

ENVS2500 | Fall 2020 | Virtual Offering

Field Methods in Environmental Science

Instructor: Dr. Amy Mui | amy.mui@dal.ca

Teaching assistants: Nina Garrett; Thomas Baker; Samantha Howard

	DAY	TIME	LOCATION
Lectures:	Asynchronous	n/a	N/a – all materials available on BrightSpace
Labs:	*Synchronous Wednesday	9:35 – 10:55am Atlantic Standard Time (AST, UTC -3)	Collaborate Ultra or MS Teams

*Attendance at synchronous meetups are strongly encouraged but not mandatory. The purpose of meetups is to provide field support and to give you a chance to get to know me, your TA's, and the rest of the class. Participation will be assessed based on attendance but also via other means such as posted participation activities throughout the term. If you do not attend the meetups, then you should complete the alternate activities.

Synchronous lab meetups will utilize the Collaborate Ultra platform accessed via BrightSpace, or MS Teams depending on which provides the most seamless experience. You will need a computer with video and audio capabilities. Detailed instructions on access will be posted on Brightspace.

A class poll was sent out before the start of term to determine everyone's location. Those who are unable to attend due to restrictions such as time zone or hardware requirements should have spoken to me before the start of term. If you have not, please do so as soon as possible.

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

Objectives / Learning Outcomes:

Students will;

- Develop skills in visual and auditory identification of Eastern Canadian birds, reptiles and amphibians
- Apply basic field techniques to survey wildlife, and assess soil, and other biotic and abiotic components
- Utilize GPS and basic GIS tools to incorporate a spatial dimension into sampling activities
- Experiment with visualization techniques appropriate for environmental field data

Course Materials:

- Ensure you have appropriate outerwear for comfortably conducting field work in variable weather conditions
- Students must have an all-weather field notebook – you may use an existing one as long as there are enough empty pages (minimum 24).
- Students must have binoculars (preferably 8 or 10x magnification)
- There is no required textbook but associated readings will be posted on Brightspace
- Digital apps (accessible via mobile phones or desktop web browsers) are also utilized in this course and include: Merlin (Cornell Lab), Cram (digital flash cards), ArcGIS Field Collector, iNaturalist (All apps are free and available on multiple platforms (iOS, android))

Field Excursions:

- During this virtual year, you will be asked to visit a local green space weekly and complete short outdoor exercises
- For students who are not able to safely and easily access a green space, alternate assessments can be discussed – please contact me directly if this is the case (amy.mui@dal.ca) well in advance of the start of class
- **Your safety is of critical importance, particularly during this pandemic. Please follow all local health and safety regulations regarding COVID-19.**
- **If you have any health or mobility-related issues that may affect your safety in the field, you must inform me at least TWO WEEKS in advance of the first outdoor exercise.**

Course Assessment

Component	Weight	Date
Species ID Quizzes	20% (10 quizzes x 2% each)	Ongoing / Weekly
Field Journals	20% (10 weeks x 2% each)	Ongoing / Weekly
Story Map	20% (10 submissions x 2% each)	Ongoing / Weekly
Final Species ID Test	15%	Last class of Term (Dec 2)
Final Assignment	15%	End of term
Participation	10%	Ongoing

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 region. It is aimed at building practical skills in species identification and developing general knowledge of species life history, threats, and conservation status.

Quizzes. Species Identification skills are assessed via weekly 2% quizzes to test your knowledge on common, invasive, and threatened species known to the Eastern Canada region. This is an intensive introduction to species identification. Ongoing exercises will be provided to support retention and expansion of these skills.

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.

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

Participation. The expectation is that every student will participate in the weekly outdoor activities. Weekly synchronous online sessions are not mandatory but your presence is strongly encouraged. Students in a different time zone and with no access to a green space must speak with me before the start of the course. A poll will be sent out in the summer to determine your location. Other options for participation will be provided throughout the term which will not require your presence at a specified time.

Final Project. There is no final exam for this course. A final cumulative assessment of your species identification knowledge will take place during the last day of class (the test will open for a 24 hour window).

Course Schedule

Date	Class Activity	Due Dates
Sept 9 We	Welcome to ENVS2500 Certification Test: <i>Care and Use of Wildlife*</i>	
16 We	Intro to Eastern Canadian Amphibians	Quiz 1 Online, open for 12 hrs
23 We	Intro to Eastern Canadian Reptiles	Quiz 2 Online, open for 12 hrs
30 We	Intro to Eastern Canadian Birds I	Quiz 3 Online, open for 12 hrs
Oct 7 We	Intro to Eastern Canadian Birds II	Quiz 4 Online, open for 12 hrs
14 We	Intro to Eastern Canadian Birds III	Quiz 5 Online, open for 12 hrs
21 We	Intro to Urban Trees	Quiz 6 Online, open for 12 hrs
28 We	Native Trees and their Pests	Quiz 7 Online, open for 12 hrs
Nov 4 We	Intro to Soil Science	Quiz 8 Online, open for 12 hrs
11 We	Fall Study Break NO CLASS – work on soil sampling	PRACTICE QUIZ (ungraded)
18 We	SOILS – Field Indicator Tests	Quiz 9 Online, open for 12 hrs
25 We	Course review and support for projects	Quiz 10 Online, open for 12 hrs
Dec 2 Fr	Final Species ID Test (15%)	Online, open for 12 hrs
Dec 10-20	Exam Period (no exam – deadline for final project to be discussed as a class)	

**All students must write and pass the certification to be able to participate in field activities. Materials will be posted on Brightspace in mid-August and a representative from the Dalhousie Animal Ethics Committee will give a brief online presentation prior to writing the certification test online.*

- Videos are available on Brightspace and will be posted weekly. Regular class meetups will take place on Wednesdays from 11-12:30pm AST. A poll will be sent out before the start of term to determine your time zone and make accommodations where possible.
- 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
- 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

As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, **including the final exam**, for courses offered during fall or winter 2020-21 (until April 30, 2021). Information on regular policy, including the use of the Student Declaration of Absence can be found here: https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html.

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 (The Center for Academic Integrity, Duke University, 1999). 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. **Information:** https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.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.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

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

Statement: <http://www.dal.ca/cultureofrespect.html>

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 (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

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

Student Resources and Support

Advising

General Advising 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

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

International Centre: 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

Studying for Success: 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

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

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>