

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 2025 / Winter 2026

Dalhousie University operates in the unceded territories of the Mi'kmaw, Wolastoqey, and Peskotomuhkati Peoples. These sovereign nations hold inherent rights as the original peoples of these lands, and we each carry collective obligations under the Peace and Friendship Treaties. Section 35 of the Constitution Act, 1982, recognizes and affirms Aboriginal and Treaty rights in Canada.

We recognize that African Nova Scotians are a distinct people whose histories, legacies, and contributions have enriched the part of Mi'kma'ki known as Nova Scotia for over 400 years.

Course Instructor(s)		
Name	Email	Office Hours
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:

- a. Environmental Science subject guide
<http://libguides.library.dal.ca/content.php?pid=454>
- b. 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 all scheduled classes in both the Fall and Winter Semesters (see below). All fall classes will be held on Mondays between 1735 – 2025 in the LSC Common Area 244. Winter classes will be held on Mondays between 1735-19:25 (with the exception of the first 2 classes in January which will run 1735-2025) in the LSC Common Area C206

Course Materials

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

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

WINTER READINGS ACCESS THE FOLLOWING VIA THE WEB AND/OR FROM DAL LIBRARIES:

- Dahlst (2014). Using narratives and storytelling to communicate science with non-expert audiences, *Proc. Natl. Acad. Sci. U.S.A.* 111 (supplement_4) 13614-13620.
<https://doi.org/10.1073/pnas.1320645111>
- Schmitt (2019).
https://cornerstone.lib.mnsu.edu/cgi/viewcontent.cgi?article=1027&context=eng_tech_comm_capstone_course
- Larkins, Michelle. (2024). Introduction: practicing diversity, equity, inclusion, and justice in environmental studies and sciences. *Journal of Environmental Studies and Sciences*. 14. 10.1007/s13412-024-00968-4.
- Mesquita (2018): <https://www.elsevier.com/connect/eight-top-tips-to-help-you-turn-your-phd-thesis-into-an-article>
- APA (2022): <https://apastyle.apa.org/style-grammar-guidelines/research-publication/dissertation-thesis>

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 3	Honours' Coordinator
Introduction Assignment	5	Term 1 Week 6	Honours' Coordinator (+ peer evaluator feedback)
Methods Presentation	0	Term 1 Week 8	Honours' Coordinator + peer evaluator feedback
Literature Review Outline	5	Term 1 Week 9	Honours' Coordinator
Final Thesis Proposal	10	Term 1 December 15	Honours' Coordinator + Thesis Supervisor
Research Proposal Presentation	5	Term 2 Weeks 1&2	Honours' Coordinator
Conference Abstract	5	Term 2 Week 3	Honours' Coordinator
Draft thesis to supervisor. <i>Note: No extensions granted – no exceptions!</i>	5	Term 2 Week 8	Thesis Supervisor
Final Thesis copy to supervisor and Independent Reader	55	Term 2 Week 11	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 at the beginning of the exams period (~April 13, 2026 – 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).

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 29	Introduction to the class Development of research question		
2	Oct 6	How to write a proposal Assignment of peer reviewers		SYD Chapters 1 and 2
3	Oct 13	NO CLASS - Thanksgiving		
4	Oct 20	Preliminary Proposal Presentations Students will present a 5-minute overview of your research to the class	Preliminary Presentation in class Preliminary Proposal due Research Project Approval Form	SYD Chapter 3
5	Oct 27	How to write an Introduction In-person peer evaluation of preliminary proposals	Peer evaluations of preliminary proposal due on Brightspace BEFORE CLASS	SYD Chapter 4
6	Nov 3	How to write a Literature Review (and outline) Applying to Graduate School and Tri-Council Grants	Introduction Assignment due	SYD Chapter 10
	Nov 10	No class – reading week		
7	Nov 17	Methods section expectations Methods presentation expectations Peer evaluation of Introduction Assignment in class	Peer evaluation of introduction due on Brightspace BEFORE CLASS	
8	Nov 24	Methods presentations	Lit Review Outline due Present a 5-minute overview of your methods to the class	

9	Dec 1	Preparing for Research Proposal Presentations Final Proposal expectations How to write a conference proposal Peer evaluations in class re: methods presentations	Peer evaluation of Methods Presentation due on Brightspace BEFORE CLASS	SYD Ch. 9 & 12
10	Dec 8	NO CLASS	Complete SRI online	
	December 15		Final Thesis Proposal due	

Course Schedule Term 2

Course Delivery

In ENVS 4902, EARTH 4102, and EARTH 4201 we will have 7 in-person classes with mandatory attendance (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 30 and will be worth 55% 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 all lectures in the Winter semester.

Course TENTATIVE Schedule Term 2 (will be confirmed in December 2025)

Week	Date	Lesson Topic(s)	Assignments	Readings
1	January 12	Research Proposal Presentations	***NOTE: class will run from 17:35-20:25 today	
2	January 19	Research Proposal Presentations	***NOTE: class will run from 17:35-20:25 today	
3	January 26	No class	Conference proposal due	

4	February 2	No class		
5	February 9	Checking In Scientific Storytelling: Communicating Your Research to Academic and Public Audiences (translating complex work into accessible narratives).		Dahlst (2014) – access through Dalhousie Libraries
	February 16	Reading Week – No class		
6	February 23	Checking In Data Cleaning, Visualization, and Interpretation in Environmental Research: Making sense of messy data and presenting it effectively.		Schmitt (2019) – access through website listed in course materials above
7	March 2	Checking In Justice, Equity, Diversity, and Inclusion in Earth and Environmental Professions: Understanding and contributing to more inclusive research, workplaces and practices.		Larkins, Michelle. (2024). – access through Dalhousie Libraries
8	March 9	No class	Draft thesis to supervisor. <i>Note: No extensions granted – no exceptions!</i>	
9	March 16	Checking in Preparing final thesis and Preparing for the HQE		
10	March 23	Checking in From Thesis to Publication: Academic Publishing 101: How to revise your thesis		https://www.elsevier.com/connect/eight-top-tips-to-help-you-turn-your-phd-thesis-into-an-article

		into a journal article and choose where to publish.		https://apastyle.apa.org/style-grammar-guidelines/research-publication/dissertation-thesis
11	March 30	No class	Final copy of thesis due to supervisor, 2 nd Reader and Honour's Coordinator	
12	April 6	No class		
	April (TBD – likely April 13)	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 (funding available for students through the Faculty of Science):
 - February 6-7, 2026. Truro, Nova Scotia: Atlantic Geoscience Society Colloquium.
 - March (exact date TBA): Science Atlantic Environment Conference
- March 9 – you are required to have a full draft of your thesis complete by this date and submitted to your supervisor for feedback. That way your final thesis that will be marked (due March 30) will be in much better shape. Please note that incomplete assignments (i.e. missing a conclusion section or a full literature review) will receive a mark of 0.
- March 30. Final copy of thesis due (this is the copy that will be marked). It is the students' responsibility to send copies to their supervisor, Independent Reader and the Honours' Coordinator, as well as upload a copy to the Brightspace assignment section.
- April 10. 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 13 (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 Mi'kmaq and Indigenous Relations (including the Elders in Residence program, Land Acknowledgements, Understanding Our Roots, and much more) can be found at: <https://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations.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/mission-vision-values/global-relations.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/campus_life/ssc.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:

<https://www.dal.ca/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion.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/content/dam/www/about/leadership-and-governance/governing-bodies/code-student-conduct.pdf>

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/content/dam/www/about/leadership-and-governance/university-policies/fair-dealing-policy.pdf>

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/content/dam/www/about/leadership-and-governance/university-policies/class-recording-protocol.pdf>

Dalhousie Grading Practices Policies: <https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/grading-practices-policy.pdf>

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/content/dam/www/about/leadership-and-governance/university-policies/sexualized-violence-policy.pdf>

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/campus_life/ssc.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

Mi'kmaq and Indigenous Relations: <https://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations.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://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations/elders-in-residence-and-traditional-knowledge-keepers.html>

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/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion/community-specific-groups/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/ombudsperson.html

Human Rights and Equity Services: <https://www.dal.ca/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion/human-rights-and-equity-services.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>