

Integrated Honours' & Research Project Syllabus

Department of Earth and Environmental Sciences

Term 1: ENVS 4901, EARTH 4101, EARTH 4201

Term 2: ENVS 4902, EARTH 4102, EARTH 4202

Fall 2024 / Winter 2025

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.

Name	Course Instructor(s)	Office Hours
	Email	
Dr. Tarah Wright	Tarah.wright@dal.ca	LSC Room 3006 Meetings by appointment.

Course Description

This course is your opportunity to advance your knowledge and skills in a specific area of earth and/or environmental science. You'll work with the Honours Coordinator and a thesis supervisor to develop your skills in proposal writing, as well as executing an independent research project. Finally, you will further develop your skills in terms of research organization and project management.

Course Prerequisites

Students enrolling in Term 1 ENVS 4901 and EARTH 4201 must have a minimum GPA of 3.5 in their Honours' subject courses (students enrolling in EARTH 4101 must have a minimum GPA of 3.5). Students enrolling in Term 2 ENVS 4902, EARTH 4102 or EARTH 4202 must have completed ENVS 4901.03 or EARTH 4101, or EARTH 4102. Students must meet all pre-requisite requirements as outlined in the course calendar. Further, all students must have attended an Honours' Thesis Information Session and filled out the appropriate paperwork prior to registering in the course (please see Honours' Coordinator and Undergraduate Advisor for more information). Finally, all students in this class must have fourth-year status, be enrolled in an Honours' degree in Earth and/or Environmental Science program and have received permission to enroll from the Honours' Thesis Coordinator.

LIBGUIDES: The following subject guides can provide quick access to relevant databases, books and other resources for your thesis/major project research:

- Environmental Science subject guide
<http://libguides.library.dal.ca/content.php?pid=454>
- Earth Science subject guide
<https://dal.ca.libguides.com/earthsciences>

BRIGHTSPACE: Please refer to the course Brightspace site for updates, additional literature, course readings, and opportunities for peer support, discussion forums. The site will also be used to upload assignments or additional documents where required and grades.

Course Structure

Course Delivery

This course will be delivered in person.

Lectures

Students are expected to attend class weekly in the Fall Semester. All fall classes will be held on Mondays between 1435 and 1725 in the Killam Library Room 4106. Students are expected to attend the 4 scheduled classes in the Winter Semester (see tentative dates below – subject to change but will be finalized before January 5, 2025).

Course Materials

REQUIRED: Surviving Your Dissertation: A Comprehensive Guide to Content and Process by Kjell Erik Rudestam (Editor), Rae R Newton (Editor). Fourth Edition, 2015. You can purchase the text on Amazon.ca.

RECOMMENDED: Doing Science by Ivan Valiela, 2nd Edition. This can be found at the Killam Library if don't want to purchase.

Assessment

Component	Weight (% of final grade)	Due Date	Marked By
Preliminary Proposal	5	Term 1 Week 3	Honours' Coordinator (+ peer evaluator feedback)
Research Project Approval Form	0	Term 1 Week 4	Honours' Coordinator
Draft Chapter 1 – Introduction	5	Term 1 Week 7	Honours' Coordinator (+ peer evaluator feedback)
Literature Review Outline	5	Term 1 Week 10 November 13	Honours' Coordinator
Methods Presentation	0	Term 1 Week 11	Honours' Coordinator + peer evaluator feedback
Research Proposal Presentation	5	Term 1 Week 13	Honours' Coordinator
Final Thesis Proposal	10	Dec 16	Honours' Coordinator + Thesis Supervisor
Conference Abstract	5	Term 2 (TBD)	Honours' Coordinator

Final Thesis/Research Report	60	March 31	Honours' Coordinator, Thesis Supervisor + Independent Reader
Final Thesis Revised	0	April 21	Honours' Coordinator + Thesis Supervisor
Class Participation	5	Throughout the 2 terms	Honours' Coordinator

NOTE: The grades for Term 1 and Term 2 are added together to give an overall grade. Students will not receive a mark for Term 1 immediately, but rather a single mark for both terms once both Terms 1 and Term 2 are completed. Final grading will be based on the assignments listed above.

Other course requirements

Students are encouraged to regularly attend research seminars within their own discipline.

Submit Contract Form

A contract form (available on BRIGHTSPACE) must be signed by you and your advisor, and a copy must go to the Honours' Coordinator by Week 4.

Note on Student Participation

Students will be assigned peer reviewers for their work. Each student is required to review their assigned peer's submissions 3 times throughout the term as detailed in the course syllabus. Reviews should be given online in the discussion section and may also be discussed in class. Full participation in the class is expected as it is essential to creating a robust academic community.

Honours' Qualifying Exam Term 2

Faculty regulations for Honours' degrees require an "Honours' Qualifying Examination" which is over and above the 20 classes required for the degree. We meet this Faculty regulation by giving a grade for an oral presentation and defense of your thesis at the Department of Earth and Environmental Sciences Honours' Thesis Research Symposium which will take place during the exam period – likely on the first day of exams (~April 9, 2025 - TBA) but will be confirmed mid-February when the exam schedule is completed. You are expected to be present for all of presentations that day, and the Registrar's Office will work to make sure that no student in the class has an exam conflict on that day. Presentations will be marked by all faculty present the Honours' Thesis Research Symposium. In addition, awards for best Earth and Environmental Science thesis, and best Earth and Environmental Science presentation will be given out after the Honours' Thesis Research Symposium Day. In addition, awards for best Earth and Environmental Science thesis, and best Earth and Environmental Science presentation will be given out at after the culmination of the Honours' Research Symposium.

A NOTE FOR STUDENTS TAKING A GIS CERTIFICATE

Students who are pursuing a GIS Certificate and wish for their Honours' or Major Research project to count towards the Certificate must contact the EES GIS Certificate Coordinator (within the first 3 weeks of the semester (preferably at the time of application) to review their project plan and to receive advice on ensuring eligibility for the certificate. Please note, the software used is not restricted to any specific

platform (can be ESRI, QGIS, R, Catalyst, etc.), but the primary analytical method for the project must inherently be a spatial method.

Conversion of numerical grades to final letter grades follows the

Dalhousie Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

Assignments submitted late without an approved extension or acceptable reason will be deducted 10% a day. Extensions are granted liberally but must be requested at least three days prior to assignment's original due date. Assignments submitted 7 calendar days past the due date without an extension will be assigned a zero.

Course Policies related to Academic Integrity

Students are expected to work independently on their thesis/major project research. Further, it is expected that all written assignments in this class be produced by the student alone, without the use of generative AI and large language models (e.g. ChatGPT). Plagiarism detection software Urkund will be used in course.

Learning Objectives

Learning Outcome	Learning Sub-outcome
<ul style="list-style-type: none"> Develop effective thesis questions 	<ul style="list-style-type: none"> Summarize the four key components to a research question
<ul style="list-style-type: none"> Appropriately scope a research project 	<ul style="list-style-type: none"> Develop appropriate research questions for thesis project Appropriately summarize three research typologies (exploratory, descriptive, analytic) Describe possible timeframes for research projects (retrospective, cross sectional, prospective) Clearly articulate delimitations of thesis project
<ul style="list-style-type: none"> Develop a literature review for thesis topic 	<ul style="list-style-type: none"> Appropriately summarize literature on thesis topic Describe the different types of literature reviews Articulate four common approaches to organizing a literature review (topical, distant to close, debate, chronological)

<ul style="list-style-type: none"> • Delineate effective methods for specific thesis topic 	
<ul style="list-style-type: none"> • Demonstrate ability to gather data and generate evidence 	
<ul style="list-style-type: none"> • Express research results effectively and succinctly 	
<ul style="list-style-type: none"> • Use written strategies for the effective dissemination of research results 	
<ul style="list-style-type: none"> • Communicate your project knowledge with accuracy and credibility to a target audience. 	
<ul style="list-style-type: none"> • Develop project planning, implementation and evaluation skills 	

Course Content

Week	Date	Lesson Topic(s)	Assignments	Readings
1	Sept 9	Introduction to the class Development of research question		
2	Sept 16	How to write a proposal Assignment of peer reviewers	Library assessment quiz	SYD Chapters 1 and 2
3	Sept 23	How To Write Chapter 1 Preliminary Proposal Presentations Students will present a 5-minute overview of your research to the class	Preliminary Presentation in Class and Preliminary Proposal due online <i>NOTE 1: All students should share this assignment with their supervisors to receive feedback.</i> <i>NOTE 2: GIS Certificate Students must email a copy of this preliminary proposal to the GIS Certificate Coordinator this week (with cc to both your supervisor</i>	SYD Chapter 3

			<i>and the Honours' Coordinator)</i>	
4	Sept 30	No Class – Truth and Reconciliation Day	Research Project Approval Form	
5	Oct 7	How to write a literature review Writing outlines (for Chapter 2 assignment) In-person peer evaluation of preliminary proposals	Peer evaluations of preliminary proposal due on Brightspace BEFORE CLASS	SYD Chapter 4
6	Oct 14	No Class – Thanksgiving Holiday		
7	Oct 21	Literature Research Training Session Location: TBA	Draft Chapter 1	SYD Chapter 10
8	Oct 28	Methods chapters expectations Final Proposal expectations Peer evaluation of Chapter 1 in class	Peer evaluation of Chapter 1 due on Brightspace BEFORE CLASS	
9	Nov 4	Applying to Graduate School and Tri-Council Grants with Niki Power, Scholarships Liaison Officer		
10	Nov 11	No class – reading week	Chapter 2 Outline due November 13	
11	Nov 18	Methods presentations	Present a 5-minute overview of your methods to the class	
12	Nov 25	Preparing for Research Proposal Presentations Peer evaluations in class re: methods presentations	Peer evaluation of Methods Presentation due on Brightspace BEFORE CLASS	SYD Ch. 12
13	Dec 2	Research Proposal Presentations	Complete SRI online	
	Dec 3	Research Proposal Presentations		
14	Dec 16		Final Proposal due	

Course Schedule Term 2

Course Delivery

In ENVS 4902, EARTH 4102, and EARTH 4201 we will have only 4 mandatory attendance formal classes (tentative dates below). Each formal class is designed to have students check in, get information about upcoming assignments (conference proposal, Honours' Qualifying Exam, etc.) and ask questions about the thesis process. In addition, students are expected to meet at least bi-weekly with their supervisors and work at least 6 hours/week on their thesis. Further, students are required to be in monthly contact with the Honours' Coordinator via the Brightspace site (you will be given prompts). The final thesis is due on March 31 and will be worth 60% of your final grade for Terms 1 and 2. The thesis will be marked by (a) the Honours' Coordinator, (b) an independent thesis reader (appointed by the Honours' Coordinator), and (c) your Honours' Supervisor.

Lectures

Students are expected to attend the four lectures in the Winter semester. Classes will be held on Mondays between 1735-19:25 in the LSC Common Area C206

Course Schedule Term 2

Date	Topic	Readings
January 13	Developing conference abstracts/proposals	SYD Chapter 9
February 10	Presenting data	SYD Chapters 6 and 7
March 3	Checking in and preparing final thesis	
March 24	Preparing for the HQE	
April (TBD – likely April 9)	Honours' Qualifying Exam Day	

Key Dates for Term Two

- February 28, 2025. Independent readers for all theses chosen by the Honours Coordinator
- Winter Conferences (students are expected to attend at least one of the following):
 - First weekend in February (exact dates TBD), Dartmouth: Atlantic Geoscience Society Colloquium. *Note: The Faculty of Science makes funds available to support student pay registration fees for this conference and the Honours Coordinator can help you to apply for these funds.*
 - Students may also want to attend the AUCG at MUN from October 24-26 at Dalhousie.
 - March 2024, DATE ON LOACTION TBD Science Atlantic Environment Conference. *Note: The Faculty of Science makes funds available to support student travel to this conference and the Honours Coordinator can help you to apply for these funds.*
- March 13 – it is HIGHLY RECOMMENDED, but not required to have a 1st draft of your thesis complete by now and submitted to your supervisor for feedback. That way your final thesis that will be marked (due March 31) will be in much better shape.
- March 31. Final copy of thesis due (this is the copy that will be marked). It is the students' responsibility to use a file share program to send copies to their supervisor, Independent Reader and the Honours' Coordinator, as well as upload a copy to the Brightspace assignment section.
- April 7. Supervisors and Independent Readers are asked to submit their completed marking form to the Honours' Coordinator by noon. Failure to do so will put their students out of the

running for the best Earth and Environmental Science thesis awards.

- April 9 (to be confirmed). The Honours' Qualifying Exam (HQE) will take place at the Earth and Environmental Sciences Honours Thesis Research Symposium. Students give a 15-minute presentation followed by 15 minutes of questions from the supervisor, the independent reader and the general audience. If a supervisor or independent reader is unable to attend the HQE, she/he will submit questions to be asked by the Honours Coordinator to ask on their behalf.
- April 21. Submit the FINAL, corrected thesis. Your final grade will not be released until this is submitted to the Honours Coordinator. NB this document should include a copyright page.

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.

Faculty of Science 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
- 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>