

The Blue Planet II Syllabus

Department of Oceanography

OCEA 2002 Winter 2024

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.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor(s)

Name	Email	Office Hours
Paul Hill	paul.hill@dal.ca	By arrangement
Emily Sklar	Emily.Sklar@dal.ca	By arrangement

Course Description

This course provides a general survey of biological oceanography. Students learn about marine biology and marine ecosystems. Consideration is also given to human impacts.

Course Prerequisites

None

Course Exclusions

OCEA 2000.06, OCEA 2850.06, OCEA 2851.03/OCEA 2852.03

Course Structure

Course Delivery

The course is delivered in a blended format. Core content is delivered with online videos. Class time is used for in-depth investigations of some topics, demonstrations and “In-the-News” lectures that link core content to stories that have had recent media coverage.

In-person attendance will not be monitored, but 20% of the final exam will be on the in-class material. In-class lectures will not be recorded, but any lecture notes or videos will be posted.

Three short assessments will be available asynchronously online each week. In-person attendance is required for the final exam, which will occur during the exam period.

Students connecting to online resources from outside Canada are responsible for ensuring awareness and compliance with any applicable laws in the country from which they are connecting.

Lectures

Tuesday and Thursday, 10:35 – 11:25 AM, LSC C242

Laboratories

None

Tutorials

None

Course Materials

- The required text for the course is *Oceanography and Marine Biology*, by D. W. Townsend.
- A digital version of the text will be available for purchase through Brightspace.
- New or used hard copies of the text may also be used.
- New hard copies are available for purchase at the Dalhousie Bookstore.
- There are no other required materials.
- Course content will be delivered through Brightspace: [OCEA 2002 - The Blue Planet II \(Sec 01\) - 2024 Winter](#)

- Students will need access to one of the following: laptop computer, tablet computer, smart phone or desktop computer.
- The Course Instructor and TA should be contacted via email.
- If a power or internet outage occurs during an online quiz, then contact the Instructor or the TA as soon as possible to report the problem. The quiz attempt will be reset.
- Students connecting to online resources from outside Canada are responsible for ensuring awareness and compliance with any applicable laws in the country from which they are connecting.

Assessment

Assessment will be through online quizzes delivered through Brightspace and a final exam. There are two types of online quizzes:

1. Learning Module quizzes;
2. Chapter Assessments (CHAs).

The Learning Module quizzes appear at the end of each Learning Module. They comprise 5 questions. Each question is designed to assess whether a student has attained one of the 5 Learning Outcomes for that Learning Module. Two attempts are allowed for each Learning Module quiz, and the mark for the quiz is based on the highest score for the two attempts. The Learning Module quizzes become available when the Module becomes available, at 8:30 AM on either Tuesday or Thursday. They are due one week later, by 5 PM. Students have 2 hours to complete each assessment, which is ample time for all learners. The lowest Module quiz score is dropped. Overall, the top 23 Learning Module quizzes account for 50% of the overall mark, so each one is worth just under 2.2%.

The Chapter Assessments (CHAs) are based directly on the text. Each CHA is based on a chapter in the text. Chapter 12 has two assessments associated with it. The purpose of these assessments is to promote engagement of the students with the text, which offers a fuller treatment of the material than is possible in each module's video units. They comprise 10 questions each. Only one attempt is allowed per CHA. CHAs become available on Thursdays, and they are due by 5 PM on the Friday of the following week. The exceptions are the CHA 12a and 12b, when the due date is moved to the week after. Students have 2 hours to complete each assessment, which is ample time for all learners. The lowest CHA mark will be dropped. Overall, the top 8 CHAs account for 20% of the overall mark, so each one is worth 2.5%.

There are no other assignments.

The final exam will be written, in person, during exam period, with the date and time arranged by the Registrar. The exam will have 24 short-answer questions, with one from each module. Each question will be worth 4 points. The questions will be on one of the identified Learning Outcomes from each module, and a list of these 24 Learning Outcomes will be provided to the students near

the end of the term. The exam also will have 12 multiple choice questions based on in-class lectures and activities. Each question will be worth 2 points. With these weightings, the Short Answer questions account for 80% of the final exam mark, and the questions on in-class material account for 20% of the final mark. In total, the final exam will account for 30% of the overall mark. The time available for the exam is 120 minutes (2 hours).

Assessment	Due Date	Weight (%)	Total (%)
Module Assessments: 50% of mark			
Phytoplankton Module Quiz	16.01.24	2.2	50
Macroalgae Module Quiz	18.01.24	2.2	
Sea Grasses Module Quiz	23.01.24	2.2	
Zooplankton Module Quiz	25.01.24	2.2	
Marine Invertebrates Module Quiz	30.01.24	2.2	
Marine Fishes Module Quiz	01.02.24	2.2	
Marine Reptiles Module Quiz	06.02.24	2.2	
Sea Birds Module Quiz	08.02.24	2.2	
Marine Mammals Module Quiz	13.02.24	2.2	
Rocky Intertidal Ecosystems Module Quiz	15.02.24	2.2	
Sandy Intertidal Ecosystems Module Quiz	27.02.24	2.2	
Muddy Intertidal Ecosystems Module Quiz	29.02.24	2.2	
Estuaries Module Quiz	05.03.24	2.2	
Salt Marshes Module Quiz	07.03.24	2.2	
Mangrove Forests Module Quiz	12.03.24	2.2	
Coral Reefs Module Quiz	14.03.24	2.2	
Open Ocean Module Quiz	19.03.24	2.2	
Deep Ocean Module Quiz	21.03.24	2.2	
Fisheries Module Quiz	26.03.24	2.2	
Aquaculture Module Quiz	28.03.24	2.2	
Marine Pollution Module Quiz	02.04.24	2.2	
Coastal Development Module Quiz	04.04.24	2.2	
Climate Change Module Quiz	09.04.24	2.2	
Non-Living Marine Resources Module Quiz	11.04.24	2.2	

Chapter Assessments: 20% of mark			
Ch. 8, The Primary Producers	19.01.24	2.5	20
Ch. 9, The Zooplankton	26.01.24	2.5	
Ch. 10, Marine Invertebrates	02.02.24	2.5	
Ch. 11, Marine Fishes	09.02.24	2.5	
Ch. 13, Reptiles Birds Mammals	16.02.24	2.5	
Ch. 12a, Marine Environments I	08.03.24	2.5	
Ch. 12b, Marine Environments II	22.03.24	2.5	
Ch. 14, Fisheries & Aquaculture	29.03.24	2.5	
Ch. 15, Human Impacts	05.04.24	2.5	
Final Exam: 30% of mark			
Final Exam	Exam period	30.0	30

Other course requirements

None

Conversion of numerical grades to final letter grades follows the

[Dalhousie Grade Scale](#)

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

Course assessments, apart from the Final Exam, are asynchronous. Module quizzes are available for 7 days, and Weekly Ocean Assessments are available for a minimum of 8 days. As a result, students with circumstances that keep them away from school for 3 days or less will still have time to complete their assessments. **Students will not be able to make up any missed work.** The lowest mark in each assessment category will be dropped.

Students with longer absences should coordinate with the Instructor and the Assistant Dean of Student Affairs Patricia Laws to make a plan for completing academic requirements.

Course Policies related to Academic Integrity

Students must complete all assessments by themselves.

Learning Objectives

The course is divided into 24 modules, and each module has 5 specific Learning Outcomes. These outcomes are listed at the beginning of each module, and a quiz at the end of each module is designed to assess whether the outcome has been attained. Since they are too numerous to list here, a summary for each module is given instead.

At the end of the course, students should be able to do the following:

- Summarize the diversity of the structure and function of marine phytoplankton.
- Recall the structure and function of important macroalgae.
- Recall the structure and function of sea grasses.
- Review the diversity of the structure and function of zooplankton.
- Memorize the major phyla of benthic invertebrates.
- Describe the major classes and important adaptations of marine fish.
- Recall the general types and important adaptations of marine reptiles.
- Recall the general types and important adaptations of sea birds.
- Recall the general types and important adaptations of marine mammals.
- Describe important aspects of the ecology of the rocky intertidal zone.
- Describe important aspects of the ecology of the sandy intertidal zone.
- Describe important aspects of the ecology of the muddy intertidal zone.
- Describe the major types of estuaries and the ecological challenges for organisms living in them.
- Describe important aspects of the ecology of salt marshes.
- Describe important aspects of the ecology of mangrove forests.
- Describe important aspects of the ecology of coral reefs.
- Describe important aspects of the ecology of the open ocean.
- Describe important aspects of the ecology of the deep ocean.
- Review past, present and future approaches to sustainable fisheries management.
- Summarize the potential and problems associated with marine aquaculture.
- Describe some sources of and solutions for marine pollution.
- List options for sustainable coastal development.
- Explain the causes and consequences of anthropogenic climate change.
- Describe some key non-living marine resources and the legal framework governing their ownership.

Course Content

Module	Availability Date	Reading
The Phytoplankton	January 09	Townsend, pp. 260-279
Macroalgae	January 11	Townsend, pp. 286 - 291
Sea Grasses	January 16	Townsend, pp. 291-292
Zooplankton	January 18	Townsend, pp. 296-321
Marine Invertebrates	January 23	Townsend, pp. 324-356
Marine Fishes	January 25	Townsend, pp. 360-388
Marine Reptiles	January 30	Townsend, pp. 420 – 425
Sea Birds	February 01	Townsend, pp. 425 – 433
Marine Mammals	February 06	Townsend, pp. 433 – 454
Rocky Intertidal Ecosystems	February 08	Townsend, pp. 390-398
Sandy Intertidal Ecosystems	February 13	Townsend, pp. 398 – 401
Muddy Intertidal Ecosystems	February 15	Townsend, pp. 398 - 401
Estuaries	February 27	Townsend, pp. 401 – 405
Salt Marshes	February 29	Townsend, pp. 405 – 406
Mangrove Forests	March 05	Townsend, pp. 407 – 408
Coral Reefs	March 07	Townsend, pp. 408 - 413
The Open Ocean	March 12	NONE!
The Deep Ocean	March 14	Townsend, pp. 413 – 416
Fisheries	March 19	Townsend, pp. 458 – 479
Aquaculture	March 21	Townsend, pp. 479 – 481
Marine Pollution	March 26	Townsend, pp. 484 – 496
Coastal Development	March 28	NONE!
Climate Change	April 02	Townsend, pp. 496 – 510
Non-Living Marine Resources	April 04	NONE!

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 the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.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-dal/internationalization.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/about-dal/agricultural-campus/student-success-centre.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: <http://www.dal.ca/cultureofrespect.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/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

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/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their



work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

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.

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/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

Dalhousie Grading Practices Policies:

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

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/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

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/about-dal/agricultural-campus/ssc/academic-support/advising.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

Indigenous Connection: <https://www.dal.ca/about-dal/indigenous-connection.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://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf>

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

South House Sexual and Gender Resource Centre: <https://southhousehalifax.ca/about/>

LGBTQ2SIA+ Collaborative: <https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/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/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Human Rights and Equity Services: <https://www.dal.ca/dept/hres.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>