DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus Fall 2022 (revised June 2021 and Aug 2021)

Department of Oceanography

OCEA 3001

Introduction to Physical Oceanography

Autumn 2022

Instructor(s): Dan Kelley dan.kelley@dal.ca

Lectures: Mon-Wed-Fri 1135-1225

Laboratories: NA

Tutorials: NA

Course delivery: In-person, at least at the start of term, covid-19 permitting

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Course Description

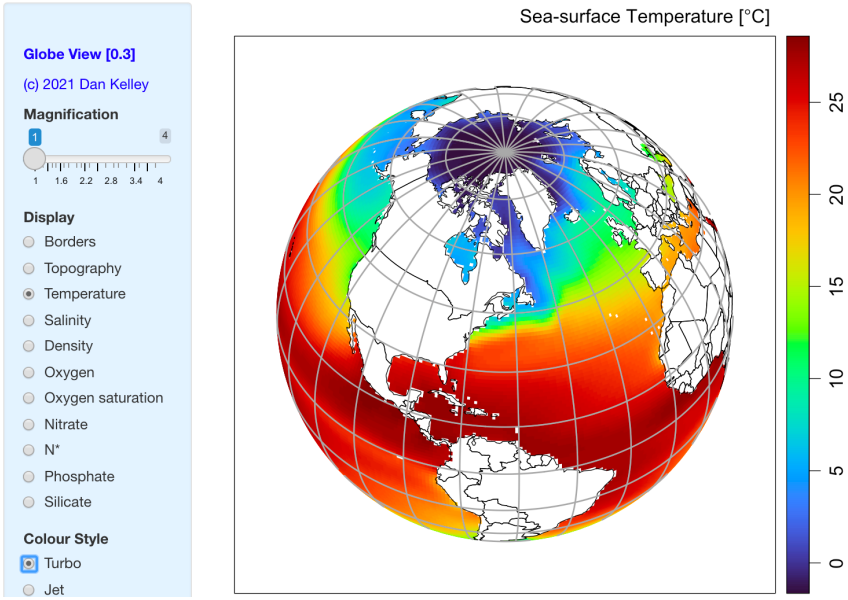
This course introduces Ocean Physics, focusing on issues of interest to undergraduates in ocean-related disciplines. The approach is to bind facts together with ideas, often starting with thought experiments and proceeding to simple mathematical models.

Course Prerequisites

PREREQUISITE: MATH 1000.03 or permission of the instructor.

Course Objectives/Learning Outcomes

Students should be able to derive and explain the equations describing the static and dynamic states of the ocean, and to apply these equations to important problems of oceanography and climatology. Successful students will be able to tackle unfamiliar problems with insights gained from understanding, not memorization.



Course Materials

Various materials will be supplied on the course Brightspace page, as the term goes on. Software tools (such as that shown in the diagram) will be supplied separately.

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Course Assessment

The assessment will involve 2 assignments, a mid-term test, and a final examination. That's if covid-19 does not interrupt things, forcing a switch to more assignments.

Other course requirements

Since this is a lecture-based course, skipping classes is highly discouraged.

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, unless a "time out" period is justified using a Student Declaration of Absence form or by other suitable means. Assignments are intended to encourage and display the understanding of individuals, not of groups.

Course Content

Introduction; continuum approximation; concept of conservation; heat and temperature; concept of fluxes; air-sea fluxes of scalars and momentum; box models of fluid systems such as oceans and atmospheres; the Coriolis effect; Ekman dynamics, geostrophy; waves; tides; applications to beaches, estuaries, shelves and the deep sea; the climate system.