

INTRODUCTION TO OCEANOGRAPHY – GEOL 107-L

Fall 2011

This course provides an introduction to the role of the oceans in the Earth system. We will consider plate tectonics and how these processes were discovered. We will learn about how the atmosphere and ocean interact, why water moves in the ocean, where life flourishes in the oceans and how the Earth system has changed through time. Students will learn about the methods that scientists use to develop and test new ideas in the Earth Sciences, illustrated with hands-on examples in the laboratory section. We will consider the scientific aspects of new and emerging economic resources in the oceans as well as problems of environmental change, pollution and resource depletion. Such issues and opportunities are ever changing, thus we invite students to develop the scientific skills needed to assess new problems, new information and developments in the future.

Professor: **Dr. Sarah Feakins**

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Office: Zumberge Hall of Science (ZHS) 223F

Office Hours: MWF 11-12, or by appointment

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See the lab syllabus for their sections, office hours and locations.

Lectures: MWF 10-10:50am, Location: SLH200

Textbook: Essentials of Oceanography, Trujillo & Thurman (10th Ed.) Prentice Hall. (from bookstores, or in ebook format eg <http://tinyurl.com/coursesmartfreedom>).

Labs: Laboratory sections will begin during the week of August 29th; no labs in the first week of classes. Labs are held in ZHS B61. See the laboratory syllabus for more information.

Basis of Grade:

30%	lab (see lab syllabus)
20%	midterm exam 1
20%	midterm exam 2
30%	final exam

Service Learning:

Opportunity through USC Joint Education Project (JEP) – Successful fulfillment of the JEP teaching Oceanography in local schools is recognized with extra credit in the 107 grade of up to a partial grade, eg B to B+, dependent upon performance report from JEP instructor. Prior participants have found this a very rewarding experience. This opportunity involves a steady commitment to engage with ocean science course material throughout the semester – a great way to improve your understanding of Oceanography and a great way to help the local community. No other extra credit opportunities are available at any time or for any reason.

Additional Information:

Examinations: The two midterm examination and the final exam will evaluate student comprehension of the lecture and textbook material; they will emphasize material covered in lecture. There are 2 midterm exams testing material in the preceding lectures (not cumulative); the final exam is cumulative. All exams are objective (true/false or multiple choice), graded by Scantron.

Missed Examinations: *If you have to miss an examination because of illness or an academic conflict, you must inform the Professor by email **in advance**, and provide documentation.* Make-ups of examinations will, in general, NOT be permitted except for extraordinary circumstances (e.g., documentable conflicts with other USC-related commitments).

Academic Integrity: University policies on academic dishonesty are printed in SCAMPUS and SJACS, see <http://www.usc.edu/student-affairs/SJACS>. Because cheating negatively affects everyone in the class, we will follow USC guidelines and report all academic misconduct. USC policies on cheating are strict and the minimum punishment is a “0” on the assignment. Please don’t make us have to turn you in! Previous students have cheated in this class before and failed as a result – don’t do it – it’s not worth it.

Disability Services: Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed; *please be sure the letter is delivered to the professor as early in the semester as possible, and at least 2 weeks prior to the first midterm.* DSP is open Monday-Friday, 8:30-5:00. The office is in Student Union 301 and the phone number is (213) 740-0776.

Lecture Syllabus and Assigned Reading

*Chapters in Trujillo and Thurman—Essentials of Oceanography—10th Edition

Please read the chapter before the corresponding lecture to get the most out of class.

Week	Date	L#	Lecture Subject	Reading*
1	08/22/11	1	Introduction	Introduction
	08/24/11	2	History of Oceanography	1
	08/26/11	3	Origins of the Solar System	1
2	08/29/11	4	Nature of Scientific Inquiry	1
	08/31/11	5	Plate tectonics 1	2
	09/2/11	6	Plate tectonics 2	2
3	09/5/11	-	Holiday – Labor Day	-
	09/7/11	7	Ocean basins	3
	09/9/11	8	Marine sediments	4
4	09/12/11	9	The special properties of water	5
	09/14/11	10	Temperature, Salinity, Density	5
	09/16/11	11	Introduction to Climate	6
5	09/19/11	X1	EXAM #1 Covering material in lectures 1-11	-
	09/21/11	12	Atmosphere – Winds	6
	09/23/11	13	Surface Ocean Circulation – currents	7
6	09/26/11	14	El Nino Southern Oscillation	p 216-222
	09/28/11	15	Deep Ocean Circulation	7
	09/30/11	16	Waves	8
7	10/03/11	17	Tides	9
	10/05/11	18	Coastline 1– beaches	10
	10/07/11	19	Coastline 2 – estuaries and deltas	11.0-11.4
8	10/10/11	20	Coastline 3 – sediments entering the ocean	4.2
	10/12/11	21	Systematics of Marine Biology	12
	10/14/11	22	Nutrients	13
9	10/17/11	23	Food Webs	13
	10/19/11	24	Life – pelagic ocean	14
	10/21/11	25	Review	
10	10/24/11	X2	EXAM #2 Covering material in lectures 12-25	-
	10/26/11	26	Marine mammals	14
	10/28/11	27	Life – coastal ocean	15.0-15.4
11	10/31/11	28	Life – coral reef environments	15, p450-6
	11/02/11	29	Life – deep ocean	15.5
	11/04/11	30	Oceans of the Past	16
12	11/07/11	31	Drivers of Climate Change	16
	11/09/11	32	Global Climate Change & the Oceans	16
	11/11/11	33	Climate Change Solutions	Afterword
13	11/14/11	34	Pollution 1	11.5
	11/16/11	35	Pollution 2	11.5
	11/18/11	36	Ocean Resources – fisheries	13.6

Continued...

Week	Date	L#	Lecture Subject	Reading*
14	11/21/11	37	Ocean Resources – minerals, oil, water	-
	11/23/11	38	No formal lecture	
	11/25/11	-	Thanksgiving	
15	11/28/11	39	Review	-
	11/30/11	40	Ocean Resources – biotechnology	-
	12/02/11	41	Review	-
16			Study Days	
	Monday December 12th 8-10am	X3	FINAL EXAM Covering material integrated across the entire course. Particular attention to concepts in the last third, not tested on the prior midterms. Note time: <u>8.00-10.00am</u>, Monday December 12th, 2011	