

**Faculty of Science Course Syllabus
Department of Oceanography
BIOL 3003 / MARI 3003 / OCEA 3003
Introduction to Field Oceanography
Summer 2024
July 25 – August 13, M-F 08:00-17:00**

Instructor:	Laura deGelleke	laura.degelleke@dal.ca
TA:	Emily Sklar	emily.sklar@dal.ca
Lecture:	6 x 4 hr sessions	LSC B4012
Lab:	10 x 4 hr sessions	LSC B4012
Field:	10 x 4 hr sessions	meet boat at Jubilee Road Pier
Course Delivery:	In-person only	

Course Description

This hands-on course introduces the fundamentals of science at sea through a small field research campaign. We use common oceanographic instruments and methods to collect data and samples during day trips in local waters. Samples and data are analyzed back in the lab to explore relationships between marine organisms and their environment.

Course Prerequisites

This course is intended for 3rd and 4th year undergraduates. Prerequisites for the course include introductory oceanography courses (e.g., OCEA 2001 and 2002 – The Blue Planet I & II at Dal) and/or other introductory courses in natural sciences.

Course Objectives/Learning Outcomes

1. Operate common oceanographic instruments and equipment safely and effectively at sea to collect samples and data.
2. Analyse oceanographic samples and data in the lab using common techniques and protocols.
3. Apply concepts introduced in lecture (this class and others) to interpret data from samples.
4. Explore and synthesize data to identify trends and draw conclusions.
5. Present results of work clearly and concisely in written format using figures and tables.
6. Compare data and conclusions with published literature to provide greater context.
7. Assess quality of work completed to provide limitations and identify areas for improvement.
8. Offer detailed suggestions for future work based on gaps in knowledge.
9. Think like an oceanographer.

Course Structure

Class meets for 14 consecutive weekdays from M-F 8am-5pm. Each day is broken into a 4-hr morning session and 4-hr afternoon session with 1hr for lunch in between. Sessions are spent either in the field,

in the lab, or at a lecture. When out on the water, we operate on a small vessel in Halifax Harbour and Bedford Basin and use a variety of instruments to collect data and samples. Back in the lab, we analyze the samples we collected and visualize the data. Lectures provide background information necessary to interpret the data and discuss implications for the marine ecosystem. Students present their work in a group-written scientific report that is the main assessment component.

Course Materials

- There is no required text for this course.
- Students must have access to a computer with an internet connection. The course is managed through Brightspace, which is where course materials and data are shared, where assignments are submitted, and where online exams are available.
- Dress appropriately for field activities and bring water and food. Be prepared for the weather because there is limited shelter on the boat. Closed-toe shoes required.

Course Assessment

Component	Weight (% final grade)	Due Date
Participation	26%	2% per day
Outreach Assignment	5%	Aug 9 @ midnight
Safety Quiz	5%	Aug 13 @ midnight
Knots Quiz	4%	Aug 13 @ midnight
Lecture Quiz	10%	Aug 13 @ midnight
Final Report	50%	Aug 13 @ midnight

Participation

Individual mark for active presence during class meetings (13 days, 2% per day)

Outreach Assignment

Group assignment to create and share a standard operating procedure (SOP) for a portion of the field/lab work conducted by the class

Safety Quiz (available July 31)

Online quiz (10 questions) covering safety content that is completed individually with 2 attempts

Knots Quiz (available Jul 25)

Demonstrate proficiency at tying 8 assigned knots in-person or via video submitted online

Lecture Quiz (available Aug 10)

Online quiz (20 questions) covering all course content that is completed individually with 1 attempt

Final Report

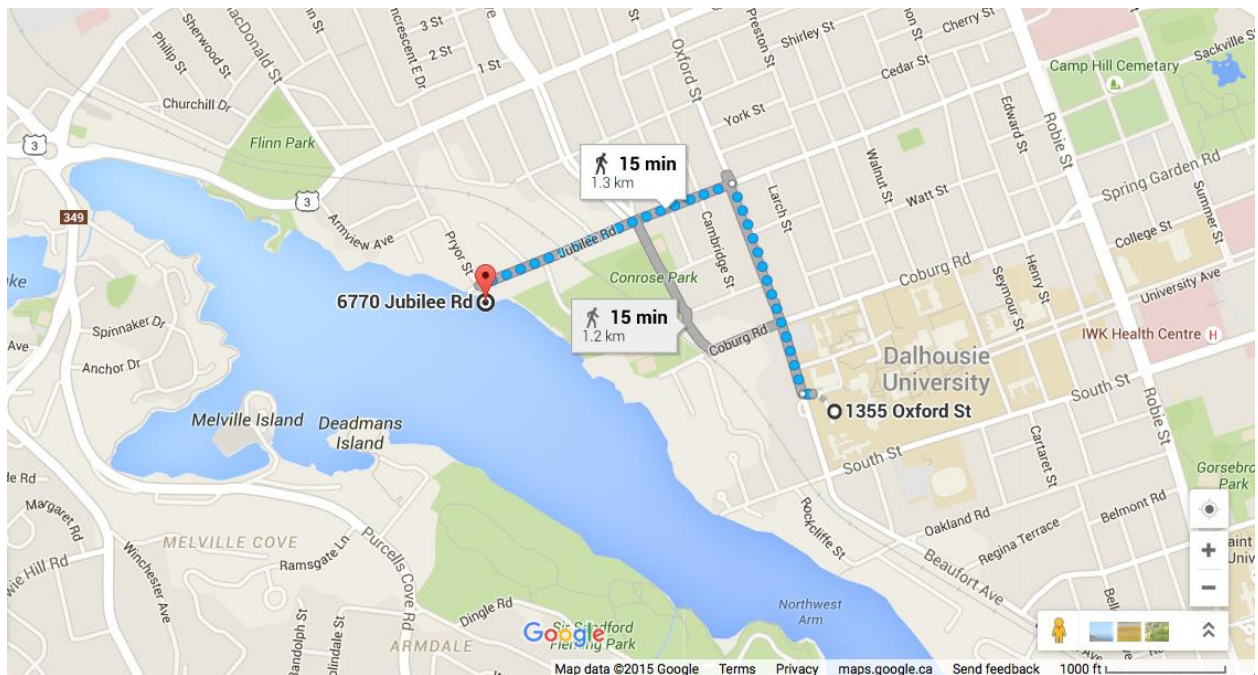
Group-written scientific report that summarizes field and lab work done during the course

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

- Wear PPE and safety gear when instructed.
- No drug or alcohol impairment during class. Please notify the instructor if a prescription medicine may cause impairment.
- Inform the instructor of any absence as soon as possible.
- Late assignments are penalized by 10% per day, including weekend days. No late assignments will be accepted after Aug 15, 2023.
- Students are responsible for their own transportation to the boat. The boat typically departs from and returns to Jubilee Pier, which is a 15 min walk from the Dal LSC building (see map below). We may occasionally depart from or return to the Halifax waterfront.



Provisional* Course Schedule

*schedule may change due to bad weather, equipment problems or other logistical issues

AM session is 08:00-12:00

PM session is 13:00-17:00

Date	Day	Session	Type	Activities and Topics
25-JUL	R	AM	Lecture	Course intro, Bedford Basin intro, OAE (W Burt)
		PM	Lab	Form groups, terminology, safety, assessment review, knots
26-JUL	F	AM	Lecture	Bathymetry, physical measurements, BB intrusions (R Yee), dissolved constituents
		PM	Lab	Field prep, heavy equipment skills, SOPs
29-JUL	M	AM	Field	Vessel intro and safety, echosounder, CTD casts
		PM	Field	Echosounder, CTD casts
30-JUL	T	AM	Field	Water sampling, CTD casts, Secchi disk
		PM	Field	Water sampling, CTD casts, Secchi disk
31-JUL	W	AM	Field	Deploy incubation moorings
		PM	Lab	Bathymetry maps, CTD sections and profiles
1-AUG	R	AM	Field	Deploy sediment traps, recover incubation moorings, net tows
		PM	Lab	Nutrient analysis, net tow sample processing, optical data
2-AUG	F	AM	Field	CTD casts, net tows
		PM	Lecture	Primary production, grazing, sediment flux (M Healey)
5-AUG	M	AM	Field	Sediment sampling: grabs, cores
		PM	Field	Sediment sampling: grabs, cores
6-AUG	T	AM	Lecture	Sediment biogeochemistry, carbon cycling, blue carbon (E Taniguchi)
		PM	Lab	Sediment sample processing, sieving
7-AUG	W	AM	Lab	Sediment sample processing, sieving
		PM	Lab	Sediment sample processing, sieving
8-AUG	R	AM	Field	Recover sediment traps, McNabs Island
		PM	Lab	Trap sample processing, video analysis (J Sajtovich)
9-AUG	F	AM	Lecture	Fisheries & aquaculture, ecology & conservation, technician careers (I Gradin)
		PM	Lab	Video analysis
12-AUG	M	AM	Lecture	OPEN
		PM	Lab	OPEN
13-AUG	T	AM	OPEN	All work due at midnight
		PM	OPEN	All work due at midnight

ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie's Student Accommodation Policy can be accessed here:

http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html

Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the **Advising and Access Services Centre (AASC)** prior to or at the outset of the regular academic year. More information and the *Request for Accommodation* form are available at www.dal.ca/access.

ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty.

The Academic Integrity website (<http://academicintegrity.dal.ca>) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie's *Policy on Intellectual Honesty* and *Faculty Discipline Procedures* is available here:

http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html

STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general: "The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members."

The full text of the code can be found here:

http://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

Service	Support Provided	Location	Contact
General Academic Advising	Help with <ul style="list-style-type: none"> - understanding degree requirements and academic regulations - choosing your major - achieving your educational or career goals - dealing with academic or other difficulties 	Killam Library Ground floor Rm G28 Bissett Centre for Academic Success	In person: Killam Library Rm G28 By appointment: <ul style="list-style-type: none"> - e-mail: advising@dal.ca - Phone: (902) 494-3077 - Book online through MyDal
Dalhousie Libraries	Help to find books and articles for assignments Help with citing sources in the text of your paper and preparation of bibliography	Killam Library Ground floor Librarian offices	In person: Service Point (Ground floor) By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time: http://dal.beta.libguides.com/sb.php?subject_id=34328
Studying for Success (SFS)	Help to develop essential study skills through small group workshops or one-on-one coaching sessions Match to a tutor for help in course-specific content (for a reasonable fee)	Killam Library 3rd floor Coordinator Rm 3104 Study Coaches Rm 3103	To make an appointment: <ul style="list-style-type: none"> - Visit main office (Killam Library main floor, Rm G28) - Call (902) 494-3077 - email Coordinator at: sfs@dal.ca or - Simply drop in to see us during posted office hours All information can be found on our website: www.dal.ca/sfs
Writing Centre	Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) <ul style="list-style-type: none"> - Learn to integrate source material into your own work appropriately - Learn about disciplinary writing from a peer or staff member in your field 	Killam Library Ground floor Learning Commons & Rm G25	To make an appointment: <ul style="list-style-type: none"> - Visit the Centre (Rm G25) and book an appointment - Call (902) 494-1963 - email writingcentre@dal.ca - Book online through MyDal We are open six days a week See our website: writingcentre.dal.ca