

GEOL 307: Introduction to Oceanography

Information Sheet and Syllabus Spring 2012

Course website and materials available upon request

Instructors	email	office hours	location
Dave Sutherland	dsuth@uoregon.edu	W 1:00-3:00 pm (or by appointment)	204 Volcanology
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Lecture: Monday and Wednesday from 10:00-11:20 AM in room 110 Fenton Hall (crn 36301)

Overview: This course is intended as an introduction to the science of oceanography, from the physics of ocean circulation to the biology of the deep sea, and includes some geology (e.g., sand movement, plate tectonics) and chemistry (e.g., seawater properties) as well. As an introductory course, there are no prerequisites except for an interest in learning about the oceans, which make up the majority of our planet. The course also satisfies upper division science requirements for most majors, though note that for some science majors only one GEOL 30x can be taken.

Note that this is a four-credit course with no discussion section, so I expect you to do the reading and to do the assignments on time and at a level appropriate for college students.

Goals

- Appreciate the diversity of science fields encompassed within oceanography
- Attain a basic knowledge of processes occurring off OR's coast
- Gain a better understanding of how science works and who does science
- Understand some environmental issues facing the world's oceans and coasts
- Learn the basic role of the ocean in Earth's climate system

Textbook: *Essentials of Oceanography, 10th ed.*, Trujillo and Thurman

Important Dates

- Quiz: Wed., Apr. 18.
- Mid-term exam: Mon., May 7.
- **Final Exam is Monday, June 11 at 10:15 am**
- Homework #1: due at start of class, Week 3 (Mon., Apr. 16)
- Homework #2: due at start of class, Week 5 (Wed., May 2)
- Homework #3: due at start of class, Week 8 (Mon., May 21)
- Term paper: due at start of class, Week 9 (Wed., May 30)
- NOTE the dates of in class activities (and NOTE that the activities will be done that week, not necessarily that day), as these count towards your grade

Dates	Lecture	Assignments/Tests	Reading
2-Apr	1. What is oceanography? Ocean Geography		Trujillo: Intro., 1.1, 1.3, 1.4
4-Apr week 1	2. Geological Oceanography: Plate tectonics, continental drift, Isostasy	Week 1 In-class activity	Trujillo: 2.1, 2.2, 2.3
9-Apr	3. Geol. Oceanography: mid-ocean ridges, vents, hotspots Doug Toomey, DoGS		Trujillo: 2.4, 2.5
11-Apr week 2	4. Geol. Oceanography: marine provinces, hypsography, technology		Trujillo: all of Ch. 3
16-Apr	5. Geol. Oceanography: marine sediments, turbidity currents	Mon: Hmk. 1 due	Trujillo: 4.1, 4.2, 4.3, 4.6, 4.7
18-Apr week 3	6. Geol. Oceanography: wrap up paper intro, quiz on L1-5	Wed: Quiz In-class activity (papers)	
23-Apr	7. Seawater properties: why is water unusual?		Trujillo: 5.1, 5.2, 5.3, 5.4
25-Apr week 4	8. Seawater properties: hydrography, vertical and horizontal structure, chemistry	Week 4 In-class activity	Trujillo: 5.6, 5.7
30-Apr	9. Atmospheric processes; Coriolis effect; air-sea interaction		Trujillo: 6.2, 6.3, 6.4, 6.5
2-May week 5	10. Ocean circulation: coastal processes, waves, OR coast examples	Wed: Hmk. 2 due	Trujillo: 8.1-8.5, 8.7
7-May	11. Midterm (L1-9)	Wed: Midterm	
9-May week 6	12. Ocean circulation: wind-driven currents, Ekman transport; upwelling	Week 6 In-class activity	Trujillo: 7.1, 7.2, 7.3, 7.4
14-May	13. Ocean circulation: thermohaline		Trujillo: 7.5
16-May week 7	14. Ocean circulation: coastal processes, tides Ray Weldon, DoGS		Trujillo: 9.1, 9.2, 9.3, 9.4
21-May	15. Biological oceanography: phytoplankton, marine organisms	Mon: Hmk. 3 due	Trujillo: 12.2, 12.4, 12.5
23-May week 8	16. Bio. oceanography: productivity, food webs, fishing	Week 8 In-class activity	Trujillo: 13.1, 13.3, 13.4, 13.6
28-May	17. Bio. oceanography: benthic vs. pelagic, estuarine biology and resources		Trujillo: 14.1, 14.5, 15.1, 15.2
30-May week 9	18. Special topic I: Gelatinous zooplankton Kelly Sutherland, OIMB	Wed: Paper due	Trujillo: 14.2, 14.3
4-Jun	19. Special topic II: Arctic Ocean and climate		Trujillo: 16.2, 16.4
6-Jun week 10	20. Special topics III: Estuaries; Final review	Study for final	Trujillo: 11.2, 11.3
11 June, Monday at 10:15 am ****			
Final Exam week			

Grading Criteria and Philosophy

If you get 90% or more of the total possible points, you will receive a grade of A- or higher; if you get 80% or more you will receive a grade of B- or higher; 70% or more a grade of C- or higher. What does this mean for you? If you do excellent work (in our judgment) you will get an A, good work earns a B, satisfactory work earns a C. Course grades are based on performance, not on effort, but it is rare that anyone who comes to class regularly, does the reading, and puts a serious effort into studying doesn't pass. Please note that if you take the class P/N you must get at least a C- to pass. The number of points needed for a given grade (e.g. the C- cutoff) may be lowered, but will not be raised.

Course component	Percent of total grade
Midterm	25%
Final Exam	30%
Homework	15%
In-class activities	10%
Quiz	10%
Term paper	10%
Total	100%

Classroom Conduct.

Please read this syllabus carefully and talk to Dave or to the GTF as soon as possible if you have questions about what is expected or how you will be graded.

We expect everyone to follow University rules and guidelines for behavior. Academic dishonesty, which includes cheating and plagiarism, is a serious offense and will be treated according to the guidelines in the [Student Conduct Code](http://studentlife.uoregon.edu) (located at <http://studentlife.uoregon.edu>) This doesn't mean you shouldn't talk with other students about what you are thinking or writing; it does mean that when you write something, it should be in your own words, not copied from someone else.

We ask that everyone do their best to be intellectually honest while also being respectful of personal differences. We welcome and encourage intellectual controversy-- it is essential to real learning. At the same time, we ask that everyone respect the rights of others to hold different opinions, even as we challenge the ideas supporting those opinions. The grade you earn will be a reflection of the quality of work you have done, but not of you as a person, nor of the values you hold.

Out of respect for other students, you should plan to arrive at class on time and stay until class is over. If, on occasion, you do arrive late, please be considerate of others and enter in such a way that you don't disturb other students. If you need to leave early, please sit near an exit so that you can leave without disrupting the class. We ask that you not interfere with the ability of other students to learn by making noise when others (instructors or classmates) are speaking or working. Cell phones should not be used in class. Failure to follow these guidelines may lead to a lowered participation score.

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with Dave or the GTF soon. Please request that the Counselor for Students with Disabilities send a letter verifying your disability.

Crises happen. If you are having problems that are interfering with your ability to do the work in this class, please let us know promptly. We are willing to make special arrangements when the need is real **and** when you have done your best to deal with the situation in a timely manner. The University of Oregon Crisis Center, a student funded organization, provides students with confidential telephone crisis intervention 24 hours a day, 7 days a week. The hotline number is 346-4488. Students often believe that their issues are not "severe" enough for them to call a crisis intervention hotline. At the Crisis Center, there is no problem too small.

Readings: Assigned readings will come from the textbook and will be outlined on the course website for each week. Several times during the quarter, additional readings from current journal articles will be made available in pdf format or web links on the course website. These will be required reading for exams and to understand the material.

Participation/ In-class activity: Several in class activities will make up your participation grade, for a total of 10%. You will be given 2 free passes on an in-class activity, i.e., your 2 lowest scores will be dropped. Given that, there will be no make-ups given or excuses allowed.

Participation is not simply measured by your presence in class and your participation in the in-class activities. Missing class (lecture or discussion), arriving late, leaving early, or not participating fully (e.g. talking, surfing the web, texting) will lead inevitably lead to lower exam grades. Several times during the term we will have guest scientists come to talk about their work and their views of science. These are important parts of the course that cannot easily be made up. Don't miss these and above all, don't tune out or leave when a guest comes to talk to us.

Homework: There will 3 homework assignments during the quarter, which make up 15% of your grade. These will be due at the start of class with no late work accepted. You may work with others on these, but make sure to write up and turn in *your own* work, i.e. no duplicating others. Failure to do so will result in a 0 for that assignment. Homework assignments are a great study tool for the exams.

Exams: Exams will often ask you to apply, synthesize, or evaluate information. This is harder than simply recalling facts. Make-up exams will not be given, so note the dates of the exams carefully and don't make plans to be out of town on any of those dates. The final exam will be cumulative. Notice that the final exam is scheduled for Monday of finals week (at 10:15 AM) and cannot be taken earlier or later.

The Quiz scheduled early on is meant to give you a taste for how the exams will be written, and to give you an early indication of how well your study habits are working.

Term paper: The term paper is a short written assignment that will ask you to read a scientific, peer-reviewed journal article on some topic of oceanography. Then you will have to summarize the main points, its strengths and weaknesses, and discuss its implications. A list of potential articles to choose from will be provided in class, along with more details and instruction on the assignment. A separate handout will describe the term paper project more fully and will be available on the course website.

Note that this is an *individual* project and any form of cheating or plagiarism will result in a 0.

Optional field trip: Interested in finding out more about what oceanographers do? Stay tuned—there will be an optional, space-limited field trip to the Oregon coast at some point during the quarter. Look for more details and a sign up sheet to come.

Course Website: Most course info at <http://pages.uoregon.edu/dsuth/GEOL307/>

Blackboard: may be used for important announcements or for information posted by the GTF.

How to do well in this course:

- Attend all lectures, arrive on time, and stay engaged.
- Do the assigned reading in advance or at least skim through the material so that you know what is there and can go back and read in more depth on your own.
- Make use of the course web page and the lecture notes and outlines on it, but do not try to use these as a replacement for attending class. You will not succeed in this class if you don't attend regularly.
- Ask questions.
- Get together with someone else in the class at least once a week to study. Keep the big picture in mind by asking yourself how what you are learning is important to your life. If it isn't apparent, then ask. Read magazines, the newspaper, and listen to radio or television for relevant ideas.
- Don't believe everything you hear or read. Be able to back up your opinions with credible evidence and good logic.