

SIO10SP14: "The Earth"
Instructor: John Sclater SIO

Description:

This course is an introduction to the science of how the Earth works. It is split into six sections: Our island in space, Earth materials, Tectonic activity of a Dynamic Planet, The history of the Earth, Earth Resources and Processes and Problems at the surface of the Earth. It will finish with two lectures on topics of high current interest: Global Change, and, Peak Oil, the coming energy mess and where goes the environment. The course emphasizes material that everyone should know for appreciation and enjoyment of the world around us, for understanding geological events as reported in the news, and for participating in making intelligent decisions regarding the future of our environment.

Class Website:

Can be found at ted.ucsd.edu under John Sclater SIO10SP14
Lectures and homework can be found at this web site

Grading: Grades will be based on weekly homework (30%), two midterms (15 and 20%), and the final (35%). There will be 6 homeworks due and the lowest homework score will not be included in the overall grade. No late homework will be accepted. Sheets of paper with anything handwritten on it will be allowed in the exams (1 page for the midterms, 2 pages for the final).

Field trips: We will offer a beach walk (on three Saturdays) starting at the SIO pier and going North to examine aspects of local coastal geology. The field trip is not mandatory. You will split into groups of ~ four to answer the questions from the field trip guide. Correct answers to the questions on the field guide will result in up to 5% points being added to your grade. Only credit for one beach walk will be given for a maximum of 5%.

Lectures and Problem sessions: I recommend that you attend the lectures. In the problem sessions for week 3 there will be a lecture on 'Rocks and Minerals including a review showing you actual rocks. In week 4 sessions you will be asked to identify five rocks. You will get up to 5% points for successful answers and they will be part of your grade. I strongly recommend that you attend the other problem sessions as well.

Course Review: The last three lectures 'Global Change in the Earth System', 'Global Climate Change' and 'Peak Oil...' will serve as a summary of the course. If you want to be informed about a problem that will dominate your lives for at least the next 50 years and a good grade it is probably worth attending both lectures.

Grading: We will use a linear grade scale for the letter grades:

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
>97%	93-96	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	<59%

The final point score will be out of 105. It will be scaled down to 100 for grading. I do not recommend taking this Pass/Fail. It requires a C- average to Pass. We will provide you with a predictor of your final grade based on past performance at least two days before the final drop date. **STUDY IT CAREFULLY.**

Text Book: EARTH: Portrait of a Planet fourth edition by Stephen Marshak.

Location and Times: Center Hall. MWF 11:00-11:50pm
Two weekly problem sessions with TA's (all sessions held in York 3030)
The times will be sorted out at the first lecture.

Contact information: Teaching

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Esther Lee-Varisco, grader, please contact the TA's for grade issues

Adminstration

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SIO10 Spring: Tentative schedule of Lectures

Date	Lec. #	Lecture Title	Reading Assignment
		Part 1: Our Island in Space	
Mon, Mar. 31	1	Introduction, What is Geology,	Prelude
Wed, Apr. 02	2	Earth Systems, Cosmology,	Chapter 1
Fri, Apr. 04	3	Journey to the Center of the Earth	Chapter 2
		1 st homework: lectures 1-3	
Mon, Apr. 07	4	Drifting Continents and Spreading Seas	Chapter 3
Wed, Apr. 09	5	Plate Tectonics I	Chapter 4
Fri, Apr. 11	6	Plate Tectonics II	Chapter 5
		2 nd homework: lectures 4-6	
		Part 2: Earth Materials	
Mon, Apr. 14	7	Magma and Igneous Rocks	Chapter 6 & Inter. B
Wed, Apr. 16	8	Sediments, soils and Sedimentary Rocks	Chapter 7
Fri, Apr. 18	9	Metamorphism: a Process of change	Chapter 8 & Inter. C
		3 rd homework: lectures 7-10	Sat Apr 19 Field trip 9:00 AM Scripps Pier
		Part 3: Tectonic Activity of a Dynamic Planet	
Mon, Apr. 21	10	Volcanic Eruptions	Chapter 9
Wed, Apr. 23	11	Earthquakes I: Causes, Seismic Waves, Where occur	Chapter 10
Fri, Apr. 25	12	Minerals and Rocks	Chapter 6
		No homework: prepare for Midterm I	
Mon, Apr. 28		Midterm 1 (Lectures 1-10)	
Wed, Apr. 30	13	Earthquakes II: Damage, Tsunami and Prediction	Chapter 10 & Inter. D
Fri, May 02	14	Crustal Deformation and Mountain Building I	Chapter 11
		4 th homework: lectures 11-15	Sat May 3 Field trip 9:00 AM Scripps Pier
Mon, May 05	15	Crustal Deformation and Mountain Building II	Chapter 11
		Part 4: History before History	
Wed, May 07	16	Deep Time: How Old is Old	Chapter 12 & Inter E
Fri, May 09	17	A Biography of Earth	Chapter 13
		5 th homework: lectures 16-20	
		Part 5: Earth Resources	
Mon, May 12	18	Energy Resources	Chapter 14
Wed, May 14	19	Riches in Rock: Mineral Resources	Chapter 15
		Part 6: Processes and problems at the Earth's Surface	
Fri, May 16	20	Landslides and other Mass Movements	Chapter 16 & Inter. F
		No homework: prepare for Midterm II	Sat May 17 Field trip 9:00 AM Scripps Pier
Mon, May 19		Midterm 2 (lectures 16 - 20)	Chapt. (12-16) Inter. F
Wed, May 21	21	Streams and Floods	Chapter 17
Fri, May 23	22	Oceans and Coasts	Chapter 18
		6 th homework: lectures 21 -24	
Mon, May 26		University Holiday (Memorial Day)	
Wed, May 28	23	Earth's Atmosphere and Climate; Storms	Chapter 20
Fri, May 30	24	Glaciers and Ice Ages	Chapter 22
		No homework: prepare for Final	
Mon, June 02	25	Global Change in the Earth System	Chapter 23
Wed, June 04	26	Climate Change: Climate Reality Project	To be provided
Fri, June 06	27	Peak Oil, Coming Energy Mess & Whither the Environment?	Chapter 14 & Lecture

Final: Friday of Finals week, TBA