

UCSC/Earth and Planetary Sciences Department  
**EART 290P: Topics in Interdisciplinary Earth Science**  
(Marine Geology & Geophysics focus, capstone)

## Spring Quarter 2016 Syllabus

### Part 1: Course Information

#### Instructor Information

- **Instructor:** Dr. Ana García García
- **Class Hours:** D226; Monday and Wednesday, 9:00-10:45
- **Office Hours:** Room A234A, EMS Building, Mon. and Wed. 11:00-noon (or by appointment)
- **E-mail:** [agarciag@ucsc.edu](mailto:agarciag@ucsc.edu)

#### TA Information

- Ana Martínez Fernández; PhD student
- **Office Hours:** Room A243, EMS Building, Mon. noon-2:00 pm (or by appointment)
- **E-mail:** [amarti43@ucsc.edu](mailto:amarti43@ucsc.edu)

#### Course Description

- This course will explore the latest advances and techniques in the study of marine geology with an interdisciplinary approach: tectonics, seafloor/subbottom sediment mapping, sediment coring, relevant software and more. A few trips to the field (e.g. Elkhorn Slough) along with relevant guest speakers will complement the knowledge learned in the classroom. *The final project will be a written report based on data collected in the field.* All students will be presenting their research at the end of the quarter. Pre-requisites: EART 110A and B.
- The **capstone** final project should include a final individual report in which the student analyzes some data that he/she helped collect. This course carries a **DC** so the final report will be at least 25 pages of text plus figures, tables, etc. and should include at least a small literature survey. It is extremely important the students take this course very seriously.

#### Recommended Textbooks

- The books below are good ones to consult. NO need to buy anything. I will provide any relevant reading materials. This course is very interdisciplinary so not one book compiles all the information:
- **Changes in a California Estuary**, by Jane Caffrey, Martha Brown, W. Breck Tyler, Mark Silberstein (Eds.), Elkhorn Slough Foundation, 2002, 280 pp.
- **Marine Geology**, 1<sup>st</sup> ed. by Kennett, James, Prentice Hall, 1982. ISBN-10: 0135569562. A copy

of this book is on reserve at the Science and Engineering Library in campus.

- **The Ocean Basins: Their Structure and Evolution, 2<sup>nd</sup> ed.** by Open University, 2004. ISBN-10: 0750639830.
- **Marine Biogeochemical Cycles, 2<sup>nd</sup> ed.** by Open University, 2005. ISBN-10: 0750667931.
- **Mapping the Deep** by Kunzig, Robert, W.W. Norton & Co., 2000. ISBN 0-393-32063-4.
- **Sound Images of the Ocean in Research and Monitoring** by Wille, Peter, Springer, 2005. ISBN-10 3-540-24122-1.
- **The handbook of Sidescan Sonar** by Blondel, Philippe, Springer, 2009. ISBN 978-3-540-42641-7.

## Part 2: Topic Outline/Schedule

- **Note about schedule.** Please note that it might be adjusted during the quarter. *Students are responsible for schedule revisions given in lecture. Attendance is mandatory.*

Week	Dates	Topic
1	Mar 28 Mon	Intro and Overview. Syllabus. Perspective Software Loading (Geoff Shipton- <i>Triton Imaging Inc.</i> as Guest)
	Mar 30 Wed	Scientific Method. Capstones. Geological/Geophysical Techniques. Data Integration (ArcGIS). Indirect methods Intro
2	Apr 04 Mon	Indirect methods: Echosounders, MBES, <u>SSS</u>
	Apr 06 Wed	Indirect methods II: <u>Seismic reflection</u> , refraction-Prep Trip 1
	Apr 09 Sat	<i>Elkhorn Slough Trip (all day)-geophysical. 7771 van reserved (7am-6pm)</i>
3	Apr 11 Mon	<b>Discussion 1-what/where/why</b> (~5 min. explanation/student)
	Apr 13 Wed	Ocean Circulation. Estuarine circulation: Tides. -Prep Trip
	Apr 17 Sun	<b>OCEANS Colloquium (9-4): MLML</b> 7771 van reserved (8am-6pm)
4	Apr 20 Wed	Direct methods: Coring. Compaction. Correlation. -Prep Trip 2
	Apr 23 Sat	<i>Elkhorn Slough Trip (all day)-coring. UCSC Fleet 12-pass van reserved (7am -6pm)</i>
5	Apr 25 Mon	<b>Discussion 2-results so far</b> (~5 min. explanation/student)
	Apr 27 Wed	<b>Midterm</b> (class time)
6	May 02 Mon	Paleoceanography
	May 04 Wed	Paleoceanography II. Acidification in corals and benthic forams (Ana Martinez Fernandez as Guest)
7	May 09 Mon	ArcGIS/Habitat Mapping (Matt Levey- <i>SeaSpatial Cons.</i> as Guest)
	May 11 Wed	<b>Discussion 3-interpretation</b> (~5 min. explanation/student)
8	May 16 Mon	Marine Resources
	May 18 Wed	Undersea Natural Hazards
	May 21 Sat	<i>Day Reserved- Elkhorn Slough more field work needed?</i>
9	May 23 Mon	Presentations I <b>Capstone Report</b> (~20 min. presentation/student)
	May 25 Wed	Presentations II <b>Capstone Report</b> (~20 min. presentation)
10	May 30 Mon	<i>Memorial Day Holiday</i>
	Jun 01 Wed	Presentations III <b>Capstone Report</b> (~20 min. presentation)
11	Jun 08 Wed	<b>Final Exam</b> (8-11 am)
		<b>World Oceans Day</b>

## Part 3: Grading Policy

Coursework	Percent of Final Grade
Midterm Exam	15%
Discussions, Activities, Trips	30%
Capstone Project (presentation and report)	35%
Final Exam	20%

## Part 4: Course Policies

### Expectations

You will be treated as responsible adults and expected to offer the same courtesy to your instructor. You will have to: attend all lectures, participate in class, complete the reading assignments and be ready to discuss/present them.

### Late Work Policy

Be sure to pay close attention to deadlines. There will be no late work accepted or make up assignments/exams without a serious and compelling reason and instructor approval.

### Inform Your Instructor of Any Accommodations Needed

If you have a disability and would like to request accommodations, please contact *immediately* the [Disability Resource Center](#) or your instructor so that your accommodations may be provided.

### UCSC Academic Integrity Policy

Academic integrity is the cornerstone of a University Education. Plagiarism and cheating will be dealt with severely. For more information on the policies and the consequences for their violation, visit the [Undergraduate Education UCSC Academic Integrity Website](#).

### Ecommons website

I will be using the class' ecommons website to upload my lectures, relevant resources, reading material, and send messages to the class. Make sure you can access it ok.

EART 290P Lecturer  
Dr. Ana Garcia-Garcia  
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