

EESC115701, Oceanography, Fall 2014

Instructor: Dr. Darcy Taniguchi
Teaching assistant: Kendall Valentine

Class Logistics

Corequisite: EESC1158, Oceanography Laboratory

Lecture meeting time and place: 1:30-2:45 pm Tuesdays and Thursdays, Higgins Hall 300

Laboratory meeting time and place: Devlin Hall 215

EESC115801, 4:30-6:30 pm Tuesdays

EESC115802, 9:00-11:00 am Thursdays

EESC115803, 4:30-6:30 pm Thursdays

Class credits: 4, satisfies Natural Science Core Requirement

Class website: Canvas site, EESC1157012015F-Oceanography[Taniguchi]-Fall-2014

Instructor office hours: 2:55-3:55 Tuesdays and Thursdays in Devlin Hall 322 and by appointment

TA office hours: Tuesdays 10:00-11:30 am, Thursdays 11:30 am – 1:00 pm, and by appointment in Devlin Hall 318

Contact information

Instructor: **darcy.taniguchi@bc.edu**, Devlin Hall 322 at the back, MIT office in Building 54 Room 1511A (**but your best bet is to reach me by email**)

TA: **kendall.valentine@bc.edu**

General Expectations

Come to class, follow instructions, have integrity and honesty, turn things in on time, and try your best.

General Course Learning Objectives

The oceans cover the majority of the Earth's surface (~70%), and yet they can still seem remote and irrelevant given human's terrestrial nature. With this course, I intend to help you learn about these vast bodies of water from an interdisciplinary perspective, appreciate how important the oceans are in the earth system and for humans, and provide insight on how the oceans are studied and what we have learned and have yet to discover.

Specific Course Learning Objectives

- Describe the origin of the oceans
- Synthesize interdisciplinary information on what the oceans' water and sediments are composed of and how they change and move through time and space
- Understand how the oceans interact with terrestrial and atmospheric environments
- Describe marine habitats defined by depth, latitude, and biological and chemical properties
- Identify ways organisms are affected by and influence marine environments
- Apply your knowledge of the oceans to understand how human organisms in particular have shaped the marine world and what affect that may have in the future

Attendance

You, the student, are expected to attend each lecture as well as your appropriate, assigned laboratory. Important information, activities, announcements, exams, etc. that are a part of these meeting times make it imperative that you attend. If you are not going to be able to attend a lecture or lab due to genuine extenuating circumstances, you are highly encouraged to inform the lecture instructor, and also the TA if it concerns lab, as soon as possible.

Text and readings

Lecture text book: Pinet, Paul R. 2013. Invitation to Oceanography. Jones Bartlett Learning.

Additional readings: Announcements for additional readings will be made in class, posted online, and/or emailed.

Assignments/requirements

This course includes three (3) in-class midterms and one (1) final examination for a total of four (4) tests. **You are required to take the final. However, if you do better on the final than one of your midterms, you are allowed the option to have the final replace your lowest midterm grade (i.e., your final will count for 30% rather than 15% of your grade).** If your final is your lowest test grade, it will not replace a midterm grade (i.e., your final will count for 15% of your grade). You are also required to complete homework and reading exercises. Late assignments will not be accepted except under extraordinary circumstances beyond your control, based on the discretion of the instructor. There will be other in-class quizzes and activities during lecture that require your participation that you will *not* be able to make up if you do not attend class. The lower the class attendance, the more in-class quizzes I may choose to give. These activities are meant to keep you up to speed on your readings and engage you during lecture so that you learn as much as of the course material possible. You are also **required** to attend your **assigned lab** and complete the associated assignments. **You are able to drop your lowest lab assignment.**

Make Up Policy

You are **not** allowed to make up any exam or test. If you need to miss a test for a reason beyond your control, you *must* contact the instructor before the exam.

Grading

You will be graded based on tests, laboratory exercises, homework, in-class quizzes, and class and laboratory participation. As stated above, you are required to take the final. Your final can replace your lowest midterm grade if your final grade is higher than a midterm grade. Your final will not replace a midterm grade if it is the lowest of your 4 test grades.

Grade breakdown (percentage toward final course grade):

Test 1 (i.e., Midterm 1) = 15%
Test 2 (i.e., Midterm 2) = 15%
Test 3 (i.e., Midterm 3) = 15%
Test 4 (i.e., Final) = 15%
Quizzes and homework = 15%
Laboratory assignments = 25%

Class participation = used to raise your course grade an increment (e.g., from a B to a B+), based on the complete discretion of the instructor

Grade scoring:

A = 91 - 100 A- = 89-91 B+ = 87-89 B = 81 - 87
 B- = 79- 81 C+ = 77 - 79 C = 71 - 77 C- = 69 - 71
 D+ = 67 – 69 D = 60 – 67 F = < 60

Disabilities

If you need disability-related accommodations, you are encouraged to meet with the instructor early in the semester. I look forward to working with you to assist you with your approved accommodations.

Academic Integrity

The foundation for education is honesty. **In this class, I expect academic integrity and will hold you to the highest standards of honesty.** Academic integrity ensures that all students are evaluated fairly and that your degree is meaningful because it is based on your own work. To uphold the significance of a Boston College education, you must always demonstrate academic integrity.

Violations of academic integrity in any way (e.g., cheating, plagiarism, etc.) will result in official College repercussions commensurate with the infraction and will be reported to the appropriate academic authorities.

Lecture and lab topic schedule

(NB: this schedule is subject to change as I see fit; be sure you come to class and check the class website so you can keep on top of these schedule changes)

Lecture number	Date	Topic	Readings (from Pinet unless noted)	Laboratory
1	9/2/14	Class introduction, history of ocean exploration	Chpt. 1 pp. 2-29	No labs
2	9/4	Structure of the Earth and ocean floor	Chpt. 2 pp. 30-33, 38-42	
3	9/9	Origin of the oceans, seafloor geography, plate tectonics	Chpt. 2, pp. 34-38, 42-57 Chpt. 3 pp. 60-70	Isostasy
4	9/11	Seafloor geography and plate tectonics, cont.	Chpt. 3, pp. 70-89	
5	9/16	Ocean sediments	Chpt. 4	Bathymetry
6	9/18	Ocean sediments cont.	Chpt. 4 and 11	
7	9/23	Seawater composition and properties	Chpt. 5	Salinity
8	9/25	Seawater composition and properties, cont.	Chpt. 5	

9	9/30	Midterm 1		Density
10	10/2	Water and atmospheric movement (as it relates surface currents)	Chpt. 6	
11	10/7	Water movement cont. (deep water movement)	Chpt. 6	Water mass mixing
12	10/9	Water movement (Tides)	Chpt. 8	
13	10/14	Water movement cont. (waves)	Chpt. 7, Chpt. 11 pp. 368-371	Waves
14	10/16	Marine habitats, general	Chpt. 9, pp. 282-283, 291-301	
15	10/21	Marine organisms, general	Chpt. 9, pp. 283-291	Sedimentation
16	10/23	Trophic dynamics	Chpt. 10 pp. 324-336	
17	10/28	Biological production and nutrient cycling	Chpt. 10 pp. 336-360	Plankton
18	10/30	Midterm 2		
19	11/4	Marine ecosystems, coastal and shallow	Chpts. 11 and 12	Coastal processes/estuaries
20	11/6	Marine ecosystems, coastal and shallow cont.	Chpts. 11 and 12	
21	11/11	Marine ecosystems, epipelagic	Chpt. 13	GIS mapping
22	11/13	Marine ecosystems, mesopelagic	Chpt. 13	
23	11/18	Marine ecosystems, bathypelagic and abyssal	Chpt. 13	Ecological impacts, oil spill
24	11/20	Marine resources	Chpt. 14	
25	11/25	Midterm 3		No labs
26	11/27	No class, Thanksgiving		
27	12/2	Perturbations to marine systems (pollution)	Chpt. 15, Chpt. 11	Project presentations
28	12/4	Perturbations to marine systems cont. (climate change)	Chpt. 16	
29	12/9	Marine conservation		No labs
30	12/11	No class, study day		
31	12/17	Final exam		