

**Faculty of Science Course Syllabus
Department of Oceanography
OCEA 4120 (cross-listed variously)
Physical Oceanography
Autumn 2016**

Instructor(s):	Dan Kelley	dan.kelley@dal.ca	LSC5652
Lectures:	10:30-11:30	LSC 3665	
Laboratories:	NA		
Tutorials:	NA		

Course Description

This course introduces undergraduate students to the physical properties and dynamics of the oceans. Topics range from global circulation down to the small scales of turbulence. Fact and theory are blended throughout. Quantitative problem solving is emphasized in assignments.

Course Prerequisites

PREREQUISITE: MATH 1000.03, MATH 1010.03, classic calculus or equivalent, and permission of the instructor. RESTRICTIONS: Third- and fourth-year students only.

Course Objectives/Learning Outcomes

Students should be able to describe the basic patterns of ocean properties and flow, to contextualize them in terms of physical laws, and to address simple applications to e.g. the atmosphere-ocean system and the biology and chemistry of the seas.

Course Materials

- Instructor-provided study notes (300+ page PDF file).
- A previous course website was destroyed by Dalhousie's Information Technology Services, as part of a policy decision made without consulting professors and instructors.

Course Assessment

Component	Weight (% of final grade)	Date
Tests/quizzes		
Mid term test	25%	TBA (depends on students' schedules)
Final exam	35%	Scheduled by Registrar
Assignments		
Assignment 1	20%	TBA (depends on students' schedules)
Assignment 2	20%	TBA (")

Other course requirements

NA

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

A late fee of 15% per working day (defined by hours of service in the departmental office, prorated by hour) is applied to assignments. Electronic provision of work is not permitted. On-time work is handed to instructor at the start of the class on the due date. Late work is handed in to the departmental office, where staff will time-stamp it.

Course Content

Introduction; concepts of fluid mechanics; building (and breaking) intuition; hydrography of the sea; $f=ma$ for fluids; Reynolds decomposition; air-sea fluxes; 0D and 1D models of response to wind; geostrophy; potential vorticity; Rossby waves; wind-driven basin-scale circulation; global-scale thermohaline circulation; mixing; estuaries; shelf circulation; gravity waves; tides; numerical modelling; data assimilation.

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