated by classmates on the basis of extra curricular activities, interpersonal skills and scholarship proficiency.
Application Type: Automatic Consideration – No Application Required

Pharmacy

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Physiotherapy

Canadian Physiotherapy Association Award
A certificate and first year membership in the Canadian Physiotherapy Association constitute this annual award. It is presented to the student who has achieved the highest aggregate percentage in academic and clinical physiotherapy education.
Application Type: Automatic Consideration – No Application Required

Canadian Physiotherapy Cardio-Respiratory/CPA Student Excellence Award
This award is given at convocation in recognition of outstanding achievement in cardio-respiratory physiotherapy.
Application Type: Automatic Consideration – No Application Required

Cardio-Respiratory Award
This award initiated by an anonymous donor recognizes excellence in cardiorespiratory physiotherapy. It is awarded to the student who achieves the highest academic and clinical standing in all components of cardiorespiratory physiotherapy.
Application Type: Automatic Consideration – No Application Required

Ken Hill Electrotherapy Award
This award, established by the ERP Group, is in honour of Mr. Ken Hill, retired Professor of Dalhousie University and who also received an honorary Doctorate from the University in 2002. The award is given to the member of the graduating class who demonstrates excellence in electrotherapy.

Application Type: Automatic Consideration – No Application Required

Morris B. Kohler Award in Physiotherapy
This prize is awarded to the student who has demonstrated the greatest interest in the treatment of long-term rehabilitation patients, while attending the Nova Scotia Rehabilitation Centre.
Application Type: Automatic Consideration – No Application Required

Hazel Lloyd Memorial Prize
The Hazel Lloyd Foundation was established by Miss Aphra Lloyd in memory of her sister, Miss Hazel A. Lloyd (1930-1985), Associate Professor, School of Physiotherapy. Friends, associates and alumni have made additional contributions. The purpose is to foster interest in geriatrics and gerontology, Professor Lloyd's major areas of interest. The Foundation awards an annual prize to the student with the highest standing in Integrated Practice.
Application Type: Automatic Consideration – No Application Required

Jean McAloney Memorial Prize
This prize is awarded annually to the student in the graduating class who has demonstrated the highest clinical standing. The prize is sponsored by the College of Physiotherapists of New Brunswick.
Application Type: Automatic Consideration – No Application Required

Donna Myers Memorial Award
This award is given by the Nova Scotia Branch of the Canadian Physiotherapy Association in memory of Donna Myers, one of the founding members of the Physiotherapy Professional Association of Nova Scotia. This award is presented to the student who exemplifies dedication and professionalism by achieving the greatest improvement in overall academic standing who consistently demonstrates professionalism and enthusiasm for physiotherapy. Recipient must be a student CPA member.
Application Type: Automatic Consideration – No Application Required

New Brunswick Student Professionalism Award
This award was established to recognize the graduating student who exemplifies professional behaviour and attributes within the academic and clinical settings. It is sponsored by the New Brunswick Physiotherapy Association.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador College of Physiotherapy Prize
This prize is given to the student in the graduating class who has attained the highest academic standing in Musculoskeletal studies.
Application Type: Automatic Consideration – No Application Required

Newfoundland and Labrador Physiotherapy Association Prize
This prize is awarded to the member of the graduating class who has attained the highest standing in Neuroscience studies.
Application Type: Automatic Consideration – No Application Required

Nova Scotia College of Physiotherapists Prize
This is an annual award given to a graduating student who has demonstrated the greatest degree of leadership within their class. The recipient is chosen by his/her classmates by secret ballot.
Application Type: Automatic Consideration – No Application Required

Prince Edward Island Physiotherapy Association Prize
This prize is awarded annually to the student of the graduating class who has the highest academic standing in Human Anatomy.
Application Type: Automatic Consideration – No Application Required

School of Physiotherapy and CPA Pediatric Division
This award is given by the School of Physiotherapy and CPA Pediatric Division to recognize a graduating student who has shown a keen interest in pediatrics physiotherapy. The recipient is selected chosen based on both academic and practical excellence in the pediatric portions of the physiotherapy program.
Application Type: Automatic Consideration – No Application Required

Student Research Award
This award is given annually by the School of Physiotherapy. It recognizes student research efforts, and is presented to the research group who achieves the highest evaluation on their podium presentation at the School of Physiotherapy Annual Research Day.
Application Type: Automatic Consideration – No Application Required

Unsung Hero Award
This award is given to the graduating student who has generously contributed her/ his time and efforts to School activities and has demonstrated a positive and enthusiastic school spirit.
Application Type: Automatic Consideration – No Application Required

Social Work

Association of Black Social Workers Bursary
The Association of Black Social Workers (ABSW) is a volunteer charitable organization consisting of Black Social Workers and Human Service Workers throughout the Province. ABSW offers a bursary to assist full and part time African Canadian students who are attending the Dalhousie School of Social Work and who are studying towards a social work degree. The applicant must apply in writing to the Chairperson of the Bursary Committee annually, before October 15th. The application should be accompanied by a cover letter, demonstrating your need for this bursary; a complete resume, outlining the applicant's paid and unpaid work in the social field; and two letters of reference, one academic and one work or community related. Each reference should speak to the applicant's suitability to the social work field.
Eligibility: Available to current Black students in the Master of Social Work program at Dalhousie. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information

Application Deadline: October 15

Margaret Cragg Award
Family, friends and others interested in assisting in the study of violence against women and/or children established the Margaret Cragg Award. The fund will be used to support one or more annual awards for a graduate student(s) enrolled in the MSW program in the School of Social Work, who is studying in the area of violence against women and/or children, or people living in high risk/disadvantaged environments. The recipients will be individuals who, in the judgment of the MSW Scholarship Committee meet the criteria.
Eligibility: Available to current students in the Master of Social Work program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Joan Cummings Memorial Award
Through a bequest to the University from the late Dr. Cummings, the Joan Cummings Memorial Award was established. Dr. Cummings was a highly respected social work academic, who made significant contributions to dis(Ability) scholarship and practice in human rights, access, and inclusion within the academy and the community. Dr. Cummings identified as a woman with a dis(Ability), and made it her life's work to improve the lives of those with dis(Abilities).
Eligibility: Available to current undergraduate and graduate students enrolled in the School of Social Work, in good academic standing, and who show promise of leadership and service. Preference will be given to a student with a dis(Ability). The recipient will be engaged in dis(Ability) scholarship, evident within the school and community.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 15

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

Eva Mary and Judge Hiram S. Farquhar Bursary
To provide an annual bursary(s) for one (or more) student(s) enrolled in the Bachelor or Master of Social Work Program at Dalhousie University who demonstrates financial need.
Eligibility: Available to current students in the Bachelor and Master of Social Work programs at Dalhousie, with preference given to a student born in or resident of Hants County, Nova Scotia. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Lawrence T. Hancock Scholarship
Dr. Hancock was the first full time Director of the Maritime School of Social Work and held this position from 1949 until his retirement in 1973. Contributions were made to this fund by the friends and colleagues of Lawrence Hancock. The funds will be used to provide an annual scholarship to a student in the Master of Social Work program, who achieves high academic standing, and shows promise of leadership and service as exemplified in Dr. Hancock's work. The recipient of the Hancock Scholarship will have demonstrated a high level of academic achievement and the potential for leadership in the field of social work. Applications for the

scholarship must be supported by letters of references from the applicant's university, place of employment and any relevant volunteer experience.
Eligibility: Available to current students in the Master of Social Work program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

Raoul Leger Memorial Humanitarian Award
This award was established to honour the memory of Raoul Leger, who received a Master'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. This 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.
Application Type: Automatic Consideration – No Application Required

Hanna G. Matheson Bursaries
These bursaries are available to students enrolled in the Bachelor of Social Work or Master of Social Work degree programs on the basis of need. The fund is administered by the Registrar's Office.
Eligibility: Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: General Online Bursary Application
Application Deadline: October 15

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Calvin Ruck Scholarship
This scholarship is for Bachelor of Social Work and Master of Social Work 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 NSAACP and to the qualities of courage, generosity, persistence, and leadership that characterizes Dr. Ruck's life and work.
Eligibility: Available to current Black students in the Bachelor and Master of Social Work programs. Applicants must be residents of Nova Scotia.
Application Type: Contact the Department, School, or College for more information

The School of Social Work MSW Alumni Scholarship
This alumni scholarship has been established to support financial awards given to a student in the Master of Social Work degree program who demonstrates 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 scholarship.
Application Type: Automatic Consideration – No Application Required

Sonja R. Weil Memorial Bursary
Family and friends established this endowment in memory of Sonja Weil and in tribute to her work as a social worker and psychotherapist. This bursary is open to students in the Bachelor of Social Work and Master iof Social Work programs, although first priority is given to graduate students who demonstrate financial need, satisfactory academic standing, and interest in those areas which most closely reflect Sonja Weil's work in child and family therapy.
Eligibility: Available to current students in the Bachelor and Master of Social Work programs at Dalhousie, with preference given to graduate students. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 15

Schulich School of Law

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Schulich School of Law Awards

George Caines Graduate Scholarship in Law
Approximately $20,000 (total) awarded to one of more students each year. This scholarship was established by John Bragg in recognition of George Caines' service to John Bragg, his family, and the Bragg Group of Companies as a trusted legal advisor over a long period of time.
Eligibility: First consideration given to applicants with a focus on business or tax law, but second consideration will be given to those students who, while qualified to pursue their graduate studies, have demonstrated financial need.
Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

J. Fielding Sherwood Memorial Bursary Fund
The fund provides a bursary which is to be awarded to an LLM or PhD student whose work concerns the environment, or relates in some way to fisheries or ocean research studies. The intent is that the bursary be directed toward travel or research. The student will be selected by the Associate Dean Graduate Studies, on the advice of the Graduate Studies Committee. The annual amount is to be determined by him/her. One award may be made annually. The fund will be self- perpetuating.
Eligibility: Available to students in the Master of Laws program at Dalhousie University, with preference given to Dalhousie LLB or JD graduates. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Roy A. Jodrey Scholarship in Law
The will of the late Roy A. Jodrey established a fund, the income of which is to be awarded as an annual scholarship, for post-graduate study at Schulich School of Law to a student deemed by the School to be outstanding.
Eligibility: Available to students in the Master of Laws and Doctor of Philosophy in Law programs.
Application Type: Contact the Faculty for more information

Law Foundation of Nova Scotia Millennium Graduate Fellowship Fund
The Law Foundation of Nova Scotia established the Graduate Millennium Scholarship in the year 2000 to provide one or more fellowships and research support to law students at the master's or doctoral level.
Application Type: Contact the Faculty for more information
Value: $20,000

Dean Ronald St. John Macdonald Fellowship in Law
Awarded on the basis of academic merit and financial need to a student entering the LLM program and concentrating in one of both of the fields of International Law or Human Rights Law. The student may be either a Canadian or non-Canadian citizen. This fellowship is in honour of the late Ronald St. John Macdonald, former Dean of the Law School and Judge of the European Court of Human Rights, who was instrumental in developing the graduate studies program at the Law School.
Eligibility: Available to current students in the Master of Laws program.
Application Type: Contact the Faculty for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Schulich Scholarships in Law
The fund provides annual scholarships to LLM and PhD students.
Eligibility: Available to students in the Master of Laws and Doctor of Philosophy in Law programs who meet two of the following three criteria: (a) academic merit, (b) community service, and (c) financial need.
Application Type: Contact the Faculty for more information
Value: 1 @ $20,000 and 2 @ $10,000

George C. Thompson Fellowship in Law
Mr. George C. Thompson established a fund to provide a graduate fellowship for a student enrolled in the Master of Laws program at Dalhousie. The fellowship should preferably be awarded to an LLB or JD graduate from Dalhousie with preference given to students who combine scholarly achievement and athletic involvement throughout the candidate's university career.
Eligibility: Available to students in the Master of Laws program, with preference given to Dalhousie LLB or JD graduates.
Application Type: Contact the Faculty for more information

The H. A. J. Wedderburn Scholarship in Law
The fund provides an annual scholarship to a Black Nova Scotian enrolled in a graduate program (LLM or PhD) in the Schulich School of Law, Dalhousie University. This scholarship was established by the Nova Scotia Association for the Advancement of Coloured People in recognition of Mr. Wedderburn's contributions in the struggles of Black peoples of Nova Scotia for equal access.
Eligibility: Available to Black students in the Master of Laws program, with preference given to Dalhousie LLB or JD graduates.
Application Type: Contact the Faculty for more information

Faculty of Management

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Management Awards

Alumni Scholarship
Sponsored by the School's Associated Alumni. Awarded to one incoming student on the basis of academic excellence and evidence of a commitment to a career in librarianship. No application necessary.
Eligibility: Available to students entering the Master of Library and Information Studies program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

AMSI Bursary
Funded by AMSI, this bursary aims to provide assistance to an incoming or returning MLIS student with good academic standing and proven financial need.
Eligibility: Candidates must be new or returning MLIS students in good academic standing with demonstrated financial need.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Dover Mills Fellowship in International Business
The Dover Mills Fellowship in International Business was created with a generous endowed gift to Dalhousie's Capital Ideas Campaign by Dover Mills Limited. The $5,000 fellowship is available to three full-time Atlantic Canadian students entering the final year of MBA studies, who are specializing in international business. Fellowship recipients will be selected on the basis of a career interest in international business and academic performance to date.
Application Type: Automatic Consideration – No Application Required
Value: $5,000

Stephanie Downs Memorial Award
Created in memory of Stephanie Downs (MLIS 2006). Stephanie demonstrated exemplary qualities for information professionals, notably: critical leadership abilities, superlative interpersonal skills, a strong interest in international perspectives, and a deep commitment to service.
Eligibility: Candidates must be part-time or full-time returning MLIS students with a demonstrated commitment to leadership and to student life at SIM. Candidates must have volunteered or studied in an international environment outside their home country.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 1

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

Goldberg-Schulich Award for Entrepreneurship
The Nevada Capital Corporation in 1984 donated the sum of $29,000 to establish an award in memory of Meyer Goldberg of Halifax, Nova Scotia. This award is available to a student entering the second year of Dalhousie University's MBA Program.
Eligibility: Available to current second year students in the Master of Business Administration program at Dalhousie.
Application Type: Contact the Department, School, or College for more information
Application Deadline: March 15

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Dalhousie-Horrocks National Leadership Award
The Dalhousie-Horrocks National Leadership Award provides support to incoming or returning graduate students who demonstrate leadership potential information management, specifically in libraries. The award will be presented at the Norman Horrocks Public Lecture, usually held in October.
Eligibility: Candidates must be incoming or returning MLIS students with an A- average (3.70 GPA). Candidates must be registered for fall and winter courses by May 1 and show leadership potential in the field of information management in libraries.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 1

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

Norman Newman Family Business Award
This scholarship is offered as a tribute to Mr. Newman's record of leadership in 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 through the Centre for Family Business and Regional Prosperity.
Eligibility: Available to current students in the Bachelor of Commerce, Bachelor of Management, or Master of Business Administration programs at Dalhousie.
Application Type: Contact the Department, School, or College for more information

NORTHSTAR Trade Finance - Mary Grover LeBlanc Memorial Fellowship - International Business
The Northstar Trade Finance-Mary Grover LeBlanc Memorial Fellowship in International Business was created by Scott Shepherd (MBA 1983). The $3,000 fellowship is available to two students studying International Business. Candidates must be Canadian citizens or permanent residents of Canada, and have a strong academic record to date.
Eligibility: Available to current students majoring in International Business in the Master of Business Administration program at Dalhousie. Applicants must be

Canadian citizens or permanent residents of Canada.
Application Type: Contact the Department, School, or College for more information
Value: $3,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

H. W. Wilson Foundation Award
Awarded to one incoming student on the basis of academic merit. No application necessary.
Application Type: Automatic Consideration – No Application Required

Business Administration

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The A.S. Mowat Prize
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
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Application Type: Contact the Department, School, or College for more information

Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Information Management

Alumni Scholarship
Sponsored by the School's Associated Alumni. Awarded to one incoming student on the basis of academic excellence and evidence of a commitment to a career in librarianship. No application necessary.
Eligibility: Available to students entering the Master of Library and Information Studies program at Dalhousie.
Application Type: Contact the Department, School, or College for more information

AMSI Bursary
Funded by AMSI, this bursary aims to provide assistance to an incoming or returning MLIS student with good academic standing and proven financial need.
Eligibility: Candidates must be new or returning MLIS students in good academic standing with demonstrated financial need.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
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The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Stephanie Downs Memorial Award
Created in memory of Stephanie Downs (MLIS 2006). Stephanie demonstrated exemplary qualities for information professionals, notably: critical leadership abilities, superlative interpersonal skills, a strong interest in international perspectives, and a deep commitment to service.
Eligibility: Candidates must be part-time or full-time returning MLIS students with a demonstrated commitment to leadership and to student life at SIM. Candidates must have volunteered or studied in an international environment outside their home country.
Application Type: Contact the Department, School, or College for more information
Application Deadline: May 1

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Dalhousie-Horrocks National Leadership Award
The Dalhousie-Horrocks National Leadership Award provides support to incoming or returning graduate students who demonstrate leadership potential information management, specifically in libraries. The award will be presented at the Norman Horrocks Public Lecture, usually held in October.
Eligibility: Candidates must be incoming or returning MLIS students with an A- average (3.70 GPA). Candidates must be registered for fall and winter courses by May 1 and show leadership potential in the field of information management in libraries.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 1

The A.S. Mowat Prize

The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

H. W. Wilson Foundation Award
Awarded to one incoming student on the basis of academic merit. No application necessary.
Application Type: Automatic Consideration – No Application Required

Public Administration

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.
Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Resource and Environmental Studies

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Application Deadline: October 31
Value: $750

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Application Type: Contact awards@dal.ca for more information

Application Deadline: See dsu.ca/bursaries for application and deadline information

Faculty of Science

This Calendar is prepared some months before the year for which it is intended to provide guidance. The policies, procedures, and awards listed in this section are subject to continuing review and revision. Not all awards listed will be offered in any given year. Additionally, the number of awards offered, values of awards, and selection criteria may change without notice.

All Faculty of Science Awards

Donald R. Arnold Scholarship
The Donald R. Arnold Scholarship is awarded to the student with overall excellence in chemistry, especially in the field of organic photochemistry, and who has demonstrated exceptional aptitude for research.
Application Type: Automatic Consideration – No Application Required

The Beatrice Award: Clinical Student Citizenship
The Clinical Citizenship Award will be awarded annually to the graduate student in the Clinical Psychology PhD Program who is deemed to have been the "best citizen" and the most positively helpful or supportive to fellow students (graduate or undergraduate) during their time in the Program. The award will be decided on by a committee of students and others chosen and headed by the Clinical Program Co-ordinator. The award is to honour the outstanding contributions of Beatrice Hanisch to the Clinical Psychology PhD Program since its inception in 1989.
Application Type: Automatic Consideration – No Application Required

Robert L. Comeau Scholarship
This scholarship honours the memory of Dr. Robert L. Comeau by providing scholarships to one or more students studying in the Department of Economics. Dr. Comeau was a member of Dalhousie's Economics Department for 27 years, retiring in 1990. He served as Chair from 1978 to 1983. He was a dedicated teacher and had long-standing concern for the financial needs of students. Applicants must have attained a first-class standing in their university economics studies to date. The financial need to applicants will be taken into consideration by the Selection Committee. Applicants must be graduate students. Students may apply directly by submitting a signed letter to the chairperson of the Economics Department or may be nominated by the Graduate Coordinator in the Department.
Eligibility: Available to current graduate students in Economics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: January 15

Dr. Jean Cooley Graduate Fellowship in Analytical Chemistry
The Cooley Fellowship provides an annual award for a female graduate student in Chemistry, who is participating in an analytical chemistry project in any division of chemistry.
Eligibility: Open to female graduate students enrolled in the MSc or PhD program, with a preference to candidates from the Maritime Provinces.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

The Belle Crowe Scholarship
The Scholarship was established in 1944 in accordance with a gift from the estate of Miss Belle Chisholm Crowe, a student at Dalhousie University in 1885/86. This scholarship is awarded to a deserving student upon his or her graduation from Dalhousie University to enable such students to pursue postgraduate study in Inorganic Chemistry.
Application Type: Contact the Department, School, or College for more information

Zella Crowe Spencer Memorial Scholarship
The Zella Crowe Spencer Memorial Scholarship is an annual award that will be used to "top-up" a regular Dalhousie Scholarship award going to a new or continuing female graduate student in economics. Candidates must have first-class standing in their university economics studies to date. It is open to students already in or applying to any graduate program offered by the Department of Economics.
Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Gerry Dauphinee Graduate Scholarship in Chemistry
The award recognizes the contribution of Professor Dauphinee to the Department of Chemistry at Dalhousie University. This scholarship rewards a graduate student in chemistry who has shown excellence in research and in teaching.
Application Type: Automatic Consideration – No Application Required

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.

Application Type: Contact the Department, School, or College for more information

The Professor Michael Edelstein Memorial Graduate Prize
Dr. Edelstein was an outstanding Professor in the Department of Mathematics and Statistics from 1964 to 1982. He was instrumental in the transformation of the department to the research department it is now, with a strong graduate component. A fund was established by his family to provide an annual prize to be awarded to a graduate student who shows great promise in the mathematical sciences. In order to encourage mathematical talent in both genders, the prize will alternate between male and female recipients.
Application Type: Automatic Consideration – No Application Required

The Kathy Ellis Memorial Book Prize
This prize was established through the support of Kathy's friends and colleagues who expressed the wish she be remembered and agreed that a fitting manner would be through the award of an annual book prize in Oceanography, given in her name. Kathy had a deep commitment to the principles of high quality scientific research and the communication of this knowledge to students and professionals in developing nations. This prize is presented annually to the Department of Oceanography graduate student, in their first year, who achieves the highest average in the Oceanography core courses.
Application Type: Automatic Consideration – No Application Required

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The Dr. Mabel E. Goudge Scholarship in Psychology
In her Will, the late Dr. Mabel Goudge bequeathed a sum of money to endow a scholarship for the most outstanding woman graduate student in experimental or clinical psychology.
Eligibility: Available to current female graduate students in Experimental or Clinical Psychology at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Heller-Smith Foundation Graduate Scholarship in Mathematics and Statistics
The Scholarship was established to provide financial support and recognition to a graduate student. This scholarship will be awarded annually on the basis of academic achievement as determined by the faculty committee in the department of Mathematics and Statistics.
Application Type: Automatic Consideration – No Application Required

The Douglas M. Johnston MASC Scholarship in Marine Affairs
This is an annual scholarship in the amount of $5,000 established by the Maritime Awards Society of Canada (MASC) for a Canadian citizen to pursue the Master of Marine Management (MMM) degree. The criteria for conferral of the scholarship include the following: applicants must be Canadian citizens; must demonstrate superior academic records; and may undergo a financial needs assessment. Qualified applicants to the MMM are automatically considered for this scholarship upon completion of their application; no separate application is necessary.
Application Type: Automatic Consideration – No Application Required
Value: $5,000

Professor George A. B. Kartsaklis Memorial Scholarship
Family, friends and colleagues of Professor Kartsaklis established this fund to provide financial assistance to one or more graduate students from Third World countries currently enrolled in the Department of Economics. The scholarship is most commonly awarded to students near the end of their programs and who need assistance while completing final degree requirements. The Department decides when and to whom the award with be given.
Application Type: Automatic Consideration – No Application Required

The Sarah M. Lawson Scholarships in Botany
At the discretion of the Honours/Undergraduate Awards Committee of the Department of Biology, the University may offer scholarships to students who have shown special ability in Botany. This award is open to students at Dalhousie University or the University of King's College, and is given to support summer or fall (for Co-op students) research projects in botany at either the undergraduate or graduate level.

Eligibility: Available to undergraduate and graduate biology students from Dalhousie or King's with an interest in studying Botany.
Application Type: Contact the Department, School, or College for more information

Kenneth T. Leffek Prize for the Best PhD Thesis in Chemistry
This prize was established in recognition of Professor Leffek's contribution to Dalhousie University and to the profession of chemistry in Canada. This prize is given to the student who has submitted and defended the best PhD thesis in chemistry. Normally, one award is made each year.
Application Type: Automatic Consideration – No Application Required

The William Leiper Memorial Scholarship
Dr. Leiper was an outstanding Professor in the Department of Physics from 1968 until his death in 1980. An endowment was established from funds donated by family, colleagues and friends of Dr. Leiper after his death to provide an annual scholarship to a student(s) with special ability pursuing a graduate degree in Physics. The scholarship is awarded at the discretion of the Physics and Atmospheric Science Department and is normally granted to a student already engaged in graduate studies at Dalhousie. The scholarship amount is to a maximum of $500.
Eligibility: Available to current graduate students in Physics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $500

The Patrick F. Lett Graduate Student Assistance Bursary in Mathematics and Statistics
This bursary is to aid graduate students who are having difficulties getting sufficient assistance from other sources. Students must demonstrate financial need in conjunction with supportive information from their supervisor or the Chair of the Department.
Eligibility: Available to current graduate students in Mathematics and Statistics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

The James Gordon MacGregor Memorial Teaching Fellowship in Physics
Relatives of the late Dr. J. G. MacGregor contributed to the James Gordon MacGregor Memorial Fund to provide awards to both undergraduate and graduate students in the study of physics. The graduate fellowships are offered to candidates pursuing a Master's or Doctoral degree in Physics. The holder of this fellowship is expected to provide instruction to undergraduate students during the academic session. The fellowships will be awarded at the discretion of the Physics and Atmospheric Science Department. Application is not required.
Eligibility: Available to current students in Physics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

The Dr. A. Stanley MacKenzie Teaching Fellowship in Physics
This fellowship was established in memory of Dr. A. Stanley MacKenzie, who was a Professor of Physics from 1905 to 1910 and President of Dalhousie University from 1911 to 1931. The annual fellowship is offered to a candidate pursuing a Master's or Doctoral degree in Physics who shows special ability in providing instruction to undergraduate students during the academic session. The fellowship will be awarded at the discretion of the Physics and Atmospheric Science Department.
Application Type: Automatic Consideration – No Application Required

Master of Marine Management Gold Award
The award is named in honour of Dr. Edgar Gold, CM, QC, one of the founders of the Dalhousie Ocean Studies program. An annual financial award is presented to the most deserving Master of Marine Management graduates who has completed the degree as a full-time student. The candidates will be identified within the annual peer group of MMM graduates according to academic performance and overall ability to reflect the ideal graduate as the "honest broker" i.e. one who is mindful of the complementary and competing multi- and inter-disciplinary interests which influence the design, implementation, and outcome of the management process in marine affairs.The Gold Award recipient is the student who best exemplifies MAP's objectives with the knowledge, skills and attitudes necessary to be a leader in the field of Marine Affairs. Students must have met all requirements to graduate by September 1 of each year in order to be eligible for award consideration.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

OZ Optics Limited Graduate Scholarship
The OZ Optics Limited Graduate Scholarship was established to provide an annual scholarship to a Master's or PhD student studying in the area of physics, electrical engineering or computer science. First preference will be given to applicants working in the area of fibre optics or closely related field. Second preference will be given to any graduate student enrolled in physics, electrical engineering or computer science. Thesis Master's and Doctoral students with a first class average who intend to or are pursuing studies and research related to fibre optics or a closely related field are eligible to apply. Scholarships will be for one year only. Award recipients will be identified by the Faculty of Graduate Studies Scholarship Committee, including an employee of OZ Optics. The general Dalhousie Graduate Award Rules are applied. The Award is valued at $10,000 for a 12 month academic year (one award per year). It is tenable only at Dalhousie University. Fees are not waived and must be paid out of the award and students must be accepted to Dalhousie before they apply.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 15
Value: $10,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31

Value: $750

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Application Type: Contact the Department, School, or College for more information

U. L. G. Rao Memorial Prize in Economics
Family, friends, former students and colleagues of the late Professor U. L. Gouranga Rao established the U. L. G. Rao Memorial Prize in Economics in his memory. Gouranga Rao was a member of Dalhousie's Department of Economics from 1968 to 2002. This annual prize is awarded to the Master's student(s) in Economics with the highest GPA in the MA Core Courses.
Application Type: Automatic Consideration – No Application Required

Douglas E. Ryan Prize for Excellence Graduate Studies in Chemistry
This prize honours the contributions made by Professor Douglas Ryan to Dalhousie University and to analytical chemistry. It is awarded on the basis of merit for work carried out in the graduate program in Chemistry at Dalhousie University, including class work, research, the preliminary oral examination and demonstrating duties.
Application Type: Automatic Consideration – No Application Required

Anna Wilson Scholarship in Chemistry
An endowment has been established to award a scholarship to a female graduate student studying for the Master of Science or PhD degree in Chemistry at Dalhousie University. The Scholarship commemorates the distinguished career of Anna Wilson (BSc 1927, MSc 1928), a long-time employee of Merck in Montreal and a founding member of the Canadian Institute of Food Science and Technology.
Application Type: Automatic Consideration – No Application Required

Biochemistry and Molecular Biology

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Irving and Jeanne Glovin Award
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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
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Application Deadline: mid-February

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Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
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Application Deadline: See dsu.ca/bursaries for application and deadline information

Biology

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The Sarah M. Lawson Scholarships in Botany
At the discretion of the Honours/Undergraduate Awards Committee of the Department of Biology, the University may offer scholarships to students who have shown special ability in Botany. This award is open to students at Dalhousie University or the University of King's College, and is given to support summer or fall (for Co-op students) research projects in botany at either the undergraduate or graduate level.
Eligibility: Available to undergraduate and graduate biology students from Dalhousie or King's with an interest in studying Botany.
Application Type: Contact the Department, School, or College for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Chemistry

Donald R. Arnold Scholarship
The Donald R. Arnold Scholarship is awarded to the student with overall excellence in chemistry, especially in the field of organic photochemistry, and who has demonstrated exceptional aptitude for research.
Application Type: Automatic Consideration – No Application Required

Dr. Jean Cooley Graduate Fellowship in Analytical Chemistry
The Cooley Fellowship provides an annual award for a female graduate student in Chemistry, who is participating in an analytical chemistry project in any division of chemistry.
Eligibility: Open to female graduate students enrolled in the MSc or PhD program, with a preference to candidates from the Maritime Provinces.
Application Type: Automatic Consideration – No Application Required
Value: $1,000

The Belle Crowe Scholarship
The Scholarship was established in 1944 in accordance with a gift from the estate of Miss Belle Chisholm Crowe, a student at Dalhousie University in 1885/86. This scholarship is awarded to a deserving student upon his or her graduation from Dalhousie University to enable such students to pursue postgraduate study in Inorganic Chemistry.
Application Type: Contact the Department, School, or College for more information

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Gerry Dauphinee Graduate Scholarship in Chemistry
The award recognizes the contribution of Professor Dauphinee to the Department of Chemistry at Dalhousie University. This scholarship rewards a graduate student in chemistry who has shown excellence in research and in teaching.
Application Type: Automatic Consideration – No Application Required

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
Students may apply to the Faculty of Graduate Studies for university bursaries made available through Dalhousie's Student Assistance Program. Bursary awards are based on eligibility and need. They are normally meant to help students overcome temporary financial emergencies such as medical costs or other unforeseen expenses. In exceptional circumstances a Faculty of Graduate Studies Bursary may be awarded for a chronic shortfall in the student's annual budget, and then only for students beyond their first year of graduate study at Dalhousie University who do not receive full scholarship support as defined by Faculty of Graduate Studies for Master's or PhD programs. Students must be registered full-time in order to receive a bursary. Students eligible for government loans must have applied for such loans and provide evidence of the assessment before a bursary application can be considered. Bursary applications are considered monthly throughout the year by the Faculty of Graduate Studies Graduate Bursary Committee (section II.4.5.7). Normally students cannot receive more than one bursary award in an academic year. Decisions of the Bursary Committee are not subject to appeal. The total available for bursaries in a given year depends on the amount available through the Student Assistance Program of the office of the Vice-President Student Services.

Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Kenneth T. Leffek Prize for the Best PhD Thesis in Chemistry
This prize was established in recognition of Professor Leffek's contribution to Dalhousie University and to the profession of chemistry in Canada. This prize is given to the student who has submitted and defended the best PhD thesis in chemistry. Normally, one award is made each year.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

Douglas E. Ryan Prize for Excellence Graduate Studies in Chemistry
This prize honours the contributions made by Professor Douglas Ryan to Dalhousie University and to analytical chemistry. It is awarded on the basis of merit for work carried out in the graduate program in Chemistry at Dalhousie University, including class work, research, the preliminary oral examination and demonstrating duties.
Application Type: Automatic Consideration – No Application Required

Anna Wilson Scholarship in Chemistry
An endowment has been established to award a scholarship to a female graduate student studying for the Master of Science or PhD degree in Chemistry at Dalhousie University. The Scholarship commemorates the distinguished career of Anna Wilson (BSc 1927, MSc 1928), a long-time employee of Merck in Montreal and a founding member of the Canadian Institute of Food Science and Technology.
Application Type: Automatic Consideration – No Application Required

Earth Sciences

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.

Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Economics

Robert L. Comeau Scholarship
This scholarship honours the memory of Dr. Robert L. Comeau by providing scholarships to one or more students studying in the Department of Economics. Dr. Comeau was a member of Dalhousie's Economics Department for 27 years, retiring in 1990. He served as Chair from 1978 to 1983. He was a dedicated teacher and had long-standing concern for the financial needs of students. Applicants must have attained a first-class standing in their university economics studies to date. The financial need to applicants will be taken into consideration by the Selection Committee. Applicants must be graduate students. Students may apply directly by submitting a signed letter to the chairperson of the Economics Department or may be nominated by the Graduate Coordinator in the Department.
Eligibility: Available to current graduate students in Economics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Application Deadline: January 15

Zella Crowe Spencer Memorial Scholarship
The Zella Crowe Spencer Memorial Scholarship is an annual award that will be used to "top-up" a regular Dalhousie Scholarship award going to a new or continuing female graduate student in economics. Candidates must have first-class standing in their university economics studies to date. It is open to students already in or applying to any graduate program offered by the Department of Economics.
Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Professor George A. B. Kartsaklis Memorial Scholarship
Family, friends and colleagues of Professor Kartsaklis established this fund to provide financial assistance to one or more graduate students from Third World countries currently enrolled in the Department of Economics. The scholarship is most commonly awarded to students near the end of their programs and who need assistance while completing final degree requirements. The Department decides when and to whom the award with be given.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

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Application Type: Contact the Department, School, or College for more information

U. L. G. Rao Memorial Prize in Economics
Family, friends, former students and colleagues of the late Professor U. L. Gouranga Rao established the U. L. G. Rao Memorial Prize in Economics in his memory. Gouranga Rao was a member of Dalhousie's Department of Economics from 1968 to 2002. This annual prize is awarded to the Master's student(s) in Economics with the highest GPA in the MA Core Courses.
Application Type: Automatic Consideration – No Application Required

Mathematics and Statistics

Dalhousie Student Union Student Accessibility Fund Award
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Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The Professor Michael Edelstein Memorial Graduate Prize
Dr. Edelstein was an outstanding Professor in the Department of Mathematics and Statistics from 1964 to 1982. He was instrumental in the transformation of the department to the research department it is now, with a strong graduate component. A fund was established by his family to provide an annual prize to be awarded to a graduate student who shows great promise in the mathematical sciences. In order to encourage mathematical talent in both genders, the prize will alternate between male and female recipients.
Application Type: Automatic Consideration – No Application Required

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

Heller-Smith Foundation Graduate Scholarship in Mathematics and Statistics
The Scholarship was established to provide financial support and recognition to a graduate student. This scholarship will be awarded annually on the basis of academic achievement as determined by the faculty committee in the department of Mathematics and Statistics.
Application Type: Automatic Consideration – No Application Required

The Patrick F. Lett Graduate Student Assistance Bursary in Mathematics and Statistics
This bursary is to aid graduate students who are having difficulties getting sufficient assistance from other sources. Students must demonstrate financial need in conjunction with supportive information from their supervisor or the Chair of the Department.
Eligibility: Available to current graduate students in Mathematics and Statistics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
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Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
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Application Type: Contact the Department, School, or College for more information

Microbiology and Immunology

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

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Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

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Application Type: Contact the Faculty of Graduate Studies for more information

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

Oceanography

Dalhousie Student Union Student Accessibility Fund Award
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Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

The Honourable W. H. Dennis Memorial Prizes for Literary Compositions in English
Two prizes known as the Joseph Howe Prizes are offered each year. First prize $250, second prize $150, for a poem or collection of poems of any length greater than one hundred lines. Two prizes known as the James DeMille Prizes are offered each year, one of $250 for an essay, the other of $250 for a prose short story.
Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

The Kathy Ellis Memorial Book Prize
This prize was established through the support of Kathy's friends and colleagues who expressed the wish she be remembered and agreed that a fitting manner would be through the award of an annual book prize in Oceanography, given in her name. Kathy had a deep commitment to the principles of high quality scientific research and the communication of this knowledge to students and professionals in developing nations. This prize is presented annually to the Department of Oceanography graduate student, in their first year, who achieves the highest average in the Oceanography core courses.
Application Type: Automatic Consideration – No Application Required

Faculty of Graduate Studies Emergency Bursaries
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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

The President's Graduate Teaching Assistant Awards
Dalhousie University recognizes and applauds the important contributions of Graduate Teaching Assistants to the educational mission of the University. The work of TAs, in the classrooms, laboratories and behind the scenes, provides crucial support for faculty members and greatly enhances the learning process for undergraduate students. Each year, the President's Graduate Teaching Assistant Awards are presented to those TAs who have achieved outstanding success in the area of undergraduate instruction. Nominations are accepted at the Centre for Learning and Teaching.
Application Type: Contact the Department, School, or College for more information

Physics and Atmospheric Science

Dalhousie Student Union Student Accessibility Fund Award
The Dalhousie Student Union established this fund to support students with a disability.
Eligibility: Students must be in good academic standing and registered with the Advising and Access Services Centre or with their provincial government as having a disability. Students cannot also be in receipt of a Johnson Foundation Bursary.
Application Type: Contact awards@dal.ca for more information
Application Deadline: See dsu.ca/bursaries for application and deadline information

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Eligibility: Available to any full-time undergraduate or graduate Dalhousie student who submits the best essay, short story, or collection of poems.
Application Type: Contact the Department, School, or College for more information

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Application Type: Contact the Faculty for more information
Value: Maximum of $1,000

The Irving and Jeanne Glovin Award
The Oskar Schindler Humanities Foundation established this award in 2003 to support research into the meaning and principles underlying "good human conduct". Students enrolled in any major discipline, for example, Languages, Social Sciences, Humanities and Performing Arts, or any interdisciplinary program, for example, Canadian Studies, European Studies, Gender and Women Studies and IDS are encouraged to apply. The recipient will preferably have broad general education and interdisciplinary interests appropriate to the research topic chosen.
Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.
Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The John and Lina Graham Commonwealth Bursary
The donors established this fund to mark the 75th anniversary in 1988 of the Association of Commonwealth Universities. It is used to assist graduate students who find themselves in need of financial aid while in Nova Scotia.
Eligibility: Applicants must be residents of Commonwealth countries other than Canada. Applicants will have demonstrated financial need and have satisfactory academic standing.
Application Type: Contact the Faculty of Graduate Studies for more information

The William Leiper Memorial Scholarship
Dr. Leiper was an outstanding Professor in the Department of Physics from 1968 until his death in 1980. An endowment was established from funds donated by family, colleagues and friends of Dr. Leiper after his death to provide an annual scholarship to a student(s) with special ability pursuing a graduate degree in Physics. The scholarship is awarded at the discretion of the Physics and Atmospheric Science Department and is normally granted to a student already engaged in graduate studies at Dalhousie. The scholarship amount is to a maximum of $500.
Eligibility: Available to current graduate students in Physics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information
Value: $500

The James Gordon MacGregor Memorial Teaching Fellowship in Physics
Relatives of the late Dr. J. G. MacGregor contributed to the James Gordon MacGregor Memorial Fund to provide awards to both undergraduate and graduate students in the study of physics. The graduate fellowships are offered to candidates pursuing a Master's or Doctoral degree in Physics. The holder of this fellowship is expected to provide instruction to undergraduate students during the academic session. The fellowships will be awarded at the discretion of the Physics and Atmospheric Science Department. Application is not required.
Eligibility: Available to current students in Physics at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

The Dr. A. Stanley MacKenzie Teaching Fellowship in Physics
This fellowship was established in memory of Dr. A. Stanley MacKenzie, who was a Professor of Physics from 1905 to 1910 and President of Dalhousie University from 1911 to 1931. The annual fellowship is offered to a candidate pursuing a Master's or Doctoral degree in Physics who shows special ability in providing instruction to undergraduate students during the academic session. The fellowship will be awarded at the discretion of the Physics and Atmospheric Science Department.
Application Type: Automatic Consideration – No Application Required

The A.S. Mowat Prize
The A.S. Mowat Prize was established in 1984 and was created with gifts from numerous donors' contributions from alumni and staff who worked and studied under Professor Mowat. The purpose of The A.S. Mowat Prize is to perpetuate the memory of Alexander S. Mowat who, as O.E. Smith, Professor of Education, served for thirty years (1939-1969) as chairman of the Department of Education at Dalhousie University; and to commemorate Professor Mowat's contribution to education in Nova Scotia. A prize will be awarded to recognize outstanding achievement by a student who is in his or her first year of a master's program in any discipline at

Dalhousie University.
Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

OZ Optics Limited Graduate Scholarship
The OZ Optics Limited Graduate Scholarship was established to provide an annual scholarship to a Master's or PhD student studying in the area of physics, electrical engineering or computer science. First preference will be given to applicants working in the area of fibre optics or closely related field. Second preference will be given to any graduate student enrolled in physics, electrical engineering or computer science. Thesis Master's and Doctoral students with a first class average who intend to or are pursuing studies and research related to fibre optics or a closely related field are eligible to apply. Scholarships will be for one year only. Award recipients will be identified by the Faculty of Graduate Studies Scholarship Committee, including an employee of OZ Optics. The general Dalhousie Graduate Award Rules are applied. The Award is valued at $10,000 for a 12 month academic year (one award per year). It is tenable only at Dalhousie University. Fees are not waived and must be paid out of the award and students must be accepted to Dalhousie before they apply.
Application Type: Automatic Consideration – No Application Required
Application Deadline: May 15
Value: $10,000

The Phi Kappa Pi Joe Ghiz Memorial Award
A prize of $750 will be awarded to a student studying at the Master's or Doctoral level, in any discipline at Dalhousie University. The student must have a first-class standing (GPA 3.70/4.30) or higher in the last two years of previous study (graduate and/or undergraduate) and demonstrate both community involvement and university life involvement. Application forms are available on the Faculty of Graduate Studies website.
Application Type: Contact the Department, School, or College for more information
Application Deadline: October 31
Value: $750

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Application Type: Contact the Department, School, or College for more information

Psychology and Neuroscience

The Beatrice Award: Clinical Student Citizenship
The Clinical Citizenship Award will be awarded annually to the graduate student in the Clinical Psychology PhD Program who is deemed to have been the "best citizen" and the most positively helpful or supportive to fellow students (graduate or undergraduate) during their time in the Program. The award will be decided on by a committee of students and others chosen and headed by the Clinical Program Co-ordinator. The award is to honour the outstanding contributions of Beatrice Hanisch to the Clinical Psychology PhD Program since its inception in 1989.
Application Type: Automatic Consideration – No Application Required

Dalhousie Student Union Student Accessibility Fund Award
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Eligibility: Available to a full-time student in the final year of any undergraduate program or any year of a graduate program at Dalhousie University.

Application Type: Contact the Faculty for more information
Application Deadline: mid-February

The Dr. Mabel E. Goudge Scholarship in Psychology
In her Will, the late Dr. Mabel Goudge bequeathed a sum of money to endow a scholarship for the most outstanding woman graduate student in experimental or clinical psychology.
Eligibility: Available to current female graduate students in Experimental or Clinical Psychology at Dalhousie University.
Application Type: Contact the Department, School, or College for more information

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Application Type: Contact the Faculty of Graduate Studies for more information
Application Deadline: April 1
Value: $1,500

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Application Deadline: October 31
Value: $750

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