Biologging Syllabus
Department of Biology
BIOL 4323 Winter 2024

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 Instructor(s)

Name	Email	Office Hours
Robert Lennox	lennox@dal.ca	Tuesdays 0700-0800
Caitlin Bate		Dates, Time, Location

Course Description

How animals use their three-dimensional habitat impacts their life history. Spatial ecology, the study of animal location, and movement ecology, the study of the drivers of movement, are fields of inquiry that are relied upon to inform management decision making. Movement ecology, animal tracking, and methods for testing hypotheses using statistical programming will be covered.

Course Prerequisites

BIOL 2060.03 (or BIOA 3001.03), or PSYO/NESC 2160.03 or permission of the instructor.

Course Exclusions

List any course exclusions as per the academic calendar.

Student Resources

Dr. Lennox Is available to students by email (lennox@dal.ca). Expect 1-2 days response time. Office hours are TBD.

Course Structure

Course Delivery

Lectures are delivered on campus and attendance Is recorded. There are 22 scheduled lectures. Attending 20/22 will score 10/10.

Attending 19/22 will score 9.5/10.

Attending 18/22 will score 9/10

Etc.

Lectures

There are lectures, presentations, and In-class workshops planned.

Course Materials

There Is no textbook for the course. Reading materials will be provided on Brightspace and in class.

Assessment

Evaluation

- **Attendance: 10%**
- **NSERC Proposal Assignment: 20%** of grade. The assignment will be to write a project proposal In the style of an NSERC MSc application. A template will be provided. The assignment will Introduce students to the process of applying for research funds while thinking about how to rationalise and structure a research program around animal movement. The student Is free to choose their topic but several options will be provided In class on January 23. The assignment Is due February 8.
- **Individual Presentation: 30%** Each student will give a 10 min oral presentation with a slide deck on a paper or topic of Interest that is relevant to animal tracking. They may also choose to present a proposed research program based on their NSERC proposal assignment.
- **Group Report Project: 40%** Groups will be assigned a tracking data set to write a report on. The team can decide what level of detail they wish to use for statistical analysis but must set the findings into the context of the literature and movement ecology theory.

The report should be approximately 6500-8000 words Including references and include a statement of contribution for each participant. Authors will be listed in reverse alphabetical order in the style of "shared first authorship". A group work contract will be provided to detail the expectations of each group member.

Other course requirements

List any non-graded components that are required to pass the course (e.g., participation, attendance at synchronous sessions, completion of all labs, out of class field trip, non-graded presentation, etc.).

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

Late assignments will be penalized at a rate of 10%/day. Missed presentations, assessments or exams will be scored as a zero unless precipitated by a medical cause or other emergency. Medical causes will require a doctor's note or defer to university policy. Should weather force the cancellation of a student presentation, the presentations will be rescheduled at the earliest possible date. Plagiarism will be dealt with through university policy.

Course Policies related to Academic Integrity

Group assignments are challenging in school as well as In the real world. Groups should have clear agreement on the division of labour for written assignments. A group work contract will be drafted by each group and submitted so that expectations and roles are clear for each group member. The use of artificial Intelligence for writing Is allowed but not encouraged or recommended.

Learning Objectives

- Understand the movement ecology framework and be able to apply the framework to relevant questions In ecology
- Independent and group research skills for developing scientific ideas
- Scientific presentations
- Scientific evaluations and critical thinking
- Writing and data analysis

Course Content

Date	Topic	Activity	Note

Date	Topic	Notes	
9-Jan	Introduction		
11-Jan	History of tracking animal movement		
16-Jan	Guest Lecture	Sarah Fortune!	
18-Jan	Guest Lecture	TBD	
23-Jan	Movement Ecology	Group report projects assigned	
25-Jan	Tools and methodologies	Presentation topic selection	
30-Jan	Physiologging	15 minutes reserved to download R	
1-Feb	Using R	Bring computer with R	CAITLIN
6-Feb	Telemetry data manipulation	Bring computer with R	CAITLIN
8-Feb	Plotting and mapping data	Bring computer with R	
13-Feb	Term project introduction	Select your group topic	
20-Feb	READING WEEK		
22-Feb	READING WEEK		
27-Feb	Positioning		
29-Feb	Analysing telemetry data		
5-Mar	In class work on term project		Rob away:CAITLIN
7-Mar	In class work on term project		Rob away:CAITLIN
12-Mar	Tracking in Nova Scotia		
14-Mar	Future of movement ecology		
19-Mar	Presentations (30%)		
21-Mar	Presentations (30%)		
26-Mar	Presentations (30%)		
28-Mar	Presentations (30%)		
2-Apr	Wrap up	Deliver final reports	

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.