Environmental Remote Sensing Syllabus

Department of Earth & Environmental Sciences

ERTH / GEOG 4530 Summer 2024

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor(s)

Name	Email	Student Hours
Christopher Greene, PhD	Chris.Greene@dal.ca	Mondays 2:00 to 3:00 pm
Bay Berry	Bay.Berry@dal.ca	N/A

Course Description

The goal of this course is to introduce students to the role of remote sensing as a technique to provide environmental and geologic information. Particular emphasis will be placed on examining the potential and limitations of remote sensing methods and data in this context. The lectures discuss the fundamentals of remote sensing with an emphasis on optical multispectral satellite systems. In the lab, students use computerized techniques of digital image enhancement and thematic information extraction to process images derived from a range of remote-sensing systems. The integration of remote-sensing information with GIS (Geographic Information Systems) is stressed in both the labs and lectures.

Course Prerequisites

ERTH 3500.03, GEOG 3500.03, ENVS 3500.03 or ERTH 5600.03 or SCIE 3600.03

Course Exclusions

Credit will only be given for one of ERTH 4530.03, ERTH 5530.03, or GEOG 4530.03

Learning Objectives

With successful completion of the course, students will be able to:

- Recognize and explain the basic principles of remote sensing (RS);
- Identify, compare, and contrast common remote sensing collection systems;
- Explain the difference between the correction and enhancement of remotely sensed data;
- Apply these procedures to extract thematic information from remotely sensed data for different topical areas; and
- Recognize, explain, and demonstrate how error in information extraction is calculated.

Student Resources

Student Hours for the Course Instructor and Teaching Assistant are booked through the MS-BOOKINGS site for Dr. Greene's courses (https://bit.ly/3C06Pda). Appointments are booked for 20-minute time slots.

While it is a teaching space, the Elizabeth May Centre for Geocomputation (LSC-2012) is open to students to work outside of scheduled class time. The lab is open 7:00 am to 10:00 pm except on university holidays. Additionally, the class schedule for the lab will be posted on the door to assist students with planning.

The GIS Centre (located on the 5th floor of the Killam Library) also supports this class by providing access to additional applied help during normal business hours (10 am - 4 pm). Appointments with a staff member for help on workshops or projects can be booked through their MS-BOOKINGS page (https://bit.ly/3OM7dDl). It is also critical to note that the GIS Centre assists with applied parts of the course only; staff do not assist in answering theory related questions on class deliverables.

Course Structure

Course Delivery

This course employs a blended delivery model, with both synchronous and asynchronous elements to the class. Moreover, the synchronous elements of the class are designed for in person delivery with several deliverables requiring in-person attendance to complete (i.e., weekly exercises, three term tests). A remote stream may be available if requested but will not be active by default. This option intended only to accommodate individual absences, not replace in-class attendance and participation. These sessions are not recorded as they are not traditional lectures and are focused on more active learning exercises.

Finally, in addition to the Catalyst Professional™ software platform, this course also employs the ESRI suite that includes ArcGIS Pro™. As a U.S.-based Company ESRI observes embargoes placed on several countries by the U.S. government and do not permit exporting / use of the software in those embargoed nations for non-government users. That From ESRI's Export Compliance material:

> *"In addition, ENC products are eligible for export to any nongovernment customer in all destinations except the embargoed countries: Cuba, Iran, North Korea, Syria, Russia, Belarus, and the Regions of Crimea, Donetsk People's Republic, and Luhansk People's Republic of Ukraine."*

Lectures

In person lectures are scheduled from 10:05 to 11:25 on Tuesdays and Thursdays in the Life Sciences Centre Common Area (LSC-C220). These sessions involve organized active learning exercises, student Q & A, test delivery, and introduction of upcoming applied exercises.

Applied Laboratories

A three-hour in-person lab section is held on Tuesdays and Thursdays, from 1:05 pm to 4:25 pm in the Elizabeth May Centre for Geocomputation (LSC-2012). If students are unable to attend an individual lab section, they are permitted to contact the Teaching Assistant via MS-TEAMS with questions during the scheduled lab section. This option is a courtesy to accommodate individual absences and not intended to substitute for attending the applied sessions on a regular basis.

Course Materials

Recommended Textbook

Campbell, J. B., Wynne, R. H., and Thomas, V. A. (2023). *Introduction to Remote Sensing* (6th ed.). Guilford Publishing. Available as an e-book through the Killam library at https://bit.ly/3quLSFq.

Software

Access to both PCI Catalyst Professional™ (formerly PCI Geomatica™) and ArcGIS Pro™ 3.1 are required to complete this class. The remote sensing software used in the course has limited access and is installed only in the Elizabeth May Centre for Geocomputation (LSC-2012) and the Dalhousie GIS Centre (5th Floor Killam Library). If you have a computer running a Windows 10+ operating system, we should be able to arrange a temporary license for course use (details will be provided separately).

Access to ArcGIS Pro™ 3.1 is also required and is installed on all Dalhousie campus machines (e.g., the Elizabeth May Centre for Geocomputation, the Wallace McCain Learning Common,

Killam Library). The software may also be available to you on your own computer through two alternative methods[1]:

1) **Downloading ArcGIS Pro™** through the Dalhousie Software resources to run on a Windows Operating System (https://software.library.dal.ca/). It is important to double-check the hardware requirements for the software if using this approach (https://bit.ly/3jGbk4k) as video capacity (recommended minimum is a 4 GB GPU) tends to be a common limitation. The local download can be licensed using Dalhousie Single Sign On (SSO).

2) **Web Delivered Access** through a strong, stable broadband connection in a virtual lab environment (https://apps.vlab.dal.ca/, use: ArcGIS) or a remote desktop connection (https://remoteaccess.labstats.com/dalhousie-university). This method can be used by either Windows or Mac operating systems through a downloadable client, or through a web browser. The first week's workshop provides an overview of using the virtual lab environment and remote desktop.

Digital Storage

There are several times during the course where digital files are used across several weeks and deliverables. Because campus terminals are "frozen", students will need to save their work to an external location like their Dalhousie OneDrive or to an external USB drive (best practice is to save duplicates in separate locations). I recommend bringing a 64 GB Minimum USB drive (USB-3 recommended) formatted to the NTFS file system to use exclusively for this course to save weekly applied work in addition to saving to OneDrive. The USB-C format has even faster read / write speeds than USB-3, however this option is presently only available in LSC-2012 and not campus-wide.

Assessment

Assignments

Applied – Small Value Lab Deliverables (150 pts.): Standalone, structured exercises completed in a single lab session with a deliverable such as a single map or worksheet to be evaluated. These exercises introduce and develop fundamental remote sensing techniques and data management practices in preparation for the Independent Lab Project. Workshop deliverables are due +24 hours from the end of the scheduled lab section.

[1] If using either of these options, students are responsible for ensuring they have either an appropriate Windows capable machine at home and / or a stable broadband internet connection (ethernet strongly recommended) to use VMWare or Remote Desktop.

Applied – One Independent Lab Projects (350 pts.): One larger, multiple lab session project, requiring students to select and apply techniques learned in the previous standalone, structured exercises for a location of their choice to address a given question / topic area. These projects are intended to develop the ability to integrate and contextualize analytical outputs in a professional product (e.g., PowerPoint Presentation, Technical Report, Story Map).

Preliminary Results Summary (100 pts.) – Due Thursday, July 4th, 2024 at 1:00 pm

Final Deliverable (250 pts.) – Due Friday, July 12th, at 4:30 pm

In Class Exercises (100 pts): Regular active learning exercises completed and discussed in the lecture section of the class. These exercises are pass / fail and intended to reinforce specific lecture topics or to demonstrate how the software executes an operation on one or more inputs.

Knowledge Tests

Students will complete three equally weighted written tests for a total of 400 pts. Each test is largely structured as short/long answer format. Term tests are held during the scheduled in person sessions and have a 90-minute time limit.

Test 1 (200 pts.) – Tuesday, June 18th, 2024, Content = Modules 1, 2, & 3

Test 2 (200 pts.) - Tuesday, July 9th, 2024, Content = Modules 4, 5, & 6

Content on Test 2 is not fully "cumulative" but does rely on several scaffolded topics from the previous test that carry through the entire term and underpin later concepts covered in the course.

Final Exam

There is no final exam for this course. However, a time slot at the end of the course will be scheduled deliver makeup tests for those missing a term test for valid reasons during the course.

Other Course Requirements

Students must earn 250 of the available points in the theory portion of the class and earn 250 of the available points in the applied portion of the class to complete the course. Students that do not achieve this threshold in both the theory and applied portions of the course will be assigned an F regardless of the total number of points earned.

Grade	Range	Definition and Expectations
A+ A A-	90-100 85-89 80-84	**Excellent:** Considerable evidence of original thinking; demonstrated outstanding capacity to analyze and synthesize; outstanding grasp of subject matter; evidence of extensive knowledge base.
B+ B B-	77-79 73-76 70-72	**Good:** Evidence of grasp of subject matter, some evidence of critical capacity and analytical ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.
C+ C C-	65-69 60-64 55-59	**Satisfactory:** Evidence of some understanding of the subject matter; ability to develop solutions to simple problems; benefitting from his/her university experience.
D	50-54	**Marginal Pass:** Evidence of minimally acceptable familiarity with subject matter, critical and analytical skills (except in programs where a minimum grade of 'C' is required).
F	<50	**Inadequate:** Insufficient evidence of understanding of the subject matter; weakness in critical and analytical skills; limited or irrelevant use of the literature.

Important Dates

Last Day to Cancel Enrolment:	Saturday, June 1st, 2024
Last Day to Drop without "W":	Sunday, June 9th, 2024
Last Day to Change to Audit (or Credit):	Saturday, June 1st, 2024
Last Day to Drop with "W":	Sunday, June 23rd, 2024
Canada Day – University Closed	Monday, July 1st, 2024

General Course Management Policies

Audits

As per section 10 of the Undergraduate calendar, audits of this course are only permitted if permission to audit the course is given by the course instructor and a plan of what constitutes the planned audit is agreed upon by the instructor and student.

Synchronous Sessions

There are no direct grade penalties for not attending the scheduled synchronous session (i.e., attendance). There are, however, assessments such as in-class exercises and term tests delivered and submitted during the synchronous sessions over the semester. Moreover, these sessions are also intended to provide a forum to ask clarification questions about lecture content, lab projects, and upcoming tests or exams. Material covered in the synchronous

session may not be replicated in other media. Students are responsible for any information missed in the synchronous sessions.

Learning Management System (LMS)

Important information is posted to the LMS several times a week. It is the responsibility of each student to check the LMS and their Dalhousie email on a regular basis to ensure they are not missing any important materials, updates, announcements, etc.

Materials posted to the Learning Management System are for personal use only and are not to be shared (see Copyright Disclaimer in the LMS Course Shell). Sharing class materials with other students (registered in the class, not in the class, or outside the institution) is not permitted. Posting class materials to course sharing sites is also not permitted and could be considered both a copyright issue as well as a breach of academic integrity.

Social Media

It can be disheartening to see your instructor posting material to social media that negatively discusses their students, even when those posts do not identify individuals. As students in this class, you have my promise that I will not publicly post anything negative about participants in this class.

Course Variations

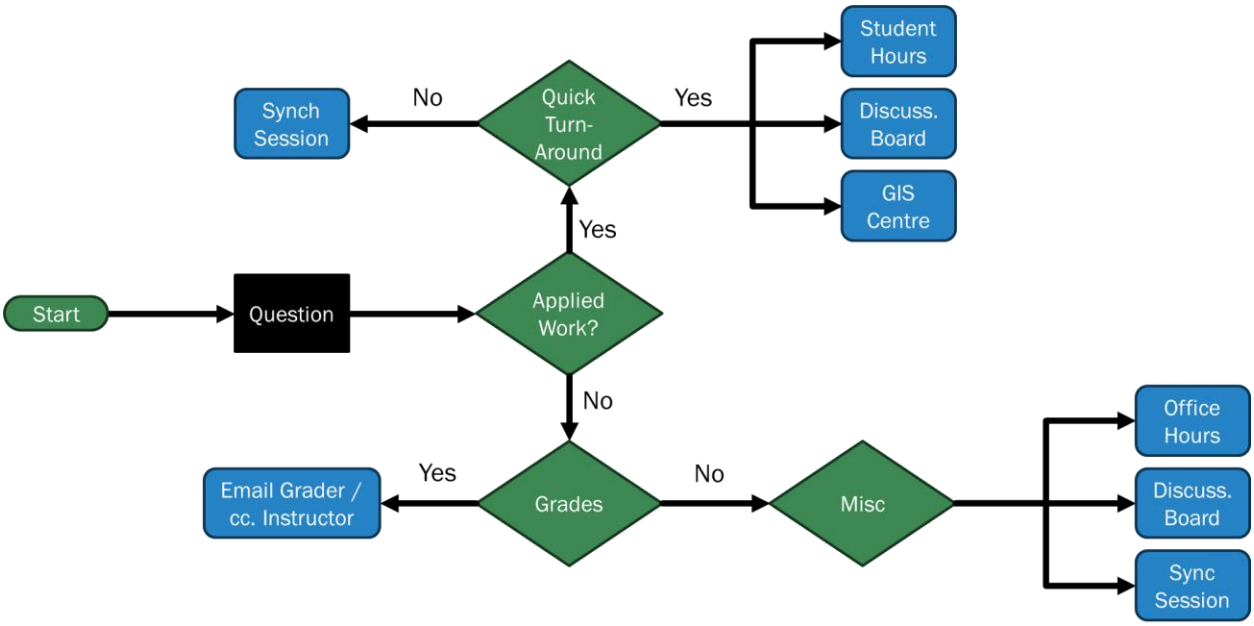
The course will be taught as close to the listed schedule as possible; however, some deviation from this schedule may be required as the term progresses.

Communications

Students are required to use discussion boards in the Learning Management System for many communication types, especially if related to course management and assessments that have applicability to the entire class cohort. If the Instructor, Lab Instructor, or Teaching Assistants receive an email and feel the question should go to the discussion boards, they will ask the student to replicate their question there for a full response or to ask the question in the next scheduled synchronous session.

Discussion boards will be set up to allow anonymous posting to increase the comfort level of students posting publicly. Please note that even with anonymous posting the moderator (i.e., the teaching staff) will know the identity of the user posting. Please endeavour to be courteous in all communications, including discussion boards.

Due to the volume of emails received during the semester, I am unable to guarantee immediate responses to email enquiries. Typically, students should expect an average of one business day for turnaround of responses to emailed questions. A rough decision tree to assist students in what communications tools to employ has been provided below.



Enquiries containing sensitive information or where privacy should be maintained should always be handled through office hours or email communications, never discussion boards.

Course Policies on Missed or Late Academic Requirements

Student Absence Declaration

his course has opted into the student declaration of absence in lieu of sick notes. Please refer to https://bit.ly/2NJS8jw for specific details about the use of the Student Declaration of Absence. This mechanism is meant to substitute for sick notes from a doctor related to short absences (less than three days) and does not provide an automatic exemption from any missed assessments. Accommodating the absence whether by exemption, extra time, makeup assessment, other is at the discretion of the course instructor. The SDA process can only be used twice in the course.

To streamline the process, when submitting an SDA you are required to submit the formal Dalhousie PDF (https://bit.ly/3NLYro9) through the completion of a Microsoft form (https://forms.office.com/r/7V6eRtgDND) that will automatically send an email to the instructor when the form is submitted, thus satisfying the "inform instructor" portion of the policy. A link to this form is also provided in the LMS to the right of the Course Announcements.

Discretionary Extensions ("the Saving Throw")

In addition to accommodations provided by the SDA policy and long-term absence policy, each student begins the semester with five discretionary extensions they may use on any applied assessment (workshop or lab project). These extensions differ from accommodations like SDAs in that Students may choose to a discretionary extension to apply a +24-hour extension on that assessment for any reason not covered by standard accommodation policies, for any

reason at all and with no questions asked. A maximum of 2 of these discretionary extensions or "Saving Throws" can be applied to the same assessment for a maximum of a +48 hour extension on the assessment.

Please note, the teaching staff must be informed prior to the deadline (see Communications Decision Tree) for the assessment passing to use these extensions for the extension to apply. Again, a Microsoft Form (https://forms.office.com/r/DQwBDnRfbz) has been created for students to submit these requests. Like the SDA submission, this link is also provided in the LMS to the right of Course Announcements.

You can use a discretionary extension / saving throw after the deadline, however half the late penalty (or "half damage" for any D&D peeps out there) will be applied for that saving throw. Additional saving throws for the same assessment requested prior to the deadline are treated independently.

These discretionary extensions are meant to supplement applicable policies such as the SDA (i.e., they are in addition to existing policies), and not meant to act as a replacement for these existing policies. If you are sick, have accommodations that include extensions, are in bereavement, then the policies that normally govern those conditions (SDA, Accessibility, etc.).

Missed Small Deliverables (Module-Related Exercises and Structured Workshops)

For both the module related exercises and the structured workshops, the lowest individual item for each will be dropped from the total score. If a student does not submit an item, that item is assigned a 0 and will count as the lowest score item.

Missed Tests

If a student misses a term test for valid reasons, they can write a make-up test to be scheduled at the end of the course. Students that miss both term tests must consult with the instructor for options on a case-by-case basis.

Submission of Work and Late Penalties

To reduce the carbon footprint related to class delivery, most work will be submitted and graded electronically in the Brightspace LMS to reduce paper use.

Late penalties for written work without accommodation from the instructor are -20% per calendar day. Late penalties begin to accrue after the assigned submission time has been reached. For example, if an assignment is due on September 4th at 12:00 pm, submissions past that time (plus a brief "grace period") are subject to the first application of a -20% late penalty.

Course Policies related to Academic Integrity

All written work may be subject to evaluation using a plagiarism detection service. All students are responsible for ensuring the product they submit to the LMS is the one they intended to submit. There has been an emerging trend of "I submitted the wrong draft" as a justification for high similarity in originality detection, or as an effort to buy time to avoid late penalties from submitting after the scheduled due date. If a resubmission is permitted, that submission will be subject to a grade penalty unless there is timely notification from the student to the instructor that the wrong draft was submitted.

Unless otherwise noted by the instructor, independent work is required for each student. General discussion and peer tutoring are acceptable and encouraged; however, assessments with highly similar structure and flow of ideas are not acceptable and could be submitted to the faculty academic integrity officer for review. Similarly, if not indicated in individual assessment instructions, then the products of Large Language Models / Generative AI (e.g., text generated by ChatGPT, Mobile ChatBot extensions, browser extensions) will not be considered as independent student work and is explicitly not permitted for use in assessment submissions.

Course Content

Class	Date	Theory	Applied	Assessment Due
1	28-May-24	Overview, 1-1*, 1-2	SWS-1	-
2	30-May-24	Module 1-3, 1-4, 1-5, 1-6	SWS-2	SWS-1**
3	04-Jun-24	Module 2-1, 2-2, 2-3	SWS-3	SWS-2
4	06-Jun-24	Module 2-4, 2-5, 2-6	SWS-4	SWS-3
5	11-Jun-24	Module 2-6, 2-7, 3-1	SWS-5	SWS-4
6	13-Jun-24	Module 3-2, 3-3, 3-4	SWS-6	SWS-5
7	18-Jun-24	Term Test 1	SWS-7	SWS-6
8	20-Jun-24	Module 4-1, 4-2, 4-3	SWS-8	SWS-7
9	25-Jun-24	Module 4-4, 4-5, 4-6	SWS-9	SWS-8
10	27-Jun-24	Module 5-1, 5-2, 5-3	Working***	SWS-9
11	02-Jul-24	Module 6-1, 6-2, 6-3	Working	
12	04-Jul-24	Module 6-4, 6-5, 6-6	Working	Project Preliminary Results (July 4th, 2024)
13	09-Jul-24	Term Test 2	Working	
14	11-Jul-24	Working	Working	
15	12-Jul-24	-	-	Project Final Deliverable (July 12th, 2024)

**Dashed numbers indicate the asynchronous lecture topics students are expected to review before the scheduled class.*

***Workshop deliverables are due +24 hours from the end of the applied session.*

****Working weeks have lab instructor support for the leading 2 hours of the lab section.*

Topic List

Module 1

1-1: Introduction (Ch. 1)

1-2: The EM Spectrum (Ch. 2.1 to 2.3)

1-3: Radiation Laws (Ch. 2.4)

1-4: EMR Interactions (Ch. 2.5 to 2.7)

1-5: RS Platforms: Low Altitude (Ch. 3.1 to 3.4, 3.6)

1-6: RS Platforms: Satellites (Ch. 3.5)

Module 2

2-1: Digital Imagery: Basics (Ch. 4.3 to 4.6)

2-2: Digital Imagery: RS Imagery (Ch. 5.1 to 5.5)

2-3: Digital Imagery: Visual Enhancement (Ch. 5.6 to 5.9)

2-4: Image Interpretation I (Ch. 6.1 to 6.3)

2-5: Image Interpretation II (Ch. 6.4 & 6.5)

2-6: Land Observation Satellites I (Ch. 7.1 to 7.5)

2-7: Land Observation Satellites II (Ch. 7.6 to 7.10)

Module 3

3-1: Pre-Processing: Important Terms (Ch. 11.1 & 11.2)

3-2: Pre-Processing: Feature Extraction (Ch. 11.3)

3-3: Pre-Processing: Radiometric Correction (Ch. 11.4)

3-4: Pre-Processing: Geometric Correction (Ch. 11.5)

Module 4

4-1: Classification: Foundations (Ch. 12.1 to 12.4)

4-2: Classification: Traditional Classifiers (Ch. 12.3 & 12.4)

4-3: Classification: Contemporary Classifiers (Ch. 12.3 & 12.4)

4-4: Accuracy Assessment: Foundations (Ch. 13.1 to 13.4)

4-5: Accuracy Assessment: Sample Design (Ch. 13.5 & 13.6)

4-6: Accuracy Assessment: The Error Matrix (Ch. 13.7 & 13.8)

Module 5

5-1: Change Detection I (Ch. 15.1 & 15.2)

5-2: Change Detection II (Ch. 15.2)

5-3: GEOBIA –Jensen Ch. 9 (pp. 413 to 421)

Module 6

6-1: Thermal Imagery I (Ch. 10.1 to 10.7)

6-2: Thermal Imagery II (Ch. 10.8 to 10.10)

6-3: Plant Science Fundamentals (Ch. 16.1 to 16.7)

6-4: Land Use and Land Cover (Ch. 21)

6-5: Forestry (Ch. 18)

6-6: Coastal Processes (Ch. 20)

University Policies and Statements

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: https://www.dal.ca/about-dal/internationalization.html

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: http://www.dal.ca/cultureofrespect.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

University Policies and Programs

Important Dates in the Academic Year (including add/drop dates): http://www.dal.ca/academics/important_dates.html

Classroom Recording Protocol: https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

Dalhousie Grading Practices Policies: https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Grade Appeal Process: https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html

Sexualized Violence Policy: https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html

Learning and Support Resources

General Academic Support – Advising (Halifax): https://www.dal.ca/campus_life/academic-support/advising.html

General Academic Support – Advising (Truro): https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html

On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): https://www.dal.ca/campus_life/academic-support/On-track.html

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Indigenous Connection: https://www.dal.ca/about-dal/indigenous-connection.html

Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at elders@dal.ca or 902-494-6803:

https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf

Black Student Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre.html

South House Sexual and Gender Resource Centre: https://southhousehalifax.ca/about/

LGBTQ2SIA+ Collaborative: https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html

Dalhousie Libraries: http://libraries.dal.ca/

Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Dalhousie Student Advocacy Services: https://www.dsu.ca/dsas?rq=student%20advocacy

Dalhousie Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Human Rights and Equity Services: https://www.dal.ca/dept/hres.html

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Faculty of Science Advising Support: https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html

Safety

Biosafety: http://www.dal.ca/dept/safety/programs-services/biosafety.html

Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html

Radiation Safety: http://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Laser Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html