

Biol 2605 Marine Life of Nova Scotia - Syllabus

Instructor: Dave Keith: email - keithdm@dal.ca. Office: Biol 4050

Lectures: 9:25-11:55 Monday through Friday

Laboratories: 13:05-16:05 Monday through Friday

Field Trips: 9:00 - 17:00 (See schedule for tentative dates)

Multi-Night Trip: - [Harrison Lewis Centre](#)

- Students should wear sneakers or (preferably) hiking/waterproof boots on field trips (water shoes are ideal), you will get your feet wet. Minivans or buses will be used to transport students to and from field trip sites outside of metro Halifax. For the McNab Island trip we will meet on the Halifax waterfront near Bishop's landing, detailed directions will be provided on the first day of class. You will need your waterproof field notebook (provided), pencil, thinking cap (a hat will suffice), sunscreen, jacket, water, and food. There will be 4 all-day field trips (see provisional schedule) and one multi-night field trip (details below).

Pre-requisite: One year of University courses (or instructor approval)

- Field books:**
1. **A Field Guide to the Atlantic Seashore: From the Bay of Fundy to Cape Hatteras (Gosner) - Peterson Field Guides - Required**
 2. **Students must also have a waterproof "Rite in the Rain" field notebook**

- Textbooks:**
1. Marine Biology 8th Edition (Castro and Huber) - Recommended & available from instructor
 2. Atlantic Shorelines: Natural History and Ecology (Bertness) - Recommended & available from instructor

Goals: In this course you will discover the diversity of Marine Life in Nova Scotia along with the beauty and importance of the ecosystems in which they inhabit. Simple student driven field studies will be performed in coastal ecosystems. At the end of the course it is expected that you can identify numerous species found upon the coasts of Nova Scotia, understand their niches within an ecosystem, have gained an appreciation of the how marine life/ecosystems fit into the broader context of life on Earth, and have a basic understanding of how the scientific method works to answer questions. The course consists of three core components

Core Components

Lectures: Using ecosystems as our base unit, we explore the species inhabiting the major coastal and marine ecosystems of Nova Scotia. The species will be explored in relation to the taxonomy, their role within the ecosystem, and species conservation.

Field trips: Observation and simple student led field studies will be used to expose students to the Marine life of Nova Scotia in various coastal ecosystems. The field trips include a 3 day, 2 night field trip to the Harrison Lewis Centre.

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Laboratories: During the first 2 weeks the marine life discovered during the field trips will be examined in more detail in lab. During the final week we will stay at the Harrison Lewis Centre for 3 days (2 nights) exploring the local coastal ecosystems and developing your group projects.

Grading: There are 3 components to the marking scheme

Component	Description	Mark	Total
<i>Mini Quizzes</i>	One each non-field day during the morning lecture period (7 total)	7%	49%
<i>Field Project</i>	Simple write up of your Harrison Lewis Center field study (teams of 3 or 4)	30%	30%
<i>Participation</i>	During lectures, labs, field trips, and post field trip discussions	21%	21%

Grading Scale: The scale is the same as other Dalhousie science courses:

A+ 90-100%	A 85-89%	A- 80-84%
B+ 75-79%	B 70-74%	B- 65-69%
C+ 62-64%	C 58-61%	C- 55-57%
D 50-54%	F <50%	

Late Penalties: There will be no make-up mini-quizzes, students absent from a quiz will receive a 0 unless a signed note explaining the absence is obtained from your doctor. The student projects are due at the end of class on Friday (5:00 pm). A late penalty of 20% per day will be assessed to all late papers, and papers will not be accepted after July 23rd without a signed doctors note.

Field Projects Before the first field trip, students will be assigned into teams of 3 or 4 students. During the day long field trips each team will spend the day observing species in the different ecosystems (rocky shore, salt marsh, and sandy beach), collecting samples for analysis, and recording their observations in their field notebooks. The following afternoon each group will analysis their samples and write a description of the biology of each field site. With assistance from the instructor the students will take the class observations and develop questions that they would be interested in answering during the multi-night trip to the Harrison Lewis Centre. In collaboration with the instructor each group will then develop simple a field study to address the question they are most interested in and we will perform the field study while at the Harrison Lewis Centre. The grading will be based upon 3 components:

1. The student field notebooks will be graded based upon the quality of observations made during the field trips. **This will be worth 25% of project grade.**
2. The field study itself will be graded, this will be based upon the questions asked and the implementation of the projects in the field. **This will be worth 25% of project grade.**
3. A final report will be written in groups during the last week of classes with the instructor available based on the results of one of the groups field projects. **This will be worth 50% of the project grade.**

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Project Report: The report will be a short summary of your field study using a simple report format. The report consists of 4 components, each component will be explained in more detail during the laboratory sessions.

1. **Introduction** Maximum of 400 words. Relevant background information about the species and ecosystem are primary components. The section should end with a short paragraph explaining the “objective(s)” of the field study. The goal here is to get the reader interested in your field study, and give some background on the species and ecosystem so they understand why you performed the study (and “because I took the course” isn’t sufficient!). There should be at least 2 references in this section, simple references to the course notes or relevant websites will suffice. **Worth 20% of report grade**
2. **Methods** Approximately 200 words, (may vary depending on your field study) describing what you did in the field. The reader should be able to repeat your field study after reading this section. **Worth 20% of report grade**
3. **Results** Typically less than 200 words, one or two paragraphs should be sufficient (though again this may vary depending on your field study) describing the results of your field study. This section should include at least one figure. **Worth 30% of report grade**
4. **Discussion** Maximum of 400 words, often the most difficult section to write! The goal of this section is to explain your results and put them in a broader context. Two to three references in this section based on class notes or relevant websites will suffice. Questions you can answer include:
 - (a) Do the results agree with what you originally suspected would happen?
 - (b) What do the results mean for the species, ecosystem, conservation, etc?
 - (c) Was there anything unexpected from your results?
 - (d) Was there anything that occurred during your field study that may have led to unexpected results (e.g. it rained, somebody stepped on your species, etc!)? **Worth 30% of report grade.**

HLC Multi-Day

Field Trip: This will be a 3 day 2 night trip to the [Harrison Lewis Centre \(HLC\)](#) located on the South shore of Nova Scotia. We will leave Halifax at 9:00 am, and will leave the HLC shortly after lunch on Friday. Students will stay in cabins located at the HLC, and we will have access to both a scientific laboratory and a large cook-house/gathering area. The HLC is a five minute walk from a beautiful coastal ecosystem that has experienced little impact from humans, and it is a short drive from the [Kejimikujik Seaside Adjunct](#). The facility also has a large fire pit with an ample supply of wood.

Food supper will be provided, Breakfast, Lunch, & Supper are provided, and Breakfast and lunch are provided. We suggest you bring along some snacks in addition to what we provide as you will get hungry in the field!

Special Needs Please advise before/at the start of the course of any dietary restrictions, allergies, or other special needs, we will do our best to accommodate you

Schedule:The tentative schedule is as follows, the field trips may have to be adjusted due to un-foreseen circumstances.

Date	Week 1:	
	9:25 - 11:55 (Lecture)	13:05 - 16:05 (Labs)
Mon.	Course overview & Science and Biology 101	Introduction to Taxonomy I & Laboratory methods
Tue.	Introduction to Taxonomy II & III	Squid dissection
Wed.	Field Trip #1 - Bay of Fundy - Five Islands (Field Observation & Experimentation)	
Thurs.	Introduction to Marine Biology & Ecology	Analysis of Field Samples
Fri.	Coastal Ecosystems of N.S. I & II	Analysis of Field Samples
	Week 2:	
Mon.	Field Trip #2 - Cranberry Cove Rocky Shore (Field Observation & Experimentation)	
Tue.	Coastal Ecosystems of N.S. III & Marine Ecosystems I	Analysis of Field Samples
Wed.	Multi-Night Field Trip - Harrison Lewis Center - Initial Field Explorations	
Thurs.	Multi-Night Field Trip - Harrison Lewis Center - Kejimkujik Seaside Adjunct & Lab Analysis	
Fri.	Multi-Night Field Trip - Harrison Lewis Center - Final Field Explorations	
	Week 3:	
Mon.	Marine Ecosystems of N.S. II & III	Analysis of Field Samples
Tue.	Field Trip #3 - McNab's Island - Small coastal ecosystems within a unique island ecosystem	
Wed.	Marine Conservation in N.S.	Finish & Submit Final Projects