

Faculty of Science Course Syllabus Department of Biology

BIOL 2605.03

Marine Life of Nova Scotia (Distance-Learning) June 1st-August 31st, 2020 (Summer term)

Instructor:	Isabelle Aubé	isabelle.aube@dal.ca	LSC 2123	
Lectures:	Pre-recorded lectures and reading-based learning			
Laboratories:	None			
Field Trips:	Self-directed day trips fr	rom home		

Course Description

Hands-on distance-learning introduction the variety of marine life found in Nova Scotia (NS), including macroalgae, benthic invertebrates, fish, marine mammals, and seabirds. The species diversity, zonation, and ecology of rocky shores, tidal mudflats, and sandy beaches is explored through online activities and assignments. Field observations on self-directed day trips is followed by lab work at home (e.g. species identification), data analysis and the writing of a scientific report. A focus on citizen science is reinforced through participation in a Bioblitz, a project on the cultural importance of fish to the Mi'kmaq nation, and video presentations on a species at risk in NS & on environmental impacts on marine life in NS. **NOTES:** Offered in summer through **SEASIDE**. In lieu of paying Auxiliary fees for this class, it will be expected for you to purchase/borrow/make some or all of the following field and lab equipment: an all-weather field book, a 30-metre field measuring tape, equipment to build a quadrat, and a First-Aid kit. See the **"Required Course Materials"** section of the syllabus for details. For dates, times and special registration procedures, see <u>https://www.dal.ca/faculty/science/biology/seaside-program.html</u>.

Course Prerequisites

One year of university courses. Proof of valid First-Aid course certificate.

Course Objectives/Learning Outcomes

After successfully completing this course, the student will have the ability to:

- ✓ Identify numerous species found in and around the coasts of Nova Scotia.
- ✓ Build and use a dichotomous key.
- ✓ Recognize the various types of marine ecosystems present in Nova Scotia and understand their importance.
- ✓ Appreciate how marine life and their ecosystems fit into the broader context of life on Earth.
- ✓ Perform basic data analysis of ecological data.
- ✓ Propose, design, setup, and collect field observations from at least one marine ecosystem in NS.
- ✓ Keep detailed field notes, photos and/or video during their field trip(s).
- ✓ Write a scientific report on the observations made during their field trip(s).
- ✓ Connect to their peers though online discussion board forums and presentation Q&As.



Required Course Materials

- 1. No required textbook, online access codes, lab manual, clicker, or lab coat
- 2. A <u>"Rite in the Rain" all-weather field book (\$11)</u>.
- 3. An extra long measuring tape (30m) (\$35) may be needed (depends on your chosen field project).
- 4. A 0.5m² quadrat may be needed (depending on your chosen field project) and you will be responsible for the cost of building materials (~\$10).
- 5. Consider borrowing equipment from your local tool libraries.
- 6. A well-stocked First-Aid kit (~\$30-40) stored in waterproof bag that follows the <u>Canadian Red Cross</u> <u>Guidelines</u>.
- 7. Reliable internet to access the course website: BIOL 2605 Marine Life of NS (Brightspace link at dal.ca) on a regular basis.

Course Assessment

Component	Weight (% of final grade)	Brightspace Unit
Quizzes		
Intro to Coastal Zones & Nearshores of NS	(3%)	Unit 1
Intro to Algae	(3%)	Unit 1
Intro to Benthic Invertebrates	(3%)	Unit 1
Assignments		
Fish of Cultural Importance to Mi'qmaq	(3%)	Unit 1
Marine Mammal & Seabird Species at Risk	(10%)	Unit 1
Diversity of the Rocky Intertidal	(15%)	Unit 2
Bay of Fundy vs Conrad's Beach Ecosystems	(15%)	Unit 2
Field Report	(25%)	Unit 3
Environmental Impacts on Marine Life in NS	(15%)	Unit 3
Other course requirements		
Discussion Board Participation and Q&As	(4%)	Units 1 & 3
Bioblitz Project	(2%)	Unit 3
Detailed Field Notes	(2%)	Unit 3
Conversion of numerical grades to Final Letter	r Grades follows the <u>Dalhousid</u>	e Common Grade Scale

A+	(90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
Α	(85-89)	B (73-76)	C (60-64)	F	(<50)
Α-	(80-84)	B- (70-72)	C- (55-59)		

Course Policies



What to Expect (and what is expected of YOU):

- 1. You are expected to read the course syllabus in full.
- 2. All important announcements will be made on the Brightspace course page (not over email). You are expected to check on these weekly.
- 3. There are no set deadlines for individual tasks.
- 4. Units are synchronous, meaning that all Modules from Unit 1 (except for Q&As) need to be completed before moving on to Unit 2. All Modules from Unit 2 need to be completed before moving on to Unit 3. However, Modules within each Unit can be done synchronously, asynchronously, or concurrently.
- 5. All Modules (including Q&As) need to be completed before the end of term (August 31, 2020).
- 6. On weekdays, you can expect a reply from your Instructor (<u>Isabelle.aube@dal.ca</u>) and/or Demonstrator/Teaching Assistant (TBD) within 24 hrs of emailing, posting on the course Brightspace Discussion Board, or posting an Instant Message. On weekends you can expect a reply within 48 hours.
- 7. You are expected to show proof of a valid <u>First-Aid course certificate</u> prior to going in the field.
- 8. You are expected to sign and return the course liability waver form prior to going in the field.
- 9. When in the field (including entry/exit points to your field locations), you are expected to familiarize and follow all local rules, including all local health and safety regulations.
- 10. Out of an abundance of safety, you are expected to bring at least one other person with you (e.g. family member or friend). Whether they help you hold a measuring tape, take photos, or even simply sit and watch you work from 2 meters away is up to them!
- 11. Expect to get wet and muddy. Field trips to marine ecosystems means lots of water... and because you will be doing lots of examinations in the field, this also means lots of dirt (mud, salt water, sand, grass) to sit/kneel on. Do not wear your nicest clothes!
- 12. Students are required to check in with the Instructor by email (<u>Isabelle.aube@dal.ca</u>) or by phone (provided on Brightspace) BEFORE AND AFTER every self-directed field trip with the following information:
 - the specific location(s) they will be, the name(s) and cell number(s) of all people going, and expected time of return home.
- 13. Based on your field project, you may be required to build your own 0.5m² quadrat. Consider borrowing equipment from your local <u>tool libraries</u>.
- 14. Be academically prepared for the field trips. The day before departure, make sure you review with the instructor by email (<u>Isabelle.aube@dal.ca</u>) your plan of action, prepare all data sheets and equipment needed.
- 15. Bathrooms? Not all field trip locations will have them. DO NOT avoid drinking so you will not have to go pee. It is very important to stay hydrated.
- 16. Be respectful and mature with people you encounter on field trips. Yes, it is important to have fun, but you represent Dalhousie University in the context of your presence in the field.
- 17. You are expected to cleanup your field location before you leave.
- **18.** Pay attention to the forecasted weather of the place you are going. Remember, if you are near the coast they do not lie when they say "high of 25, except 14 along the coast" during weather forecasts!
- 19. Most importantly, you are never expected to do anything that you are not comfortable with, or that puts you in a dangerous situation. Above all, stay safe and use common sense!



What to bring in the field? Below is a checklist that may help you:

- a well-stocked First-Aid Kit in a waterproof bag that follows the Canadian Red Cross guidelines
- □ cell phone and backup charger
- energy-rich food, snacks, and LOTS of water! (you will get hungrier/thirstier than you think for day trips)
- □ appropriate footwear for walking and getting wet... rubber boots, water sandals, rain pants, or hip waders if you have them
- □ 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
- □ plastic bag for garbage and wet clothes... kleenex or baby wipes
- recommended: soapy facecloth in a Ziploc bag to wash your hands for day trips
- digital camera, a <u>waterproof field book</u> (pro-tip: write your instructor's cell phone number in case questions pop up), pencils (pen ink can wash off; pro-tip: tie your pencil to your field book with a long piece of string), clipboard with data sheets (or pre-set your data sheets in your field book).
- □ bank card AND cash for pit-stops
- □ an ergonomic backpack to carry your personal items in. You can drop our stuff when you work, but you may have a lot of hiking to get to where you need to go.
- □ a cart or bucket to carry your field equipment (pro-tip: create a separate equipment checklist so you don't leave anything behind)



Course Schedule and Content

Unit Topic (synchronous)		Modules (synchronous, asynchronous, or concurrent within Unit)		
1.	Introduction to Marine Ecosystems & Species in NS (Recommended Time Frame: 5 weeks)	 1: Introduction to Coastal Zones & Nearshores of NS ✓ Study worksheet ✓ Quiz (3%) 2: Introduction to Algae ✓ Dichotomous key activity ✓ Quiz (3%) 3: Introduction to Marine Benthic Invertebrates ✓ ID and trophic relationships activity ✓ Quiz (3%) 4: Introduction to Marine Fish ✓ ID and external anatomy activity ✓ Fish of cultural importance to Mi'qmaq project (3%) 5: Introduction to Marine Mammals and Seabirds ✓ ID activity ✓ Mark-recapture activity ✓ Species at risk video presentation or VLOG (10%) ✓ Discussion forum Q&A participation (2%) 		
2.	Marine Ecology & Data Analysis (Recommended Time Frame: 3 weeks)	 6: Open Source Apps & Tools ✓ Practice and troubleshooting tech activities 7: Diversity of the Rocky Intertidal Shores ✓ Data analysis and results write-up assignment (15%) 8: Bay of Fundy vs Conrad's Beach ✓ Comparing marine ecosystems assignment (15%) 		
3.	Marine Biologists as Citizen Scientists (Recommended Time Frame: 4 weeks + 1 buffer week)	 9: Field Observations ✓ Scientific report (25%) ✓ Bioblitz project (2%) ✓ Field notes (2%) 10: Environmental Impacts on Marine Life in NS ✓ Video presentation or VLOG (15%) ✓ Discussion forum Q&A participation (2%) 		



University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate. (Some of these policies are elaborated upon elsewhere in this syllabus.)

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: <u>https://www.dal.ca/campus_life/academic-support/accessibility.html</u>

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**: <u>http://www.dal.ca/cultureofrespect.html</u>

Important Dates in the Academic Year (including add/drop dates) https://www.dal.ca/academics/important_dates.html

Missed or Late Academic Requirements due to Student Absence

Dalhousie students are asked to take responsibility for their own short-term absences (3 days or less) by contacting their instructor by phone or email prior to the academic requirement deadline or scheduled time and by submitting a completed Student Declaration of Absence to their instructor in case of missed or late academic requirements. Only 2 separate Student Declaration of Absence forms may be submitted per course during a term (Note: faculty, college, school, instructor or course-specific guidelines may set a lower maximum). **Read more:**

https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university_secretariat/policyrepository/StudentAbsenceRegulation(OCT2017)v2.pdf

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 the office (Rm 3037, McCain Building), e-mail (<u>elders@dal.ca</u>) or leave message (902-494-6803).

Information: https://www.dal.ca/campus_life/communities/indigenous.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**: <u>https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-</u> conduct.html

University Grading Practices

<u>https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html</u> Learning and Support Resources

Academic Supports

Copyright Office: <u>https://libraries.dal.ca/services/copyright-office.html</u> E-Learning website <u>http://www.dal.ca/dept/elearning.html</u> Fair Dealing Guidelines <u>https://libraries.dal.ca/services/copyright-office/fair-dealing.html</u> Library: <u>https://libraries.dal.ca/</u> Studying for Success: <u>https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html</u> Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Advising

Aboriginal Student Centre: <u>https://www.dal.ca/campus_life/communities/indigenous.html</u> Biology Advising: <u>biology.advising@dal.ca</u>

Black Advising Centre: <u>https://www.dal.ca/campus_life/communities/black-student-advising.html</u> International Centre: <u>https://www.dal.ca/campus_life/international-centre/current-students.html</u> General Advising, Halifax: <u>https://www.dal.ca/campus_life/academic-support/advising.html</u> General Advising, Truro: <u>https://www.dal.ca/about-dal/agricultural-campus/student-success-</u> centre/academic-support.html

Science Program Advisors: <u>https://www.dal.ca/faculty/science/current-students/academic-advising.html</u>

Other Supports and Services

Ombudsperson: <u>https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html</u> Student Advocacy: <u>dsu.ca/dsas</u>

Student Health and Wellness: https://www.dal.ca/campus_life/health-and-wellness.html

Safety

Biosafety: <u>https://www.dal.ca/dept/safety/programs-services/biosafety.html</u> Chemical Safety: <u>https://www.dal.ca/dept/safety/programs-services/chemical-safety.html</u> Radiation Safety: <u>https://www.dal.ca/dept/safety/programs-services/radiation-safety.html</u> Scent-Free Program: <u>https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html</u>