INTRODUCTION TO OCEANOGRAPHY – GEOL 107-L
Fall 2016

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**
feakins@usc.edu (best way to contact me)
Office: Zumberge Hall of Science (ZHS) 223F
Office Hours: when door is open or by appointment

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

Lectures: MWF 9-9:50pm, Location: Taper Hall THH 201

Participation in lectures via TopHat classroom response system.
tophat.com/e/215214. *Sign up in the week before classes ready to start on day 1.*

Textbook: Essentials of Oceanography, Trujillo & Thurman (11th Ed.) Prentice Hall. ISBN 9780321814050 from bookstore, or in ebook format eg http://tinyurl.com/coursesmartfreedom. EISBN: 9780321858344

Tips from the professor and former students: *some do not like reading online so ebooks may not be a good choice but are cheaper. To save money you may purchase used copies, including 10th and 9th edition e.g. from Amazon which cover the same content (examples updated), but page numbers differ.*

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

Basis of Grade:

25%	lab (see lab syllabus) – you must pass the lab to pass the class.
5%	participation (via TopHat)
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:

Participation: Questions will be mostly posed in lectures and sometimes assigned to be completed before the next class (e.g. questions on reading). You will be scored for your participation, allowing you the opportunity to test your knowledge in class and learn without worrying about grading. Participation is scored to a maximum of 5% of your grade. You will receive 100% of the participation score overall if you participate in >80% of the activities. We will be using the Top Hat (www.tophat.com) classroom response system in class. You will be able to submit answers using Apple or Android smartphones and tablets, laptops, or through text message. You can visit tinyurl.com/TopHatStudentGuide for the Student Quick Start Guide which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system. An email invitation will also be sent to your school email account in the week before the class starts. If you don't receive this email, you can register at course website tophat.com/e/215214. Top Hat will require a paid subscription, the cheapest option is $24 for 4-months of unlimited access, other subscription options at www.tophat.com/pricing.

Examinations: The two midterm examination and the final exam will evaluate your 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, while it focuses on the last third of the course, this section of the course includes concepts that draw on your knowledge from the whole course. All exams are 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 3601 Watt Way, Grace Ford Salvatori Hall 120 and the phone number is (213) 740-0776.

Lecture Syllabus and Assigned Reading

*Chapters in Trujillo and Thurman—Essentials of Oceanography—11th Edition
Please read the chapter before the corresponding lecture to come prepared for class.

Week	Date	L#	Lecture Subject	Reading*
1	8/22/16	1	Introduction	Introduction
	8/24/16	2	History of Oceanography	1
	8/26/16	3	Nature of Scientific Inquiry	1
2	8/29/16	4	Origins of our ocean planet	1
	8/31/16	5	Plate tectonics 1	2
	9/2/16	6	Plate tectonics 2	2
3	9/5/16	-	**HOLIDAY – LABOR DAY**	-
	9/7/16	7	Ocean basins	3
	9/9/16	8	Marine sediments	4
4	9/12/16	9	The special properties of water	5
	9/14/16	10	Temperature, salinity, density	5
	9/16/16	11	Introduction to climate	6
5	9/19/16	12	Atmosphere – Winds	6
	9/21/16	**X1**	**EXAM #1** Covering material in lectures 1-12	
	9/23/16	13	Surface Ocean Circulation – currents	7
6	9/26/16	14	El Nino Southern Oscillation	p 220-225
	9/28/16	15	Deep Ocean Circulation	7
	9/30/16	16	Tides	9
7	10/3/16	17	Waves	8
	10/5/16	18	Coastline 1– beaches	10
	10/7/16	19	Coastline 2 – estuaries and deltas	11.1-11.4
8	10/10/16	20	Coastline 3 – sediments entering the ocean	4.2
	10/12/16	21	Systematics of Marine Biology	12
	10/14/16	22	Nutrients	13
9	10/17/16	23	Food Webs	13
	10/19/16	24	Life – pelagic ocean	14
	10/21/16	25	Marine mammals	14.4, 14.5
10	10/24/16	26	Life – coastal ocean	15.1,15.2
	10/26/16	27	Life – coral reef environments	15.3
	10/28/16	28	Life – deep ocean	15.4
11	10/31/16	29	Catch up/review	
	11/2/16	**X2**	**EXAM #2** Covering material in lectures 13-29	
	11/4/16	30	Oceans of the past	16
12	11/7/16	31	Drivers of climate change	16
	11/9/16	32	Global climate change & the oceans	16
	11/11/16	33	Climate change solutions	16.5,Afterword
13	11/14/16	34	Pollution – traditional	11.5-11.6
	11/16/16	35	Pollution – emerging	11.5-11.6
	11/18/16	36	Ocean Resources – fisheries	13.5

Continued…

Week		L#	Lecture Subject	Reading*
14	11/21/16	37	Ocean Resources – oyster farming	-
	11/23/16	-	**THANKSGIVING BREAK**	
	11/25/16	-	**THANKSGIVING BREAK**	
15	11/28/16	38	Ocean Resources – minerals, oil, water	-
	11/30/16	39	Ocean Resources – biotechnology	-
	12/2/16	40	Tournament/Review	-
			Study Days	
	Monday Dec 12th 11-1pm	**X3**	**FINAL EXAM** Covering material integrated across the entire course, but with particular attention to the last third, which were not tested on the prior midterms. **Note time: 11-1pm, Monday December 12th 2016**	