

ENVS2500 | Fall 2024

## Field Methods in Environmental Science

*Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.*

**Instructor:** Dr. Amy Mui | [amy.mui@dal.ca](mailto:amy.mui@dal.ca) | Please use my booking link to set up an appointment or email me directly

**Teaching assistants:** Sarah MacDonald ([sr873573@dal.ca](mailto:sr873573@dal.ca)); Hannah Freeman ([hannahfreeman@dal.ca](mailto:hannahfreeman@dal.ca))

**Course Delivery:** Blended. Asynchronous weekly recorded videos + weekly in-person classes. Class times are for field excursions and lab activities.

	DAY	TIME	LOCATION
Class	FRIDAY	8:35am – 12:25pm	LSC-BIOL&EARTH B2030 (& various field locations)

### Course Description:

This course offers an immersion into environmental sampling and analytical methods including both abiotic and biotic components of ecosystems. Scheduled during the fall academic term, students gain skills in wildlife species identification and surveying, and sampling methods for components such as air, sound, and soil. GPS (global positioning system) units and geographic information systems (GIS) are utilized in sampling design, collection, and visualization of results.

**Prerequisites:** ENVS 1100.03 and ENVS 1200.03, or equivalent and open only to students in the BSc or BA Environmental Science Programs

### Learning Objectives / Outcomes:

- Develop skills in visual and auditory identification of Eastern Canadian birds, reptiles and amphibians
- Apply field techniques to survey wildlife, trees, soil, and other biotic and abiotic components of ecosystems
- Become familiar with the use of mobile GIS tools to map survey results and identify spatial patterns
- Practice stewardship and advocacy for nature through a variety of activities

### Course Materials:

- There is no textbook for this course. Field guides, binoculars, and digital resources will be provided.
- A smart phone is required as we will use free mobile apps such as: Merlin (Cornell Lab), Cram (digital flash cards), ArcGIS Field Collector, and iNaturalist. All apps are free and available on multiple platforms (iOS, android).

- Students must have a field notebook. All-weather is an option (like Rite in the Rain) but not required – you may use an existing one as long as there are enough empty pages (minimum 24). You will be sketching during this course so if you prefer blank pages, find a notebook without lines.
- Ensure you have appropriate outerwear for comfortably conducting field work in variable weather conditions

**Field Excursions:**

- There are several on and off-campus field visits that make up the heart of this course. Excursions develop your field skills, build outdoor competencies, and serves to gather data for later examination. Also, they are fun!
- We are at the mercy of Atlantic region weather; however, excursions will go ahead as planned unless there is an extreme weather warning. In the event the weather prevents us from leaving campus the schedule will need to be re-arranged where possible, or an alternate indoor exercise will be planned instead.
  - You may miss ONE (1) field trip with no penalty but it is your responsibility to discuss absences with me ahead of time so we are not waiting needlessly for you.
  - ONE or TWO additional field trips will be planned on a Saturday or Sunday (weather permitting). Regularly scheduled classes later in the term will be cancelled to balance out these weekend additions.
- Field safety is of critical importance, regardless of how far from campus we may venture. All students are expected to behave in a responsible and safe manner and to ensure that field equipment is used appropriately and well-maintained. **If you have any health or mobility-related issues that may affect your safety in the field, inform me at minimum TWO (2) weeks in advance of the first field trip so accommodations can be made.**

**Course Assessment**

Component	Weight	Date
Species ID Quizzes	20% (10 quizzes x 2% each)	Ongoing / Weekly
Field Journals	20% (2 checks, 10% each)	Mid / End term
Story Map	15% (3 submissions, 5% each)	Every 3 weeks (approx.)
Speak out for Nature	10 %	End of term
Participation*	10%	Ongoing / Weekly
Final Species ID Quiz	25%	Last class of Term

**Biodiversity Module.** This session focuses on the biotic components of the environment, namely avian (bird) and herpetofaunal (reptile and amphibian) assemblages found in the Eastern Canada / US region. It is aimed at building practical skills in species identification and developing general knowledge of species life history, threats, and conservation actions.

**Quizzes.** Species Identification skills are assessed via weekly 2% quizzes to test your knowledge on common, invasive, and threatened species known to this region. This is an intensive introduction to species identification. Ongoing exercises will be provided to support retention and expansion of these skills. A final Species ID Quiz will be held on the last class of term.

**Trees and Pests Module.** This module focuses on a selection of urban trees and native trees inflected with pests that incur significant environmental and economic impacts. Students will learn to identify trees using various characteristics and assess their health.

**Soil Sampling Module.** Students will assess soil characteristics using simple field indicator tests to determine relative proportions of sand, silt, clay and organic matter content which relates to primary productivity of ecosystems.

**Participation.** The expectation is that every student will participate in the weekly activities. Assessment is based on attendance, engagement, contributions to field work, and equipment care. Specifically, engaging with guest speakers, and responding to class prompts.

## Course Schedule

SPECIAL NOTE: Bus shortages and the usual unpredictable maritime weather means that we may not adhere to the schedule below exactly as it is. Please aim to be adaptable and I will give as much notice as possible of any changes.

Date	Class Activity		Due Dates	
Sept	6	Fri	<b>Campus Exploration</b> Welcome to ENV2500 Intro to iNaturalist & Field Journals	*Certification Test: <i>Care and Use of Wildlife</i>
	13	Fri	<b>Learning to Bird (Campus / City Walk)</b> VIDEO: Intro to Eastern Canadian Birds I	Complete Quiz 1 by next Thurs end of day
	21	Sat	<b>Turtle Conservation Day (BUS) **9:30-1:30**</b> VIDEO: Intro to Reptiles (No Class on Fri 20 <sup>th</sup> )	Complete Quiz 2 by next Thurs end of day
	27	Fri	<b>Dal Biodiversity Day (Campus)</b> VIDEO: Intro to Amphibians	Complete Quiz 3 by next Thurs end of day
Oct	4	Fri	<b>Point Pleasant Park</b> VIDEO: Intro to Eastern Canadian Birds II	Complete Quiz 4 by next Thurs end of day <b>Submit Field Journals (Mon)</b>
	6	SUN	<b>Polly's Cove (BUS) **10:30-2:30**</b>	
	11	Fri	<b>Urban Tree Walk w/ Dr. Peter Duinker</b> VIDEO: Urban Trees	Complete Quiz 5 by next Thurs end of day
	18	Fri	<b>Forest Conservation Day **7:30 departure**</b> VIDEO: Tree Pests & Eastern Canadian Birds III	Complete Quiz 6 by next Thurs end of day
	25	Fri	<b>Dr. Dave Burton Virtual Guest Lecture (tbd)</b> Intro to Soil Science	Complete Quiz 7 by next Thurs end of day
Nov	1	Fri	RAINY DAY Back-up	Quiz 8, next Thurs end of day
	8	Fri	<b>SOILS – Field Indicator Tests</b> LAB WORK	Quiz 9, next Thurs end of day

15	Fall Study Break NO CLASS	Quiz 10, next thurs end of day <b>Submit Field Journals (Mon)</b>
22	Fri Course review	Quiz 11, next Thurs end of day
29	Fri Final Species ID Quiz (In-Class)	In-Class

Dec 6-17 Exam Period (No exam for ENVS2500)

*\*All students must write and pass the certification to be able to participate in field activities. Materials will be posted on Brightspace and you may complete the test online. A minimum grade of 70% is considered a pass. All students must pass before the first off-campus excursion.*

- This is a blended course. Videos are available on Brightspace and will be posted weekly. Watch these prior to class.
- This schedule is tentative and may change slightly. Any amendments will be posted on Brightspace.
- All course materials and important announcements will be posted on Brightspace - please login to the site regularly.
- Important dates such as the last day to drop courses can be viewed here:  
[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)
- Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale:

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

## University Policies and Statements

*This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate*

### Missed or Late Academic Requirements due to Student Absence

**Late penalties:** Assignments handed in on the due date will be evaluated at 100% of their potential score. Late assignments will be subject to a late penalty of 10% per day (including weekends). Assignments submitted 7 calendar days past the due date will be assigned a zero. If you require an accommodation, please speak with an instructor in advance of the due date or at most, two days after the due date has passed.

**Missed Midterm or Final Exam:** Students must email an instructor prior to the quiz or exam day if they are not able to write the assessment. Cases will be reviewed individually to determine if a missed assessment will be replaced by (a) a make-up quiz offered on another date, (b) an alternate assignment in lieu of the exam or (c) a re-weighting of already assessed components.

**Student Declaration of Absence:** The new Student Declaration of Absence (SDA) Form will be used in this course and will replace sick notes for absences of three days or fewer that result in missed or late academic requirements. The form can be accessed through Brightspace or submitted to me via email. Submission does not provide automatic exemption from any academic requirements that were missed or late during an absence. Any alternate coursework arrangements for missed or late academic requirements are at the discretion of the course instructor. Students must also email the instructor prior to the due date if a deadline is going to be missed.

**Course Policies related to Academic Integrity.** At Dalhousie University, we are guided in all of 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 of 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. Generative AI and large language models such as ChatGPT

**Information:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

Students are allowed to work together on assignments and are encouraged to do so, but the collaborative effort must be fair, balanced, and devoid of copying from peers. **All online quizzes must be written individually.**

**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](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](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>

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Additional academic integrity information can be found at:

[https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](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](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](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](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

**Dalhousie COVID-19 information and updates:**

<https://www.dal.ca/covid-19-information-and-updates.html>

### Advising

General Advising [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Indigenous Student Centre: [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

Black Students Advising Centre: [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

International Centre: [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

Studying for Success: [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

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

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

**Other supports and services**

Student Health & Wellness Centre:

[https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

Student Advocacy: <https://dsu.ca/dsas>

**Ombudsperson:**

[https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

**Safety**

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

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

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program:

<https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>