

Synopsis: Earth is a dynamic planet. As a consequence of these dynamics, natural disasters occur that influence the habitability of the planetary surface that we inhabit. Earthquakes, volcanic eruptions, floods, landslides and climate change occur episodically. This course will consider causes, consequences and predictability of these events. During the past few centuries, human activities have had increasing impact on the behavior of the surface environment, as our growing population has utilized increasing quantities of water, energy, and minerals. These impacts also perturb the stability of the planetary environment, creating a new level of crises that must be faced by coming generations.

COURSE OUTLINE

approx. # of lectures

I. <u>The Earth</u>	6
a. Internal structure and composition	
b. The rock cycle	
c. Plate tectonics	
d. California geology	
e. Biogeochemical Cycles	
f. Mass Extinctions	
II. <u>Geologic Hazards</u>	7
a. Geomorphology - faults, erosion, deposition	
b. Earthquakes and tsunamis - causes, effects, prediction	
c. Volcanic eruptions - past, future	
d. Mass movement - landslides, subsidence	
f. Floods - hydrologic cycle, runoff, erosion	
III. <u>Natural Resources</u>	7
a. Surface Water	
b. Ground Water	
c. Minerals and building materials	
d. Hazards of Mining	
e. Energy - fossil fuel	
f. Energy - nuclear, hydro, solar, geothermal	
g. Soil and Agriculture	
IV. <u>Environmental Problems</u>	7
a. Toxic chemicals	
b. Sewage disposal, Solid waste disposal	
c. Nuclear waste disposal	
d. Acid rain and smog	
e. CO2 and Climate (3)	

Textbook: Carla W. Montgomery, Environmental Geology, McGraw/Hill 10th ed.

Grading: 2 Mid-term exams, 20% and 25%. Final exam: 25%. Laboratory 20%; Field Trip 10%. You must pass the lab component to pass the course. For P/NP option, P requires a C or better. Extra credit with attendance and participation through the TopHat App up to 5%. Extra credit with JEP 5%. There will be no other form of extra credit.

Office hours: Monday or Friday 11:30 am - 12:30 pm or by appointment with Prof. Barbot, ZHS 105, sbarbot@usc.edu.

Field trip: Saturday October 27 or Sunday October 28, 8:00 am to 5:00 pm. The field trip is mandatory and counts 10% of total grade. If you cannot attend, write a paper on the science behind climate change, graded accordingly.

Final exam: Tuesday, December 11, 2018, 11 am – 1 pm.

GEOL 108Lg Tentative schedule of lectures and reading list

<u>Date</u>	<u>Topic</u>	<u>Chapter</u>
Aug. 21	Introduction	
23	The solar system	1
28	The energy cycle	15
30	Matter	2, 13
Sept. 04	The rock cycle	2
06	Plate tectonics	3
11	Earthquakes	4
13	Earthquakes	4
18	Volcanos	5
20	Volcanos	5
25	Mid-term I	1-5,13,15
27	The hydrological cycle	
Oct. 02	Groundwater	11
04	The ocean	
09	The weather	
11	Ocean crises	
16	Mass wasting	8
18	Catch-up lecture	
23	Mid-term II	
25	Geology and life	
27	Field trip	Field guide
28	Field trip	Field guide
30	Ecosystems	
Nov. 01	Paleoclimate	10
06	Paleoclimate	
08	Climate change	
13	Sea-level change	
15	Natural resources	12,13
20	The anthroposphere	
22	<i>No class. Thanksgiving holiday.</i>	
27	The anthroposphere	
29	The anthropocene	
Dec. 11	Final exam (11 am – 1 pm)	

Lecture content is subject to change without warning.

GEOLOGY 108 Tentative LAB SCHEDULE

REMEMBER TO READ EXERCISES BEFORE LAB

<u>Week Beginning</u>	<u>Topic</u>
Aug. 20	No lab
27	Reading maps
Sept. 03	Minerals
10	Plate tectonics
17	Earthquakes
24	Volcanos
Oct. 01	Rivers and floods
08	Groundwater
15	Water pollution
22	Climate proxies
29	Air pollution
Nov. 05	Energy resources
12	LA County Museum
23	Lab Final

Lab Handouts will be given out each week. Read the material before the lab. Each lab will start with a quiz.

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Field Trip on San Andreas: Oct. 27 (Saturday) or Oct. 28 (Sunday) 8:00 am - 5:00 pm.

Academic Accommodations: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP can be reached at ability@usc.edu and is open 8:30am-5:00pm Monday through Friday. The phone number for DSP is 213-740-0776.

Academic Integrity: University policies on academic dishonesty are printed in SCAMPUS. 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 failure in the class and possible expulsion (see <https://policy.usc.edu/student/scampus/>). Please don't make us have to turn you in! And remember that even the appearance of impropriety can be a concern.