DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Oceanography
OCEA 2020
Tools & Concepts in Ocean Sciences I
Fall 2022

Instructor:	David Barclay	dbarclay@dal.ca	LSC O5672
		Office hours:	Tuesday, 14:00 – 15:00

Teaching Assistants (TAs):

T01	Britton Dempsey	britton.dempsey@dal.ca	
		Office hours:	Thursday, 11:00 – 12:00
			LSC O3670 (through 3660 lab)

Lab:	11 x 3 hr Labs	Mondays	11:35-14:25	LSC B4012
Tutorial:	11 x 1 hr Tutorials	Wednesdays	12:35-13:25	LSC P4208
Course delivery:	In-person labs and tutorials			

Course Description

Students gain practical insights into oceanographic concepts introduced in OCEA 2001 & 2002 – The Blue Planet I & II by performing lab activities. Labs focus on navigation and position, instruments and calibration, ocean optics and acoustics, water movement, and basic marine chemistry. Labs involve data acquisition and analyses to develop quantitative skills. Students will become familiar with the 'R' programming language.

Prerequisites

- MATH 1000
- STAT 1060
- PHYC 1280/1290 (or PHYC 1310/1320 or 1300)
- At least one credit from:
    - BIOL 1010/1011 or (BIOL 1020/1021)
    - CHEM 1011/1012
    - ERTH 1080/1090

Corequisite

- OCEA 2001

Course Objectives/Learning Outcomes

This is a laboratory class and focuses on how we study the ocean and interpret data as oceanographers.

1. Demonstrate basic laboratory skills and knowledge of laboratory safety.

2. Operate and calibrate various laboratory instruments.
3. Perform laboratory analyses using common techniques and protocols.
4. Synthesize data and identify trends.
5. Apply concepts introduced in the classroom to interpret data collected or provided.
6. Present results from laboratory activities in written format using figures and tables.
7. Compare your data with data collected by another and/or cited in peer-reviewed journals.
8. Predict outcomes of experiments using results of previous studies.
9. Assess efficacy of laboratory activities and offer suggestions for future work.
10. Appreciate the breadth of techniques and instruments used to study the ocean.

Course Materials

This class uses a custom lab manual provided at no additional cost. The manual is available to download on Brightspace. It is essential that you check Brightspace regularly. Brightspace will be used to make announcements as well as provide lab manuals, assigned readings, data, and more. Students are responsible for any printing of the supplied material. Students will need a lab notebook for the course.

Personal Protective Equipment (PPE)

The Occupational Health and Safety Act requires that employees/students wear protective equipment based on the hazards to which they are exposed.

- *Students must supply their own lab coat when necessary*.
- Gloves and glasses will be provided when necessary.
- No open-toed shoes in the lab.

Course Assessment

Components	**Weight (% of final grade)**
Lab Notebook:	10%
Assignments:	90%
Exercises	60% (8 x 7.5% each)
Reports	30% (3 x 10% each)

Assignments

There is an assignment associated with each lab activity that is due on the date of the next class meeting. Assignments are submitted on Brightspace and are always due by 17:00 on the due date. Assignments are one of two types: exercises or reports. Exercises are short-answer problem sets that use data and/or build on concepts from lab activities. Reports are formal lab reports on the lab activities. A lab report format and guidelines document is available on Brightspace. Late assignments are a subject to penalty.

Lab Notebooks

Students are required to use lab notebooks to record notes during lab activities. Lab notebooks will be checked in-class on four undisclosed dates during the term. A lab notebook format and guidelines document is available on Brightspace. There will be no late notebooks checks.

Attendance

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Lab attendance is mandatory; s*tudents must attend lab to submit an assignment.* Makeup labs are not offered. Tutorial attendance is highly recommended but not required to submit an assignment.

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

1. The late penalty is 5% for the first day and doubles every day after including weekends.
2. There are no make-up labs, even with an SDA.
3. Include both your instructor and TA on email correspondence related to the class.
4. Please allow 24-48 *business* hours for replies to emails. We will try, but we cannot guarantee a quicker response time.
    - This means that if you email on Friday morning, you should not expect a response until Monday morning at the earliest.
    - This means that if you email on Monday evening, you should not expect a response until Wednesday morning at the earliest.
5. If you want an extension on a due date, request one via email. Make your request in advance of the due date, briefly provide a reason, and suggest a revised due date. In general, requests that are received on the actual due date are not approved.

Course Policies on Missed or Late Academic Requirements

6. Students must attend lab to submit an assignment for that lab.
7. Students may submit a maximum of 2 Student Declaration of Absence (SDA) forms per term for short-term absences of 3 days or less.
8. To be applicable, SDA forms must be submitted on Brightspace before the class meeting or deadline that will be missed. *Students that submit a valid SDA will be exempt from assignments associated with any missed labs, which will increase the grade weight of all other assignments in that category equally.*
9. SDA forms give you a maximum of 3 additional days to submit assignments. Students that submit an SDA form must submit any missed assignments by 3 days after the original due date. Students will not be reminded of this revised due date and late penalties will apply.
10. Students absent for longer that 3 days will be referred to the Faculty of Science Assistant Dean (Student Affairs) for handling.

Course policies related to Academic Integrity

11. All assignments should be completed individually. You may discuss material and exchange ideas with others, but you must submit individual, original work.

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Course Structure

Class meets once a week for three hours. Class begins with a short presentation and the remaining class time is spent completing lab activities. There is an assignment each week, and students have a minimum of one week to complete each assignment. Tutorials are held weekly to assist with data analysis and assignments.

Course Content

Lab #	Lab Topic	Lab Date	Assignment Due	Assignment Type
1	Navigation & Position	12-Sep	19-Sep	Exercise
2	Dealing with Data	19-Sep	26-Sep	Exercise
3	Sensors I	26-Sep	03-Oct	Exercise
4	Sensors II	03-Oct	17-Oct	Report
	NO CLASS	10-Oct	--	--
5	Light in the Ocean	17-Oct	24-Oct	Exercise
6	Sound in the Ocean	24-Oct	31-Oct	Report
7	Convection & Mixing	31-Oct	14-Nov	Exercise
	NO CLASS	07-Nov	--	--
8	Waves	14-Nov	21-Nov	Report
9	Coriolis	21-Nov	28-Nov	Exercise
10	Basic Seawater Chemistry	28-Nov	05-Dec	Exercise
11	Dissolved Oxygen	05-Dec	12-Dec	Exercise
	NO CLASS	06-Dec*	--	--

*Monday classes will be held on Tuesday, December 6th.

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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

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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

Dalhousie COVID-19 information and updates: https://www.dal.ca/covid-19-information-and-updates.html