

SIO10WI16: "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 a lecture on a topic of high current interest: Global Change.

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 SIO10WI16
Lectures and homework can be found at this web site

Grading: Grades will be based on weekly homework (30%), two midterms (20 and 15%), 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 page for the final).

Field trips: We will offer a beach walk (on 2 two 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.

Lectures and Problem sessions: I recommend that you attend the lectures but they are not mandatory except for Lectures 6 and 7 on Minerals and Rocks. In the problem sessions in the following two weeks this lecture will be reviewed showing you actual rocks. In the following session 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 lecture 'Global Change in the Earth System' will serve as a summary of the course. If you want to be informed about problems that will dominate your lives for at least the next 50 years and a good grade it is worth attending the last lecture.

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.

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

Location and Times: Humanities and Social Sciences 1330, MWF 11:00-11:50pm
Weekly problem sessions with TA (all sessions held in York 3030)
The times will be sorted out at the first lecture.

Contact information: Teaching

John Sclater: (858) 534-5031, jsclater@ucsd.edu, 4034 Ritter, GRD at SIO.
TA: TBA

Adminstration

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SIO10WI16 : Schedule of Lectures

Date	Lec. #	Lecture Title	Reading Assignment
		Part 1: Our Island in Space	
Mon, Jan. 04	1	Introduction, What is Geology,	Prelude
Wed, Jan. 06	2	Earth Systems, Cosmology,	Chapter 1
Fri, Jan. 10	3	Journey to the Center of the Earth	Chapter 2
		1 st homework lectures: lectures 1-3	
Mon, Jan. 11	4	Drifting Continents and Spreading Seas	Chapter 3
Wed, Jan. 13	5	Plate Tectonics I	Chapter 4
Fri, Jan. 15	6	Plate Tectonics II	Chapter 4
		2 nd homework given: lectures 4-6	
		Part 2: Earth Materials	
Mon, Jan. 18		Martin Luther King Day	Holiday
Wed, Jan. 20	7	Magma and Igneous Rocks	Chapter 6 & Interlude B
Fri, Jan. 22	8	Sediments, soils and Sedimentary Rocks	Chapter 7
		3 rd homework lesson: lectures 7-8	
Mon, Jan. 25	9	Metamorphism: a Process of change	Chapter 8 & Interlude C
Wed, Jan. 27	10	Volcanic Eruptions	Chapter 9
Fri, Jan. 29		Midterm 1 (Lectures 1-10)	Chapter (1-9)
		No homework: prepare for Midterm	Sat Jan 26 Field trip
		Part 3: Tectonic Activity of a Dynamic Planet	
Mon, Feb. 1	11	Earthquakes I: Causes, Seismic Waves, Where occur	Chapter 10
Wed, Feb. 4	12	Earthquakes II: Damage, Tsunami and Prediction	Chapter 10 & Interlude D
Fri, Feb. 5	13	Earthquakes III:	Chapter 10
		4 th homework given: lectures 11 - 13	
Mon, Feb. 8	14	Crustal Deformation and Mountain Building I	Chapter 11
Wed, Feb. 10	15	Crustal Deformation and Mountain Building II	Chapter 11
		Part 4: History before History	
Fri, Feb. 12	16	Deep Time: How Old is Old	Chapter 12 & Interlude E
		5 th homework lectures 14-16	Sat Feb 13 Field trip
Mon, Feb. 15		Presidents Day	Holiday
Wed, Feb. 17	17	A Biography of Earth	Chapter 13
		Part 5: Earth Resources	
Fri, Feb. 19	18	Energy Resources	Chapter 14
Mon, Feb. 22	19	Riches in Rock: Mineral Resources (Power Save?)	Chapter 15
Wed, Feb. 24		Midterm 2 (lectures 11 - 19)	Chapters (10 - 15)
		6 th homework given: lectures 17 - 19	
		Part 6: Processes and problems at the Earth's Surface	
Fri, Feb. 26	20	Landslides and other Mass Movements	Chapter 16 & Interlude F
Mon, Feb. 29	21	Streams and Floods	Chapter 17
Wed, Mar. 2	22	Oceans and Coasts	Chapter 18
Fri, Mar. 4	23	The Earth's Atmosphere and Climate	Chapter 20
Mon, Mar. 7	24	Glaciers and Ice Ages	Chapter 22
Wed, Mar. 9	25	Global Change in the Earth System C	Chapter 23
Fri, Mar. 11		Review	

FINAL: TIME TO BE ANNOUNCED