SYLLABUS

Earth Science/ Environmental Studies 113
Fall 2017
Engineering and Environmental Geology, Webb 1025
T,Th 12:30 to 1:45 pm

Professor Edward A. Keller
keller@geol.ucsb.edu
TA Paul Alessio
Office hours: Webb Hall 1109, T, 1:45 -3 pm or most any time I am in my office

LEARNING OBJECTIVES

• Apply your knowledge of geologic principles and processes to engineering problems.

• Work problems to gain experience in solving the kind of problems engineering geologists are confronted with. You can expect about 5 to 10 hrs/week (for some weeks) work on problems.

I strongly believe, as did William Ellery Channing, that the role of Education is not to stamp professor's minds irresistibly on the student's, but to stir up their own thoughts and questions; not to make them see with the professor's eyes, but to look inquiringly and steady with their own; not to impart the student with inflexible dogma or set amount of knowledge, but to inspire a love for truth; and not to form an outward regularity but to tap inward springs that results in increased understanding, desire and ability to pursue creative research and assist others through their own teaching (modified after William Ellery Channing,1837). We also believe as stated by Albert Einstein -- “Imagination is more important than knowledge”. This results from the understanding that knowledge is finite while imagination has no bounds!

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

Lecture 1: T Jan. 10
Introduction
Reading: Keller Ch 1; USBR Ch 1 and AIPG Organization of reports
Homework #1 Exponential Growth; Due T Jan. 17, at beginning of class

Lecture 2: Th Jan. 12
Rocks
Reading: Keller Ch 2; USBR Chs 1, 2

Lecture 3: T Jan. 17
Rocks cont. Meet in Field, UCSB
Reading: Keller Ch 2; USBR Chs 4, 5; USDA 2012; Rx Des Form
Homework #2 Rock Description; Due Th Jan. 26, at beginning of class.
Field work Sunday Jan. 22 at noon at UCSB

Lecture 4: Th Jan. 19
Rock cont.
Homework #3 Rock Mechanics; Due T Jan. 31., at beginning of class

   Reading: Keller Ch 3; USBR Ch 3
Lecture 7  T Jan. 31  Soils cont.
   Reading: Keller Ch 3; USBR Ch 3 ; ASTM 2015
   Homework #4 Due T Feb. 7 at beginning of class
Lecture 8 Th Feb.  2  Soils cont.
Lecture 9 T Feb. 7  Soils cont.  Homework #5 Due T Feb. 14 at beginning of lecture
Lecture 10 Th  Feb. 9  Ecology and Geology
   Reading Keller Ch 4
Lecture 11:  T Feb. 14  Natural Hazards
   Reading: Keller Ch 5

Mt Exam Thursday  Feb. 16 : Covers Chs. 1-4

Lecture 12: T  Feb. 21  Landslide Hazard
   Reading: Keller Ch. 7 ; USGS LS 2008
   Homework: Homework #6. Due T  Mar. 7 at beginning of lecture
Lecture 13  Th Feb.23  Landslide Hazard cont.
Lecture 14:  T Feb. 28  Landslide Hazard cont.
Lecture 15:  Th Mar.  2  Flooding
   Reading: Keller Ch. 6
   Homework #7. Due Th Mar. 9 at beginning of lecture
Lecture 16:  T Mar. 7  Coastal
   Reading: Keller Ch. 10
Lecture 17  Th Mar. 9  Earthquake Part 1
Lecture 18:  T Mar. 14  Earthquake Part 2
   Reading: Keller Ch 8
Lecture 19:  Th Mar. 16  Professional Practice
   Reading: Keller Expert Witness paper; AEG Prof Practice Handbook

FINAL EXAM: Monday March 20 , Noon to 3pm; Closed book (1hr ), open book and notes (2 hr).

Evaluation of Performance
Midterm 20%
Homework Problems 40%
Final 40%