SYLLABUS

Earth Science/ Environmental Studies 113

Spring 2018
Engineering and Environmental Geology
M, W 12:30 to 1:45 pm

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Office hours: Webb Hall 1111, MW, 1:45 - 3 pm or by appointment
TA: Dillon Osleger
Office hours: TBD, Webb Hall 111

LEARNING OBJECTIVES

• Apply your knowledge of geologic principles and processes to engineering problems.
• Work quantitative exercises to gain experience in solving the kind of problems engineering geologists are confronted with.

I believe, as does my advisor Ed Keller, that the role of education is not only to teach understanding and form regularity in tasks, but to instill curiosity, because curiosity is what will inspire a love for knowledge and understanding. After that, students may pursue truth and do creative research as well as assist others through their own teachings and experiences. “If you want to build a ship, don’t find people to gather wood, don’t assign them tasks, and don’t force them to work all day, instead, teach them to long for the endless intensity of the sea.” That being said, there will still be assignments that are due on specific dates as noted below, but above all, ask questions and follow your curiosity!

USBR Engineering Geology Field Manual 1998 (on Gauchospace)
AEG Professional Practice Handbook 1993 (on Gauchospace)

Lecture 1: M, April 2nd
Introduction
Reading Keller Ch 1; Back of the envelope calculations

Lecture 2: W April 4th
Rock types and properties
Reading: Keller Ch 2; USBR Chs 1, 2. USBR Ch 1; and Organization of reports

Lecture 3: M April. 9th
Rock mechanics
Reading: Keller Ch 2; USBR Chs 4, 5; USDA Rock classification
Homework #1 Due: Exponential Growth and Back of The Envelope Calculations
Lecture 4: W April. 11th  Meet in Field, UCSB. Rock Description

Lecture 5: M April. 16th  Soil types and properties.
Homework #2 Rock Mechanics; Due at beginning of class.

Lecture 6: W April. 18th  Soil Descriptions
Homework #3 Rock Description; Due at beginning of class

Lecture 7: M April. 23rd  Meet in the field UCSB: Soil Descriptions
Reading: Keller Ch 3; USBR Ch 3

Lecture 8: W April. 25th  Soils mechanics
Reading: Keller Ch 3; USBR Ch 3 ; ASTM 2015
Homework #4 Soil descriptions; Due at beginning of class

Lecture 9: M April. 30th  Soils mechanics cont.

Lecture 10: W May. 2nd  Soils Mechanics cont.
Homework #5 Soil mechanics; Due at beginning of class

Lecture 11: M May. 7th  Ecology and Geology
Reading Keller Ch 4

Lecture 12: W May. 9th  Natural Hazards
Reading: Keller Ch 5

MIDTERM EXAM MONDAY MAY 14: Covers Chs. 1-4

Lecture 13: W May. 16th  Landslide Hazard
Reading: Keller Ch. 7 ;USGS LS 2008

Lecture 13: M May. 21st  Landslide Hazard cont.
Homework #6. Natural Hazards: Due at beginning of lecture

Lecture 14: W May. 23rd  Landslide Hazard cont.

Lecture 15: M May. 28th  Flooding
Reading: Keller Ch. 6
Homework #7: Landslides: Due at beginning of lecture

Lecture 16: W May. 30th  Coastal
Reading: Keller Ch. 10

Lecture 17: M June. 4th  Earthquake Part 1
Reading: Keller Ch 8

Lecture 18: W June. 6th  

Earthquake Part 2
Reading: Keller Expert Witness paper; AEG Prof Practice Handbook

**FINAL EXAMINATION: TUESDAY, JUNE 12, 12:00 PM - 3:00 PM**
**FINAL REPORT IS DUE THE DAY OF THE FINAL!**

**Evaluation of Performance**

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COURSE WILL BE CURVED!