

Faculty of Science Course Syllabus
Department of Biology
BIOL/MARI/ENVS 3623.03
Coastal Ecology
July 6-22, 2026

Instructor: Dr. Jen Frail-Gauthier (she/her) jfrail@dal.ca 902-497-6372



Jen's "Reachability" Disclaimer: How best to contact Jen during Coastal Ecology?? Email is fine for general questions, but due to the amount of contact time we have together, asking in-person is probably easiest! If it's a question that could benefit the entire class, our Slack page would be a great place to ask that question. If immediate concern (e.g., you missed the bus and will be a few minutes late for the field trip departure time) call or text me!



Lectures: 9:05 AM LSC 332 (full details in schedule and will be given on first day)

Laboratories: LSC 2102 (full details in schedule and will be given out on first day)

Field trips: July 8, 10, 11 (Saturday), 14, 15 (afternoon), 17 (full details in schedule and will be given out on the first day. Some field days leave earlier than 9 AM, or return to Dal after 5 PM!!!)

TAs: Nicole Harrington (she/her) and Jesse Dunn (he/him)

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.

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

What does this mean for SEASIDE Coastal Ecology?

We are incredibly privileged to be learning on and from the land that was Traditional Mi'kmaq Territory. Although the Mi'kmaq signed Treaties with the British Colonists, they never gave up their land. We are guests and settlers on their land, and we need to learn and understand their past **AND** current struggles and experiences (i.e., it is important to remember that this isn't JUST history. Things are still happening today that marginalize and discriminate). True reconciliation is only possible with learning, understanding, and acting. Acting involves challenging, elevating, and advancing.



Coastal Ecology supports an **open, respectful, and safe** learning environment, for all students. We want you to feel like **you belong** and are welcome in this learning space. We understand that not all disabilities are visible. No matter how you gender identify, what your background is, and who you love, you belong.

We encourage diversity, equity, accessibility, respect, and inclusion and we will **not** tolerate hate, harassment, or discrimination.



Course Description

(from Dalhousie Calendar)

Hands-on study of the anthropogenic impacts on the structure and function of coastal ecosystems. Through field trips, laboratories and guest demonstrations, students examine ecosystem health, e.g. communities on rocky shores, salt marshes and sandy shores and learn basic experimental design, principles of environmental assessment and monitoring, and coastal habitat remediation.

Course Prerequisites

BIOL 2003.03 (Animal Diversity) and BIOL 2060.03 (Ecology) (BIOL 2004 recommended)

Overview

Coastal Ecology aims to provide students with field and laboratory experiences, including the geology, biology, ecology and conservation, of the sensitive coastal ecosystems in Nova Scotia. Nova Scotia is surrounded by the ocean (over 7 500 km of coastline!), and we will get to experience various coastal zones along the Atlantic Coast and the Bay of Fundy during this three-week course. Students will learn about the geological dynamics, ecology and biological interactions of the main coastal zones seen in Nova Scotia (rocky shores, sandy beaches, sand dunes, mudflats and salt marshes) through lectures and accompanying field trips. Physical and biotic factors will be examined and compared across various coastal zones, including the intertidal zonation, physical parameters, and biological interactions. Specifically, comparisons of pristine and impacted coastal areas will be done to examine the human impacts along our coasts. Day-long field trips will explore each of the main coastal zones, and short experiments and collections will be done in the field and during lab times. Additionally, through guest lectures and student-led seminars, students will explore the sensitivity of these coastal ecosystems and examine various human impacts on coastal zones in Nova Scotia and all over the world. We will also recognize, understand, and respect indigenous knowledge and traditional land-use issues in Nova Scotia, specific to coastal zones. Canada's Ocean Playground, here we come!

Course Objectives/Learning Outcomes

As described above, by the end of this course, students...

- ✓ ... will gain skills to recognize the biology, ecology and geology of sandy shores, rocky shores, salt marshes and mudflats.
- ✓ ... will be able to identify key flora and fauna of these ecosystems, and know which are indicative of 'pristine' versus human-impacted coastal areas.

- ✓ ... will be able to effectively and efficiently work in the field (collecting samples, writing thorough field notes, following instructions and using scientific curiosity to explore key questions) in any and all environmental and weather conditions.
- ✓ ... will be able to use scientific equipment in the lab and field and be able to effectively process samples in the lab and quantify animals and plants to explore key questions.
- ✓ ... will be able to manage group work and work effectively with peers.
- ✓ ... will be able to critically analyze and synthesize information in independent term projects on human impacts in the coastal zone (written paper and oral presentation).
- ✓ ... will gain extensive information and external knowledge from a variety of invited guests from industry, government and research.
- ✓ ... will recognize, understand, and respect indigenous and traditional knowledge and land-use issues in Nova Scotia.
- ✓ ... will develop new time management tools to manage a variety of work tasks in a short period of time.
- ✓ ... will have greatly enhanced their undergraduate learning experience through the SEASIDE program!

Course Materials

No extra course material needs to be purchased for this class. Field books will be provided. Course information will be available on the BrightSpace online learning classroom. Casual communication is through our Coastal 26 Slack channel, and students may need to download (free) apps for various activities in the course (e.g., Kahoot, iNaturalist).

Course Assessment

Participation and Collegiality: 10%

- Includes attendance (virtual and in-person), participation on field trips and during class discussions (especially during student seminars).

Quizzes and lecture content activities, and guest lecture reflections: 17%

- Based on lecture material; usually given same day (Kahoot “pop quizzes”) or beginning of following lecture. Guest lecturer reflections will include any activities done with the guest lecturers, and questions submitted that you did (or would have) asked the guest. Active-learning lecture activities done in-class are also included here.
- Coastal Creative art piece also included in this grade.

Field Book: 15%

- A good scientist needs good notes (thorough AND neat!). The field book is like your “lab book”. Record ALL observations from the field, notes, and activities. We will go over a good “field book” during the first class. Drawings included! Every student must hand in their own field book. The field notebooks will be provided for you- they are made of “rain-writeable” paper, so they can still be used if they get damp and wet! Field books must be initialed by myself or one of the Demonstrators at the end of the field day, but they can be edited/added to afterward.

Laboratory/Field Exercises: 25%

- Depending on the field trip, there will be short exercises to do in the field, and again once you are back in the lab. Some field trips may require data analysis and mini-field trip/lab

reports will be written. The three lab assignments are **group assignments**. You will work in the lab with your field trip group (min 4, max 5 students depending on class size) and work on questions and data analyses together.

Seminar Presentation (the Product): 8%

- (Individual assignment) 1/3 of your grade comes from your Human Impacts on the Coast seminar (paper and presentation), so most of your out-of-class energy will be focused on creating a way to “teach the class”, and subsequent paper, on a topic of impacts in the coastal zone (list will be given out during the first class and you should choose your topic by the end of the first class- no duplicates!). “Presentations” (see details in Human Impacts project guideline document) are to be approximately 6 minutes long, with questions from the class at the end.

Seminar Process “Paper”: 25%

- (Individual Assignment) Includes 20% for the process paper and 5% for the seminar outline due at mid-week 1. At 2 points during the course, you will submit a “check-in” progress of your process “paper.” Full details in a separate document and on the first day of class.



What does Academic Integrity look like in Coastal Ecology? Individual work needs to be just that – individual, in your own words, and your own ideas. Proper citations to published work need to be included, if you are referring to work that is not your own thoughts and ideas. For the field and lab assignments, these are group assignments (submitted by one person, group members get the same grade). Therefore, collaboration is encouraged among group members for the lab assignments, and it is expected that all group members **contribute equally**. Please refer to the Academic Integrity statement at the end of the syllabus for University Policies and Guidelines.

Coastal Ecology is a Generative AI-free zone. If you submit work that is not demonstrably your own, it could be submitted to the Academic Integrity office. You should be proud of all the hard work you do throughout this course, and everything you learn along the way. Reflection and critical thinking cannot be done with GenAI. Jen also promises that no AI is used in developing and delivering course content, nor doing evaluations.

Humans-Coastal Ecosystems-Humans.



Remember, we aim to have a lot of fun in this class, with an outgoing, relaxed atmosphere, but this is a third year Biology class, and you are expected to perform as you would in any upper-level class! I (and past students) HIGHLY recommend doing work early (seminar paper) to avoid last minute rush and stress (hence the 2 progress check-ins)! Take advantage of any early days and the first week, and the weekends.

Component	Weight (% of final grade)	Date
<i>Tests No formal exams in BIOL 3623</i>		
Assignments		
Field Book (Individual)	15%	Last Day – July 22
Quizzes, Guest Lecture Prep, Reflections	17%	All Course
Lab Assignments (3; Group)	25%	see schedule
Seminar Outline (Individual)	5%	Wed July 8
Process “Paper” (Individual)	20%	Last Day – July 22
Process Paper Progress (Individual)	no grade	Sun July 12 and 19
“Oral Presentation” (Individual)	8%	July 21 and 22
Participation and collegiality	10%	All Course

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)	

Course Policies

Attendance is mandatory unless a VALID REASON is given. Attendance will be taken every day, and is part of the Participation grade. If you get ill during the course, accommodation will be made to complete tasks/attend virtually as much as possible. Attendance (punctuality) and respect is especially important for our invited guest lectures during the course – these people are taking time out of their own schedules to visit YOU and give you the best multidisciplinary experience possible in Coastal Ecology. Guest lectures are instrumental to this course.

Assignments and Extensions

SEASIDE courses are fast paced, often with daily deadlines for various assignments and reflections. Life happens (after a hot day in the sun, you may fall asleep as soon as you get home!) and I understand that – if you need a “get out of jail free card” for a submission, please just ask Jen.

What to Expect (and what is expected of YOU) on Field Trips and during Labs:

1. You are expected to attend all field trips and participate! It is not fair for 1 student to do all the work in the field and lab, and everyone else in the group reap the benefits. Even though you will be working in groups, **you are expected to participate fully**. You will never be expected to do anything you are not comfortable with, nor if you think situations are too dangerous- there are lots of students for delegation.

2. Expect any and all **environmental conditions** (just hopefully not snow or hurricanes at this time of year). We will be going on field trips to the coastal zones- this means close to the ocean (could be much colder than expected!), this means lots of water... and because you will be doing lots of examinations in the field, lots of dirt (mud, salt water, sand, grass) to sit/kneel on, your clothes will probably get wet/muddy. Also remember to be sun-safe, even if foggy/cloudy. Biting insects are also to be expected, especially midges at Windsor and mosquitoes at Chezzetcook and inlets behind Conrad's Beach.

3. Be **academically prepared** for the field trips. We will go over each field trip in class, but make sure you read your field exercises ahead of time, so you know what you should be doing at what to expect. We will prepare all field guides and equipment the day before the trip. It is your responsibility to bring writing equipment and your field exercises/books!

4. Bathrooms? Not all field trip locations will have them. DON'T avoid drinking so you won't have to go pee. It's very important to stay hydrated!

5. Be respectful on field trips. Yes, it's important to have fun, but complete silliness will not be tolerated- you have work to do in the field! This goes for texting and cell phone use.

What to Bring:

Pay attention to the forecasted weather (of the place we are going!) and remember, we will be at the coast (they don't lie when they say "high of 25, except 14 along the coast" during weather forecasts). Field trips are rain or shine! Extra items may be emphasized before the field trip, and the list will change based on location. Use common sense! Below is a list that may help you prepare ahead of time:

- appropriate footwear for walking and getting wet... (and a pair to change into if they get wet)
- rubber boots, rain pants (for certain field trips – comfortable footwear more important)
- jacket, layers of clothes, in case it starts off cool and gets really warm (and vice versa!)
- HAT!

- extra socks, if you are wearing them
- spare clothes/swimwear and beach towel (if you want to get in the water)
- sunscreen, bug spray, if desired (Jen will always have extra)
- energy-rich food, snacks and LOTS of water! (you will get hungrier than you think!) (Jen will have extra water/Gatorade on the bus)
- plastic bag for garbage and wet clothes... kleenex or baby wipes
- recommended: soapy facecloth in a Ziploc bag to wash your hands
- digital camera, cell phone...
- pencils, field book (provided to you) and field exercises, clipboard
- medications as needed (allergy meds, prescriptions, pain killers...)
- cash/money for pit-stops (if desired)

And an ergonomic backpack to carry it in! We can drop our stuff when we work, but sometimes we will have a lot of hiking to get to where we need to go! (i.e. Blue Beach, Kingsburg Beach). The bus also stays with us, so we can leave items on the bus.

Coastal Ecology 2026 Tentative Course Schedule – as of July 2

Guest lectures could change last min (which may affect timing of lectures/labs). Field trips booked rain/shine.

Date	Activity	Extra Information
Mon July 6	<u>Lectures</u> : AM: Introduction to the class, logistics, evaluations, field trips, etc. <u>PM: Introduction to Coastal Ecology</u> - Setting the Scene	Sign up for Seminar topic! In-class Reflections/Kahoot Quizzes Introduce yourself on Slack! Land Statement Reflection due
Tues July 7	<u>Lectures AM/PM</u> : The Coastal Zones (ecology, biology, processes, etc).	In-class Reflections/Kahoot quizzes
Wed July 8	<u>FIELD TRIP 1!</u> Conrad's Beach and Rainbow Haven (Atlantic Shore sandy beaches and dunes)	Bus leaves at 9 AM Outline/Plan of Seminar paper and Annotated Bibliography due 7 PM (so Jen can look at before she falls asleep)
Thurs July 9	<u>Lecture AM</u> : Geology of Nova Scotia <u>Guest Lecture 11 AM</u> : Lachlan Riehl; The Confederacy of Mainland Mi'kmaq <u>Lab PM</u> : Sandy Beaches Lab	Lecture Kahoot/Reflection activity The Confederacy of Mainland Mi'kmaq (Reflection due)
Fri July 10	<u>FIELD TRIP 2!</u> Blue Beach Fossil Museum then Windsor Causeway (macrotidal, new salt marsh)	Bus leaves at 9 AM (but we will get back to Dal later for this trip, probably 6 PM-ish)
Sat July 11 (the ONLY Saturday class)	<u>FIELD TRIP 3!</u> Chezzetcook Inlet, Eastern Shore (old Atlantic salt marsh, tidal inlets, mudflats) and Lawrencetown Beach for lunch/swim	Bus leaves at 9 AM, will return to Dal before 4 PM (depends on weather conditions at Lawrencetown). Sandy Beaches Lab due 11:59 PM
Mon Jul 13	<u>Guest Lectures 9 AM</u> : Nicolas Winkler (EAC) and Dr. Hannah Harrison (MAP) <u>Lab PM</u> : Lab work for Salt marshes	EAC, MAPs (Reflections) Progress of Process Paper Part 1 Check-In due Sun July 12
Tues July 14	<u>FIELD TRIP 4!</u> Cranberry Cove (near Peggy's Cove ("pristine" rocky shore)	Bus leaves at 10 AM!
Wed July 15	<u>Time TBD AM</u> : Megan Carver, Fisheries Officer, DFO <u>Lecture AM</u> : Human impacts on the coast <u>PM FIELD TRIP 5!</u> Halifax Harbour (impacted rocky shore)	DFO Fisheries Officer (Reflection) Lecture Kahoot Meet at the Halifax Waterfront (Salter lot, with hammocks, where Sail GP was) at 2 PM Salt Marsh Assignment 11:59 PM
Thurs July 16	<u>Guest Lecture 9 AM</u> : Dr. Tyler Eddy, Memorial University (The Life Aquatic) <u>Lab PM</u> : Rocky shore lab work	Dr. Eddy (Reflection)
Fri July 17	<u>FIELD TRIP 6!</u> Sand Dollar Beach, Hirtle's Beach and Lunenburg (various coastal systems with visible coastal threats and impacts)	Bus leaves at 800 AM SHARP Rocky Shore Assignment due Sat July 18 Progress of Process Paper Part 2 due Sun July 19
Mon July 20	Guest Lecture/ Work Day! 9:30 AM: Emily Baker, PhD Candidate, SMU (sand engines/living shorelines) 11 AM: Hunter Stevens, CPAWS NS 1 PM: Nicole Cameron, IDPhD student, rocky intertidal foundation species	Reflections due for all guest lectures!
Tues July 21	Student "Seminars" (speaker order random*) i.e., be ready to present for Day 1!	Bring treats to class! Coastal Creative due
Wed July 22	Student "Seminars" (speaker order random)	Bring treats to class, and Potluck lunch! Human Impacts Process 'papers' due Field Books 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 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>