

Environmental Science Capstone Syllabus

Department of Earth and Environmental Science

ENVS 4100 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.

Course Instructors

Name		Email	Office Hours
Ben Collison personal website	Instructor	b.collison@dal.ca*	By appointment* Rowe Management Building, Rm 5058
Alexandre Legault	TA	alegault@dal.ca	N/A
Omair Khan	TA	omair.khan@dal.ca	N/A

*** preferred method of communication with your instructor is via Microsoft Teams instant message. Once an office hours appointment time has been agreed upon, students will send the instructor an Outlook calendar invite. Please note contact times as follows:**

- Microsoft Teams instant message: Response time < 12 working hours (7:30-15:30, Monday to Thursday).
- Email: 1-3 working days.
- Responses from Ben will be delayed on Fridays due to work/research obligations, and Teams/email will not be monitored on weekends or statutory holidays.

Course Description

Students apply the multidisciplinary knowledge they have acquired during their program of study to real world environmental issues. Students work individually and in groups in preparation towards a formal debate. They evaluate evidence from science, economics, philosophy, and other ways of understanding the world to develop mastery and nuance among current environmental topics.

Course Prerequisites

Must be a fourth-year student. Series of courses including ECON 1101 or ECON 1102, PHIL 2480, STAT 2080, ENVS 2100, ENVS 3200, ENVS 3501 and ENVS 3601 suggested, or have permission of instructor.

Course Structure

Course Delivery

The course will be delivered from January 6 through April 7, 2025. Course delivery will be interactive through a mix of in-person lectures from your instructor, in-person guest lectures, lecture activities, student presentations, and debates. Supplemental online material will include videos, readings, podcasts, discussions, and other materials.

Since we will be learning actively in class, attendance is paramount. Attendance to each group presentation and debate is required. **If you must miss a presentation/debate class, inform the instructor in advance so accommodations can be made for your group to present/debate in a different time slot.** Not being present for your group's presentation/debate will result in a zero on that assignment.

Group work will be required. Students may coordinate group work as they wish, but a messaging channel and document storage space/virtual meeting room can be provided for each group in Microsoft Teams if needed.

While we intend to meet in-person for the duration of the semester, classes may need to be delivered online when required by the University. For online instruction, a laptop equipped with a microphone and camera will be required. These online meetings will be through Microsoft Teams. Students are expected to log on with their cameras turned on for the duration of classes and attendance will be taken.

Lectures

Mondays and Wednesdays, Mona Campbell Building Rm 1108, 10:05-11:25

Course Materials

Required Resources

Students must have access to the university library as well as a computer or a functional tablet for word processing, and consistent access to the internet. If you require support for the course or university technologies you can contact Information Technology Services (ITS) at 1-800-869-3931 or support@dal.ca



Brightspace® is our classroom space! All supplementary materials (inclusive of text, video, and audio materials) and lecture slides will be provided through Brightspace. This is where you'll find the syllabus, class announcements, course schedule, readings, dropboxes for submitting assignments, and discussion boards for questions. Readings may be provided as little as one week prior to the next scheduled synchronous discussion to address current affairs.



MS Teams® is our conferencing platform. Should circumstances require us to switch to an online format, all students will be added to a Teams page for online classes. Groups may be designated a private channel they can use to organize and conduct meetings.

Optional Resources

Students may find the following textbook useful. It is not necessary to purchase a copy as Dalhousie has a free e-book available for students (available through libraries.dal.ca).

Dalton, Philip and John R. Butler. Public Policy Argumentation and Debate: A Practical Guide for Advocacy. (PPAD) New York, USA: Peter Lang Inc., 2015.

Assessment

Assessment	Format	Grade (%)	Due date
1. Elevator pitch	Individual	10	as per course sched.
2. Career reflection & toolbox		25	
2a: Information interview proposal (including TCPS ethics certificate)	Individual	5	January 20
2b: Information interview reflection	Individual	5	February 12
2c: Career skills toolbox	Group of 3	15	February 12
3. Advocacy campaign		25	
3a: Hand-in report	Group of 4	13	March 2
3b: In-class presentation	Individual	12	as per course sched.
4. Briefing note	Individual	15	March 19
5. Topical debate		25	
5a: In-class debate	Group of 4	23	as per course sched.
5b: Self and peer evaluation & reflection	Individual	2	April 7
SLEQ Form (bonus)	Individual	1*	April 7

* ≥ 75% of students must complete SLEQ for the entire class to receive a bonus mark

Assignments are accompanied by a detailed instruction sheet, verbal instructions, and a marking rubric on Brightspace. Short summaries of the assignments are as follows:

Assignment 1: Elevator pitch (10%)

Effective communication is a workplace skill that is highly valued by organizations across sectors, including in environmental spaces. An 'elevator pitch' is a brief dialogue/speech that conveys a key idea in the time it takes to ride an elevator, often used to make a first impression on a potential employer. A well-crafted pitch demonstrates one's ability to communicate complex ideas in a clear, concise, and engaging manner. In this assignment, you will learn how to deliver a 1-minute elevator pitch to the class on a past, current, or potential future research topic.

Assignment 2: Career reflection & toolbox (25%)

Career alignment with one's personal values can increase job fulfilment and lower odds of experiencing stress, burnout, or feelings of disconnection. Career opportunities are diverse for students graduating with a Bachelor of (Environmental) Science, with potential alignment and misalignment with personal values across different sectors. Working professionals can offer firsthand insights into the daily responsibilities, challenges, and rewards of a career in the environmental field. In this assignment, you will conduct an information interview with a working professional, reflect on your own career interests and values, and then form groups to generate a 'toolbox' of skills to succeed in the workplace.

Assignment 3: Advocacy campaign (25%)

Many environmental issues today, such as climate change and biodiversity loss, are daunting on a global scale. Environmental advocacy is a fundamental force driving positive change, influencing policies, behaviors, and societal norms. Often starting at grassroots local scales, advocacy will continue to be an essential component of global efforts to address the interconnected environmental challenges facing our society. However, changing the status quo is not always straightforward. You will build upon tools and techniques learned in class to develop an innovative campaign, advocating for change related to an environmental issue.

Assignment 4: Briefing note (15%)

Briefing notes play a critical role in the workplace by providing concise, organized, and relevant information to decision-makers to understand the implications, risks, and benefits associated with proposed strategic directions (e.g., changes in policy, stakeholder communication, advocacy campaigns). By designing an effective briefing note, you will become familiar with one of the most common techniques for science/policy communication in fields such as environmental consulting, public outreach and education, environmental impact assessment, wildlife management, emergency response planning, and many more.

Assignment 5: Topical debate (25%)

Debating environmental issues fosters a well-rounded skill set that is valuable not only in academic settings but also in professional and civic contexts where critical thinking and informed decision-making are essential. Being successful in a debate requires effective communication skills, including the ability to articulate ideas, respond to counterarguments, and engage in respectful discourse.

We covered many techniques for evaluating evidence and formulating arguments in the first half of the course through in-class exercises and the previous assignments. The class debate provides the opportunity for you to apply those skills and knowledge to practice – these include evaluating the status quo, synthesizing evidence, and targeting your audience.

Grading

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

All assignments are due at 11:59 PM Atlantic Time unless stated otherwise on assignment instructions.

A deduction of 10% will be taken off for each day an assignment is late and will not be accepted more than five days after the due date. Arrangements to hand in assignments late due to extenuating circumstances must be made with the instructor at least 48 hours before the assignment is due. To improve time management skills, visit [Studying for Success](#) for a self-assessment, free workshops, and personal coaching.

Course Policies related to Academic Integrity

Originality checking/plagiarism detection software will be used to ensure academic integrity in this course. When completing individual assignments, students are expected to develop their own original work. **The use of generative AI tools such as ChatGPT to complete assignments is not permitted.** Any suspected academic integrity violations will be immediately reported to the faculty academic integrity officer, and proven violators may result in dismissal from your university program.

Learning Objectives

This course will encourage students to:

- Develop deep knowledge in a specific topic or issue in environmental science
- Apply and integrate knowledge/skills from prior courses in ENVS and other subjects
- Learn skills and tools for developing an argument or position on a specific environmental topic or issue; skills include evaluating evidence, realizing the limitations of evidence, and crafting an argument from evidence
- Identify key challenges faced by environmental decision makers, such as the scope and boundaries of the challenge to frame the debate statement
- Dissect current environmental debates and discuss their scientific basis including controversies and uncertainties
- Practice oral presentation and teamwork skills

Course Content

The course is structured as a series of classroom lectures and activities which are held on a weekly basis. The **schedule could be subject to further changes**, particularly the scheduling of guest speakers or possible 'snow days'. You will be informed of schedule changes via Brightspace announcements.

Week	Date	Topic (10:05 – 11:25, Mona Campbell Building Rm 1108)	Tasks and due dates
1	Jan 6	<i>No Class</i>	▪ Read syllabus
	Jan 8	Course orientation	▪ Sign up for Assignment 1
2	Jan 13	How to: Information interview	▪ Sign up for Assignment 2
	Jan 15	Resume/CV and cover letter workshop (Guest lecture: Kaitlin Burek)	
3	Jan 20	How to: Give and take constructive feedback	▪ Assignment 2a due ▪ Elevator pitches (x 4)
	Jan 22	ENVS careers (Guest lecture: Dr. Alana Westwood)	
4	Jan 27	How to: Workplace technology hacks	▪ Elevator pitches (x 4)
	Jan 29	Leadership and followership (Guest lecture: Dr. Anika Cloutier)	
5	Feb 3	Evidence in decision-making	▪ Sign up for Assignment 3 ▪ Elevator pitches (x 4)
	Feb 5	Science communication (Pt. 1)	▪ Elevator pitches (x 4)
6	Feb 10	Advocacy in practice	▪ Public Speaking Workshop (Feb 11) ▪ Elevator pitches (x 4)
	Feb 12	Activism: Save Owls Head (Guest lecture: Dr. Kristina Boerder)	▪ Public Speaking Workshop (Feb 14) ▪ Assignment 2b & 2c due
7	Feb 17	<i>Reading Week - No Class</i>	▪ Assignment 3b – slides due (Feb 23)
	Feb 19		
8	Feb 24	Assignment 3b presentations (x 5)	
	Feb 26	Assignment 3b presentations (x 5)	▪ Assignment 3a due (Mar 2)
9	Mar 3	Science communication (Pt. 2)	▪ Elevator pitches (x 4)
	Mar 5	Interference in Science (Guest lecture: Samantha Chu)	
10	Mar 10	How to: Debate (Pt. 1)	▪ Sign up for Assignment 5 ▪ Elevator pitches (x 4)

	Mar 12	How to: Debate (Pt. 2)	▪ Elevator pitches (x 4)
11	Mar 17	Debate preparation: opening arguments	▪ Debate teams released ▪ Elevator pitches (x 4)
	Mar 19	Debate preparation: rebuttals	▪ Assignment 4 due ▪ Elevator pitches (x 4)
12	Mar 24	Assignment 5a: Class Debate (x 2)	
	Mar 26	Assignment 5a: Class Debate (x 2)	
13	Mar 31	Assignment 5a: Class Debate (x 1)	
	Apr 2	Course wrap up & review	▪ SLEQ forms due
14	Apr 7	<i>No Class</i>	▪ Assignment 5b due

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/about/leadership-governance/academic-integrity/faculty-resources/ouriginal-plagiarism-detection.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

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>