**Spring 2017---GEOL. 108L Crisis of a Planet**

**Lecture (SGM 123): TTh 11:00 - 12:20 PM**

**Laboratory (ZHS B65)**

**Instructor:**

 Prof. Will Berelson (berelson@usc.edu) ZHS 227

**Teaching Assistan**ts**:**

 **3** TBD

**Textbook:**  "Environmental Geology" by C. Montgomery, 10th edition, McGraw Hill (earlier editions are fine)

**Learning Objective—Class Premise:**  This is a GE-E Physical Sciences class and, as such, includes a mandatory lab. “Crisis, What Crisis” was the title of a record album long ago but may also serve as a punch-line to much of the way society views hazards and global change. “Didn’t see that coming” is a common phrase applied to natural hazards on the news perhaps, but not to someone in Earth Sciences and not to someone who’s taken GEOL 108! We will learn, as an Earth Scientist, how and why ‘natural’ events that threaten lives and wipe out billions of dollars occur. We will learn how earth history records such events and gives us a handle on how often and where they occur. We want this GE class to cover a broad spectrum of natural hazards and events, thus we will cover a lot of topics, never going too deeply BUT trying to impress upon you the importance of understanding a process, for example landslides, from all scientific angles. Your instructor and TA’s are earth scientists, we really enjoy getting our hands dirty! The weekly labs are meant to give you some feel for geologic problem solving that also means hands-on problem solving. Labs are required, attendance is mandatory, you must pass the lab to pass the class. There will be a field trip that will also be a mandatory portion of this class. We want USC students to leave this class with an understanding of foundational geologic information and knowledge of the processes that underlie hazardous events. Deeper insights into this topic can really help strengthen a student majoring in business, communications, policy etc. Understanding natural hazard risk is a necessary, imperative part of living just about anywhere, certainly in southern California!

**Grading:**  Three exams, each covering 1/3 of the course material = 25% + 25% + 30% = 80%

This unequal allocation of exam points will be explained in class, basically, your best exam score will count for 30% of your grade!

Laboratory quizzes each week total = 20%

 TBD—I may employ clickers during lecture as attendance monitors and this will be counted for extra credit. There will be NO other extra credit.

 Again, laboratory attendance (weekly) is mandatory, if you miss a lab and can’t make it up, you will get poor lab grade.

 Overall grades will generally fall into A’s, B’s etc. by >90%, 80-90%, etc. A curve will be applied if too many scores are low.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**GEOL 108 Syllabus**

**(**NOTE: Syllabus is ‘fluid’, it will change, updated versions will be posted)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week # | Date | Lecture Topic | Lab Topic | Book Chapter |
| 1 | Jan. 10 | Introduction--Syllabus--Earth System Science | No Lab | 1 |
|  | Jan. 12 | Origin and Structure of Earth |  |  |
| 2 | Jan. 17 | Rock Cycle | Reading maps | 2 |
|  | Jan. 19 | Plate tectonics |  | 3 |
| 3 | Jan. 24 | Earthquakes-Introduction | Plate Tectonics | 4 |
|  | Jan. 26 | Earthquakes-II |  |  |
| 4 | Jan. 31 | Earthquakes-III | Earthquakes |  |
|  | Feb. 2 | Earthquakes Prediction-Risk analysis |  |  |
| 5 | Feb. 7 | Volcanoes-I | Volcanoes | 5 |
|  | Feb. 9 | Volcanoes-II |  |  |
| 6 | Feb. 14 | Exam | Rivers/floods |  |
|  | Feb. 16 | Hydrologic Cycle |  | 6 |
| 7 | Feb. 21 | Groundwater | Groundwater | 11 |
|  | Feb. 23 | Gravity slides--Mass movement |  | 8 |
| 8 | Feb. 28 | Coastal Hazards | Mass Wasting | 7 |
|  | 2-Mar | Oceanic Hazards |  |  |
| 9 | 7-Mar | Fossil Fuel | Coastal Hazards | 14 |
|  | 9-Mar | Other Energy Systems |  | 15 |
| 10 | Spring Break |   |   |  |
|   | Spring Break |   |   |  |
| 11 | 21-Mar | Catch up lecture | Minerals  |  |
|  | 23-Mar | Solar Radiation Balance |  |  |
| 12 | 28-Mar | Exam | Energy Balance |  |
|  | 30-Mar | Climate Sytems, Paleoclimate |  | 10 |
| 13 | 4-Apr | Air Pollution | Toxic waste | 18 |
|  | 6-Apr | Anthropocene-I |  |  |
| 14 | 11-Apr | Anthropocene-II | Air pollution |  |
|  | 13-Apr | Deserts and land use |  | 12 |
| 15 | 18-Apr | Ecology and Geology |  |  |
|  | 20-Apr | Geology and Medicine/Health |  |  |
| 16 | 25-Apr | Sustainability and minerals |  |  |
|  | 27-Apr | Catch up lecture |  |  |
|  | TBD | Final Exam |  |  |

**Blackboard and TopHat:** this course will make extensive use of the Blackboard online system. TopHat is an in-class interactive system that allows us to communicate digitally and allows me to see if I am being an effective teacher and to monitor attendance. I also use it to show the kinds of questions that will be on the exams.

**Students with Disabilities**

Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed. Please be sure the letter is delivered to me as early in the semester as possible, well before the first midterm. DSP is open Monday-Friday, 8:30-5:00. Their phone number 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 http://web-app.usc.edu/scampus/wp- content/uploads/2007/08/appendix\_a.pdf). Please don’t make us have to turn you in!