UCSC/Earth and Planetary Sciences Department
EART 102: Marine Geology

Spring Quarter 2017 Syllabus

Part 1: Course Information

Instructor Information

- **Instructor:** Ana García García
- **Class Hours: D250**; **Monday and Wednesday, 8:00-9:35 AM**
- **Office Hours:** Room C320, EMS Building, Mon. and Wed. 10:00-11:00 AM (or by appointment)
- **E-mail:** agarciag@ucsc.edu

TA Information

- **Vicky Yuan**; MS student
- **Section Times: D250**; **Tuesday 11:00 AM-Noon** or **5:00-6:00 PM**
- **Office Hours:** Room A170 (Vislab), EMS Building, Tue. 1:00-3:00 PM (or by appointment)
- **E-mail:** vyyuan@ucsc.edu

Course Description

- This course will explore the Geology of the marine environment and the latest advances and techniques in the study of marine geology with an interdisciplinary approach: tectonics, geology of oceanic crust, sediments, paleoceanography, and more. Optional trips to local relevant institutions and attendance to a relevant scientific conference will complement the knowledge learned in the classroom.
- Students cannot receive credit for this course and Ocean Sciences 280.
- Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 5 or 10 or 20 or Biology 20C.

Course Requirements

- 3 problem sets
- 1 midterm exam, 1 final exam
- Writing assignments. Proposal and oral presentation of proposal
- Presenting journal article/s, leading class discussion (various dates)
- Participation in class and section

Recommended Textbooks

The following are good books to consult. This course is very interdisciplinary so not one book compiles all the information:

- **Marine Geology, 1st 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, 2nd ed.** by Open University, 2004. ISBN-10: 0750639830. *Reader with chapters available at the Bay Tree Bookstore.* You can also rent it with Chegg Books here.

- ***Marine Biogeochemical Cycles, 2nd ed.** by Open University, 2005. ISBN-10: 0750667931. *Reader with chapters available at the Bay Tree Bookstore.* You can also rent it with Chegg Books here.

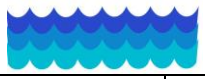
Part 2: Grading Policy

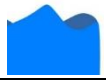
Coursework	Percent of Final Grade
Midterm Exam	10%
Problems & Writing Assignments	40%
Proposal & Oral Presentation	20%
Journal Article Presentation	10%
Final Exam	20%
Extra credit	varies, <2%
	100%

Part 3: Schedule, Readings, & Due Dates

This is a tentative schedule that might be adjusted during the quarter. Students are responsible for schedule revisions given in lecture. Attendance to lecture and section is mandatory.*OB = *The Ocean Basins;* *MBC = *Marine Biogeochemical Cycles. *No sections in week 1, 7, and 9**

Week	Dates	Topic	Reading
1*	Apr 3 Mon	Course Intro. Scientific Method. Exploring. Ocean Basins	
		--No Section Meetings--	
	Apr 5 Wed	Crust/lithosphere. Hypsometric curve & Isostasy. *Prep trip* Hand out **Problem Set #1** on isostasy	OB Ch 2, Ch 3
	Apr 8 Sat	OCEANS Colloquium at MLML, 9-4 *(optional, extra point)- 3 vans reserved 8-6*	
2	Apr 10 Mon	Processes at Plate Boundaries and Seafloor Provinces *Prep trip*	OB Ch 2, Ch 3
	Apr 11 Tue	Section 1: *Reading and analyzing a scientific article* Hand out **Writing Assignment #1** on summarizing a scientific article	Talley (2013)
	Apr 12 Wed	*USGS Trip (optional, extra point)- Tour (~1h) -3 vans reserved 8-11*	
3 **Earth Day** 	Apr 17 Mon 	Intro to Ocean Sediments ****Problem Set #1**, due in lecture Hand out **Problem Set #2** on plate boundaries. *Prep trip*	MBC Ch 1
	Apr 18 Tue 	*Section 2: Article summaries discussion and peer-review* ****DUE DATE: Writing Assignment #1**, Article summary, due in section Hand out Instructions for proposal. **Sign up** for meeting with Ana (to discuss proposal topic). *Latest: May 1*	
	Apr 19 Wed	*MBARI Trip (optional, extra point)- Tour (~1h) -3 vans reserved 8-1*	
4	Apr 24 Mon	Biogeochemical Cycles, Particle fluxes Carbonate Sedimentation.	MBC Ch 2.2, 2.3, 2.4; 3.1.2
	Apr 25 Tue	*Section 3: Library research, 1 article presentation: Ridgwell & Zeebe, 2005*	
	Apr 26 Wed 	Carbonate Sediments. CCD-Lysocline Ocean Acidification ** **Problem Set #2**, due in lecture	MBC Ch 3.1.2 *Ridgwell & Zeebe (2005)*



Week	Dates	Topic	Reading
5	May 1 Mon 	Siliceous Sedimentation. Plate Stratigraphy ****DUE DATE: Writing Assignment #2, Article summary and Proposal topic**	MBC Ch 3.1.1
	May 2 Tue	*Section 4: Midterm exam review*	
	May 3 Wed	**Midterm** (class time, it covers all material including carbonate sediments)	
6	May 8 Mon	TA research talk -2 different themes Hand out **Problem Set #3** on plate stratigraphy	
	May 9 Tue	*Section 5: 2 article presentations: Karl et al., 2012, Puig et al., 2014*	
	May 10 Wed 	Terrigenous Sedimentation. Passive Margin Processes. ****DUE DATE: Writing Assignment #3, Proposal introduction and outline**, due in lecture	MBC Ch 3.2 *Puig et al., 2014*
7*	May 15 Mon	Pore Water Chemistry and Subseafloor Life	MBC Ch 5.2
		--No Section Meetings--	
	May 17 Wed 	Paleoceanography I **** Problem Set #3**, due in lecture	MBC Ch 4
8	May 22 Mon 	Paleoceanography II ****DUE DATE: Writing Assignment #4, Proposal first draft**, peer review.TWO copies due in lecture	MBC Ch 4
	May 18 Tue	*Section 6: 2 article presentations: Wessel & Kroenke, 2009, Tivey et al., 2012*	
	May 24 Wed	Crust Formation at Mid Ocean Ridges. Hot Spots and Large Igneous Provinces.	OB Ch 4
9*	May 29 Mon	*No class due to Memorial Day holiday*	
		--No Section Meetings--	
	May 31 Wed 	Hydrothermal Flow. Crustal Aging and Serpentinization. ****DUE DATE: Writing Assignment #5**, TWO copies due in lecture	OB Ch 4
10 Oceans Day 	Jun 5 Mon	*Proposal presentations I, 5 minutes each*	
		*Section 7: Final Exam Review* ****DUE: Writing Assignment #6:** Proposal final due in section	
	Jun 7 Wed	*Proposal presentations II, 5 minutes each*	
11	Jun 12 Mon	**Final Exam**	

Part 4: Writing Requirements & Proposals

Writing Requirements

This class will integrate the process of scientific discovery in marine geology with the process of written and verbal expression of those discoveries. We will learn how to read, understand, and write about scientific articles, and we will learn how to create novel scientific questions, how to answer them, and how to write about them. This will involve the following elements:

1. Discussion, and verbal and written presentations of scientific articles.
    a. In section, you will participate in the discussion of articles throughout the quarter.
    b. In section, you will give one group oral presentation of a scientific article. Your group will present an article in section on weeks 4, 6, or 8.
    c. Writing Assignment #1 will be to read and write a 1-page summary of an article.

2. Verbal and written presentation of a novel scientific question.
    a. Writing Assignments #2 - #5 are focused on writing about published scientific ideas and on coming up with your own scientific question and proposal to answer that question. The final assignment (#6) will be a full polished draft of a research proposal (see **Proposals** below).
    b. You will give an oral presentation of your proposal in lecture on 6/5 or 6/7.

Proposals

You are responsible for developing a proposal on some aspect of marine geology, 7-8 pages of double-spaced text in length, plus references, figures and captions, tables, etc. This will be framed as a research proposal to investigate a specific question or series of related questions for which you present the objectives, the scientific background, the justification, the proposed approach, the anticipated results, and their significance. You are not required to discuss budgetary or logistical constraints (e.g., will what you're proposing take 20 years of shiptime to accomplish?), but you may choose to discuss these aspects if you wish. Your final proposal should focus on at least five journal articles as primary references, although you will undoubtedly use more than that number in developing and researching your proposal.

Ideas for topics can come from your class notes, from the journal articles for class discussion, from the course outline, from the texts, from your research interests, or from your classmates, or me. You should check your choice of topic with me in advance of the first deadline.

Research Proposals Due Dates

Monday 5/1:	Article Summary and Statement of topic due in writing [hard copy only]
Monday 5/1:	Sign up for meeting with Ana to talk about proposal topic. NO later than Wed. 5/10
Wednesday 5/10:	Introduction, Outline, and Reference list due [hard copy only]
Monday 5/22:	First draft (typed) due [make two hard copies, one to hand in, one to exchange with a class member]
Wednesday 5/31:	Peer-review due [make two hard copies, one to hand in, one to exchange with a class member]
Mon 6/5, Wed 6/7:	Proposal presentations in lecture
Tuesday 6/6:	Final proposal due in section

Part 5: Course Policies

Expectations

You will be treated as responsible adults and expected to offer the same courtesy to your instructor/TA. 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.

We are honored to have veterans on campus and look forward to their continued success here. For some veterans, going back to school can present unique challenges. If that is true for you, remember that you do not have to face these challenges on your own. Please feel free to discuss any questions or concerns you may have with me at any time. STARS is a great resource for you.

Inclusivity/Diversity Statement

The members of a classroom represent a rich variety of backgrounds and perspectives. I am committed to working with you to provide an atmosphere for learning that respects diversity. We will work together to build this learning community by asking all class members to: share their unique experiences, values and beliefs; be open to the views of others; honor the uniqueness of their colleagues; appreciate the opportunity that we have to learn from each other in this community; value each other's opinions and communicate in a respectful manner; keep confidential discussions that occur within class that are of a personal nature; consider other ways that we may create an inclusive learning environment within this course and across our University community.

I want to invite you to discuss with me any information or issues that you would like to share in order to make you feel welcome and supported in the classroom. You can approach me after class, during my office hours or by email.

UCSC Academic Integrity

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 Policy for Undergraduate Academic Misconduct.

Canvas website

We will be using the class Canvas course to upload lecture summaries, relevant resources, reading material, and send messages to the class. Make sure you can access it ok. The Canvas help guide for students can be very useful.

EART 102 Lecturer
Dr. Ana Garcia-Garcia
agarciag