



**DALHOUSIE
UNIVERSITY**

Faculty of Science Course Syllabus – DRAFT January 2017

Department of Biology

BIOL/MARI/ENVS 3623.03

Coastal Ecology

July 4-21 2017

Instructor(s): Jen Frail-Gauthier jfrail@dal.ca LSC 5126
Lectures: 9:05 AM LSC 234 (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 6, 7 (half day), 11, 12, 14 and 17 (full details in schedule and will be given out on the first day)
Demonstrators: TBA

Course Description

(from Dalhousie Calendar)

Impacts of anthropogenic inputs on the structure and function of coastal ecosystems. Through field trips and other classwork, students examine ecosystem health, e.g., in macroalgal communities on rocky shores, in seagrass beds on sedimentary shores, and learn basic experimental design, principles of environmental assessment and monitoring, and coastal habitat remediation.

Course Prerequisites

BIOL 2003.03 (Diversity of Life 1); BIOL 2060.03 (Ecology) or BIOA 3001.03

Overview

Applied 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. Canada's Ocean Playground, here we come!

Course Objectives/Learning Outcomes

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

- ✓ ... will understand 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 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).
- ✓ ... 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 critical 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 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 new BrightSpace online learning classroom.

Course Assessment

Participation: 10%

- Includes attendance, participation on field trips and during class discussions (especially during student seminars) and “pop quizzes”

Field Book: 20%

- 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.

Laboratory/Field Exercises and Mini-Reports: 30%

- 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. **As of 2015**, the three lab assignments are **group assignments**. You will work in the lab with your field trip group (4-5 students depending on class size) and work on questions and data analyses together.
- Includes 5% (individual) for review of Coastal Reports from Ecology Action Centre/Nova Scotia Coastal News Issue

Seminar Presentation: 15%

- (Individual assignment) 40% of your grade comes from this, so most of your out-of-class energy will be focused on creating your own “lecture”, 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!) The presentation should be lecture-style, as you will be teaching the class about your topic. Presentations are to be approximately 10-12 minutes long, with questions from the class at the end.

Seminar Paper: 25%

- (Individual Assignment) Includes 20% for the paper and 5% for the synopsis and annotated bibliography due at mid-week 1. The papers should be in the format of a review paper; with appropriate, peer-reviewed references (a paper written from Wikipedia is not acceptable!) Full details in a separate document.

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 (just LOOK at the last week!)? Take advantage of any early days and the first week!!

Component	Weight (% of final grade)	Date
<i>Tests No formal exams in BIOL 3623</i>		
<i>Assignments</i>		
Field Book (Individual)	20%	Last Day – July 21
Lab Assignments (3; Group)	25%	TBA
Ecology Action Centre (Individual)	5%	TBA
Annotated Bibliography (Individual)	5%	Wed. July 6
Term Paper (Individual)	20%	Last Day – July 21
Oral Presentation (Individual)	15%	July 20 and 21
Participation	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.

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 5 students to do all the work in the field and lab, and everyone else 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 to get wet and muddy! We will be going on field trips to the coastal zones- this means close to the ocean, 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. Don't wear your nicest clothes!
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 and mature 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:

- appropriate footwear for walking and getting wet... -rubber boots... -rain pants or hip waders if you have them (we can supply some)
- jacket, layers of clothes, in case it starts off cool and gets really warm (and vice versa!)
- HAT!... -extra pair of socks, if you are wearing them
- sunscreen, bug spray, if desired
- energy-rich food, snacks and LOTS of water! (you will get hungrier than you think!)
- 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... -pen, pencils, field book and field exercises, clipboard
- cash for pit-stops

And an ergonomic back pack 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.

TENTATIVE Course Schedule (as of January 2017)

Guest lecturers and days/times are TBA and may change throughout the course times.

Date	Activity	Extra Information
Tues. July 4	<u>Lectures</u> : Introduction to the class, logistics, evaluations, field trips, etc. <u>Introduction to Coastal Ecology</u> - Setting the Scene	Sign up for Seminar topic!
Wed. July 5	<u>Guest Lectures and Discussions AM</u> <u>Lectures PM</u> : The Coastal Zones (ecology, biology, processes, etc).	Guest Lecture TBA
Thurs. July 6	FIELD TRIP 1! Cranberry Cove/Peggy's Cove ("pristine" rocky shore)	Bus leaves at 9 AM Hand in outline of Seminar paper and Annotated Bibliography
Friday. July 7	<u>Lab AM</u> : Rocky shore lab work FIELD TRIP 2 (PM)! Halifax Harbour (impacted rocky shore)	Guest TBA Walking Trip: Meet at Halifax Water front at 1PM
Mon. July 10	<u>Guest Lectures and Discussions AM</u> : Geology of Nova Scotia Human Impacts in the Coastal Zone; Guest Lecture; Lab Work <u>Lab PM</u> : Rocky shore lab work	Guest Lecture TBA
Tues. July 11	FIELD TRIP 3! Conrad's Beach and Rainbow Haven (Atlantic Shore sandy beaches and dunes)	Bus leaves at 9 AM Rocky Shore Lab Assignment due 11:59 PM
Wed. July 12	FIELD TRIP 4! Windsor Causeway (Bay of Fundy mudflat and young salt marsh) and Blue Beach Fossil Museum (Geology of the Coast)	Bus leaves at 8:30 AM SHARP
Thurs. July 13	<u>Lab Day</u> – Sandy beaches and salt marshes	
Fri. July 14	FIELD TRIP 5! Chezzetcook Inlet, Eastern Shore (old Atlantic salt marsh, tidal inlets, mudflats)	Bus leaves at 8:30 AM! Sandy Beaches Lab Assignment due 11:59 PM
Mon. July 17	FIELD TRIP 6! Sand Dollar Beach, Hirtle's Beach and Lunenburg (various coastal systems with visible coastal threats and impacts)	Bus leaves at 830 AM SHARP
Tues. July 18	<u>Lab Work!</u>	Guest Lecture TBA
Tues. July 19	<u>Lab Work!</u>	Guest Lecture TBA Salt Marsh Assignment due 11:59 PM
Wed. July 20	Student Seminars (speaker order random)	Bring treats to class!
Thurs. July 21	Student Seminars (speaker order random)	Bring treats to class, and Potluck lunch! (details will be given) Seminar papers due Field Books due

ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie's Student Accommodation Policy can be accessed here:

http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html

Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the **Advising and Access Services Centre (AASC)** prior to or at the outset of the regular academic year. More information and the ***Request for Accommodation*** form are available at www.dal.ca/access.

ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty.

The Academic Integrity website (<http://academicintegrity.dal.ca>) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie's ***Policy on Intellectual Honesty*** and ***Faculty Discipline Procedures*** is available here:

http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html

STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general:

“The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members.”

The full text of the code can be found here:

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

SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

Service	Support Provided	Location	Contact
General Academic Advising	Help with <ul style="list-style-type: none"> - understanding degree requirements and academic regulations - choosing your major - achieving your educational or career goals - dealing with academic or other difficulties 	Killam Library Ground floor Rm G28 <i>Bissett Centre for Academic Success</i>	In person: Killam Library Rm G28 By appointment: <ul style="list-style-type: none"> - e-mail: advising@dal.ca - Phone: (902) 494-3077 - Book online through MyDal
Dalhousie Libraries	Help to find books and articles for assignments Help with citing sources in the text of your paper and preparation of bibliography	Killam Library Ground floor Librarian offices	In person: Service Point (Ground floor) By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time: http://dal.beta.libguides.com/sb.php?subject_id=34328
Studying for Success (SFS)	Help to develop essential study skills through small group workshops or one-on-one coaching sessions Match to a tutor for help in course-specific content (for a reasonable fee)	Killam Library 3rd floor Coordinator Rm 3104 Study Coaches Rm 3103	To make an appointment: <ul style="list-style-type: none"> - Visit main office (Killam Library main floor, Rm G28) - Call (902) 494-3077 - email Coordinator at: sfs@dal.ca or - Simply drop in to see us during posted office hours All information can be found on our website: www.dal.ca/sfs
Writing Centre	Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) <ul style="list-style-type: none"> - Learn to integrate source material into your own work appropriately - Learn about disciplinary writing from a peer or staff member in your field 	Killam Library Ground floor Learning Commons & Rm G25	To make an appointment: <ul style="list-style-type: none"> - Visit the Centre (Rm G25) and book an appointment - Call (902) 494-1963 - email writingcentre@dal.ca - Book online through MyDal We are open six days a week See our website: writingcentre.dal.ca