

Faculty of Science Course Syllabus
Department of Biology
MARI 4350.03 / MARI 5350.03
Cutting Edge in Marine Sciences
Winter 2017-2018

- Instructors:** Heike Lotze (Heike.Lotze@dal.ca), LSC 7045/47
Boris Worm (Boris.Worm@dal.ca), LSC 4132
Bethany Nordstrom (Bethany.Nordstrom@dal.ca), LSC 4134
- Lectures:** Two hours per week: Tuesday-Thursday 4:05-4:55, LSC C202
- Tutorials:** Two half-hours per week: Tuesday-Thursday 4:55-5:25, LSC C202
-

Course Description

This course focuses on current, often hotly debated topics in marine science. The goal is to explore where the field of marine science is now and where it will be heading in the near future. We discuss recently published papers and current research initiatives on urgent issues, including biodiversity, fisheries, oceanography, conservation, management, climate change, and human-ocean interactions. Class format includes lectures, case-studies, as well as active discussion, debates, group work and hands-on assignments.

Course Prerequisites for undergraduate students

BIOL 2060.03 and OCEA 2000X/Y.06 (or OCEA 2001.03 and OCEA 2002.03) and one of the following; BIOL 3065.03 or MARI 3063.03 or MARI 3080.03 or MARI 3602.03 or MARI 3761.03

Course Prerequisites for graduate students

none

Course Objectives/Learning Outcomes

Students will learn about and discuss current hot topics in marine sciences that are at the forefront of fundamental and applied research

Students will critically evaluate recent, high-profile publications and identify their importance, strengths and weaknesses

Students will think about and explore possible next steps for current research topics and initiatives

Students will assess the importance of those topics to society

Students will debate the relevance and importance of newly gained knowledge for management, conservation, education and policy development

Undergraduate students will prepare a 1-page scientific briefing on a selected topic and give a short oral summary

Graduate students will prepare a lecture-style presentation, hand-out and questions on a selected topic

Course Materials

All materials will be accessed via Brightspace website. There is no textbook.

For each lecture, we will assign 1 relevant high-profile scientific publications for students to read in order to be prepared for the next class and review questions on the reading. Selected papers will be announced one week in advance. There is no reading assignment for the 1st week of term.

Course Assessment Explanation

To account for different knowledge levels of undergraduate and graduate students but have all contribute similarly to the various lecture and tutorial components, we will have different major assignments for each group (short written and oral briefings vs 40-minute lecture), yet similar contributions to common components (i.e. review questions, contribution to discussion, literature review, stakeholder debate, exam).

Undergraduate students will prepare a 3-min oral summary and write a 500-word written briefing on a recent research development or topic. Graduate students will review the current scientific literature and prepare a 40-min lecture on a current hot topic. They will also prepare 3-5 review questions for the other students and a hand-out with notes on the lecture. Graduate students will also prepare a discussion, debate or hand-on activity to engage students in the presented topic and critically discuss its importance for science and society, existing gaps, and next steps in the line for research.

Rubrics for grading presentations and briefings (each 25% of final grade):

- Style [3%] (Clarity of speaking/writing)
- Format [3%] (Organization/length of presentation/briefing)
- Content [15%] (Depth of research; Detail of background information; Critical evaluation of recent facts and results; Proposed gaps and next steps; Understanding of methods and approach; Significance to science and society)
- Referencing [4%] (correct citations in presentation/proposal and reference list)

Graduate students need to achieve a B- to pass the course (anything below B- is an F).

Course Assessment for undergraduate students

Component	Weight (% of final grade)	Date
<i>Final exam</i>	30	<i>Apr 5 (in class)</i>
<i>Review questions on readings (clicker)</i>	20	
<i>Contribution to discussion & activities</i>	10	
<i>Assignment: Cutting edge literature review</i>	7.5	
<i>Assignment: Stakeholder debate</i>	7.5	
<i>Assignment: Oral summary presentation & Written briefing</i>	25	

Course Assessment for graduate students

Component	Weight (% of final grade)	Date
<i>Final exam</i>	30	<i>Apr 5 (in class)</i>
<i>Review questions on readings (clicker)</i>	20	
<i>Contribution to discussion & activities</i>	10	
<i>Assignment: Cutting edge literature review</i>	7.5	
<i>Assignment: Stakeholder debate</i>	7.5	
<i>Assignment: Lecture-style presentation</i>	25	

Other course requirements

For each lecture, we will assign 1 relevant high-profile scientific publications for students to read in order to be prepared for the next class and the clicker review questions on the reading. Selected papers will be announced one week in advance. There is no reading assignment for the 1st week of term.

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

This is a highly interactive class and students need to be present at all times and contribute to review questions, discussions and hands-on activities. Missing more than 2 classes will lower the grade on in-class activities including clicker questions. Missed exams will count as 0%. In case of illness, a doctor's note is needed to avoid lower marks and repeat the exam. The content of weather-related cancelled classes will be integrated into the following lectures in abbreviated form if possible. Only topics presented and discussed in class/tutorial will be tested in exams.

Course Content

Week	Lectures
1	1 – Introduction to Cutting Edge 2 – Human impacts on the ocean
2	3 – Cutting Edge literature review 4 – Cutting Edge literature review
3	5 – Fisheries 6 – Marine protection
4	7 – Ocean literacy & marine education 8 – Industrial development of the oceans
5	9 – Stakeholder debate 10 – Discovering the ocean's microbial world
6	11 – Discovering the ocean's unknown macro biodiversity 12 – Global biodiversity targets and policies
7	--- STUDY BREAK ---
8	13 – Coastal ecosystem change 14 – Aquaculture
9	15 – Climate change impacts: empirical observations 16 – Climate change impacts: future projections
10	17 – Discussion: Avenues for future research 18 – Discussion: Avenues for future research
11	19 – Plastic pollution: problems 20 – Plastic pollution: solutions
12	21 – Future proofing marine management 22 – New technologies
13	23 – News from the Coral Reefs

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

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: https://www.dal.ca/campus_life/academic-support/accessibility.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: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

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

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 (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

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

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>