

Faculty of Science Course Syllabus
Department of Oceanography
OCEA 2001
The Blue Planet I
Fall 2017

Instructor(s): Paul Hill paul.hill@dal.ca Office location 3633

Lectures: 0835-0955 LSC C242

Laboratories: none

Tutorials: none

Course Description

This course provides a general survey of oceanography. It is designed to develop an understanding of the ocean and of the science of oceanography. Students learn about the geological, chemical, physical and biological processes at work in the sea.

Course Prerequisites

None.

Course Objectives/Learning Outcomes

The course is designed to develop a basic understanding of the ocean, of what the science of oceanography is, and of what oceanographers do. It also explores how ocean issues are presented in the media. No hands-on training is offered in field or laboratory methods.

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

- Describe the mechanisms and ages of the origins of the universe, solar system, earth, moon, and oceans.
- Compare the physical and compositional layering of the Earth's interior.
- Review the major hypotheses for the origin of life on Earth.
- Explain the evidence for continental drift and seafloor spreading.
- Account for the major geographic features on the Earth's surface in the context of the theory of plate tectonics.
- Identify the types and distributions of marine sediments.
- Account for the unique properties of water based on its molecular structure.
- Describe salinity and its effects on the properties of water.
- Explain the causes and consequences of vertical stratification in the ocean.
- Explain the processes responsible for creating the large-scale patterns of atmospheric circulation on Earth.
- Review the role of the oceans in generating interesting and dangerous weather phenomena.
- Explain the processes responsible for large-scale patterns of surface-ocean circulation on Earth.
- Review the causes and consequences of thermohaline circulation on Earth.
- Describe the physical properties of waves.
- Describe the evolution of wave properties as waves approach the shore.
- Summarize the properties of waves in the ocean that have longer wavelengths than wind-generated waves and shorter wavelengths than the tides.
- Explain the equilibrium theory of the tides.

- Describe various processes that affect timing and height of tides at the shore.
- Describe the basics of the processes of photosynthesis, respiration, and growth in the ocean.
- Explain seasonal and geographic patterns of primary production in the ocean.

Course Materials

- **Oceanography and Marine Biology, by David W. Townsend.**
- Course materials are delivered through Brightspace.

Course Assessment

Component	Weight	Date
Tests/quizzes Midterm 1, 2, 3, 4	40%	Oct. 3, Oct. 31
Final exam Fall Final and Spring Final	30%	(Scheduled by Registrar)
Assignments Weekly Assessments (WHOAs)	30%	due by 5 PM Friday weekly

Other course requirements

None

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

Credit will be made available for missed examinations under a limited set of circumstances:

- **Illness:** If you are ill on the day of the examination, then contact the Professor via phone or email on that day;
- **Extracurricular Activities:** If you have an athletic event or other school-related activity that conflicts with a scheduled examination, then contact the Professor via phone or email at least 2 weeks in advance of the event;
- **Emergencies:** If you have an emergency or crisis that forces you to miss an exam, then contact the Professor as soon as possible.

If a student excuse is acceptable, then that student will be presented with a range of options to make up for the missed exam.

Online assessments (WHOAs) cannot be completed after the due date. Alternative assignments to make up for missed WHOAs are not available. Please note, however, that the WHOA average is calculated after dropping the lowest mark. With this system, a student can miss one WHOA per semester and still achieve a mark of 100% for the WHOAs.

Course Content

Date	Topic	Reading
Sep. 5	Introduction to the Blue Planet	none
Sep. 7	Foundations of Ocean Sciences	Townsend, pp. 3-31
Sep. 12	Origins	Townsend, pp. 32-47
Sep. 14	Structure of the Earth	Townsend, pp. 48-56
Sep. 19	Origin of Life	Townsend, pp. 56-59
Sep. 21	Continental Drift	Townsend, pp. 62-84
Sep. 26	Plate Tectonics	Townsend, pp. 84-98
Sep. 28	Marine Sediments	Townsend, pp. 98-109
Oct. 3	Examination 1	covers material from 05/09 - 28/09
Oct. 5	The Water Molecule	Townsend, pp. 111-126
Oct. 10	Sea Water	Townsend, pp. 126-142
Oct. 12	Vertical Structure of the Ocean	Townsend, pp. 142-146
Oct. 17	Atmospheric Circulation	Townsend, pp. 155-171
Oct. 19	Ocean Weather	Townsend, pp. 171-178
Oct. 24	Surface Ocean Circulation	Townsend, pp. 178-185
Oct. 26	Deep Ocean Circulation	Townsend, pp. 185-189
Oct. 31	Examination 2	covers material from 05/10-26/10
Nov. 2	Waves	Townsend, pp. 192-203
Nov. 14	Waves in Shallow Water	Townsend, pp. 203-207
Nov. 16	Other Types of Waves	Townsend, pp. 207-210
Nov. 21	Tides	Townsend, 210-218
Nov. 23	Tides at the Shore	Townsend, pp. 218-223
Nov. 28	Basics of Marine Biology	Townsend, pp. 226-233
Nov. 30	Biological Production in the Ocean	Townsend, pp. 233-249
TBD	Examination 3 (Final)	covers material from entire term

Faculty of Science Course Syllabus (Section B)
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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

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 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

Research Lab Safety https://www.dal.ca/content/dam/dalhousie/pdf/dept/safety/lab_policy_manual_2007.pdf

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>