

## Syllabus for ESS5: Environmental Geology of Los Angeles

**Instructor:** Elizabeth (Liz) Johnson  
Office: 3687b Geology  
Email: [johnsoel@ucla.edu](mailto:johnsoel@ucla.edu)  
Web page: <http://www.gps.caltech.edu/~liz>  
Phone: 825-9084  
Office Hours: F 11-3 and by appointment

**TA:** Catherine Shirvell  
Office: 5631 Geology  
Email: [shirvell@ucla.edu](mailto:shirvell@ucla.edu)  
Phone: 206-0650  
Office Hours: TBA and by appointment

**Course web page:**  
[http://www.ess.ucla.edu/academics/courses/web/fall\\_2005/ess\\_5/](http://www.ess.ucla.edu/academics/courses/web/fall_2005/ess_5/) or  
<http://www2.ess.ucla.edu/~ejohnson/ess5.htm>

**Schedule:**  
Classes: MWF, 10:00AM – 10:50AM, Geology 3656  
Discussion sections: F, 11-12, 12-1, 1-2 PM, Geology 3657

**Textbook:**  
Merritts, De Wet, Menking, *Environmental Geology*.

**You will also need...**

...access to a computer (word processing and spreadsheet programs; internet)  
...a calculator

**Grading Policy:**

1. Write all assignments in your own words, except when you are quoting, with attribution, a few special words that must be quoted literally. Discussing assignments with other students is fine, and is expected in class and discussion section activities, but your fingers must push the keys or pen, as appropriate. Cutting and pasting someone else's work does not cut it, and you will get pasted for it. Plagiarism (quoting more than six consecutive words without attribution, or representing others' major ideas as your own) and cheating will be treated harshly.
2. All assignments must be turned in on time to receive full credit. In general, participation activities (in-class exercises, discussion section activities) are due at the end of the respective class period/section. The due date and time for each homework assignment will be written on the assignment. Late material will not be accepted. Extensions will be considered on a case-by-case basis by contacting the professor or TA **before** the due date. Examples of valid reasons for an extension include: significant illness, family emergencies. Examples of invalid reasons include: partying too hard, forgot you are going on vacation.

**Grading:**

Class participation activities (5%) (Drop 2 of 27)

Homework (24%)

Discussion section activities (16%) (Drop lowest 1 of 9)

Midterm (15%)

Final (30%)

Project (10%)

**How to do well in this class:**

Be present, awake, and thinking during class and discussion sections. This means getting enough (>7hr) sleep at night, no matter how fun it is to play Halo2 with your friends.

Respect your fellow students, TA, professor, and equipment.

Be prepared. Do the reading assignments before class. Turn in all assignments.

Look beyond the book. Some assignments will require information not in the book. Plan to use the library, internet, or other resources for homework.

And last but not least... ask questions and participate!

**Course Objectives:**

1. Analyze global and local environmental and resource issues and produce scientifically sound opinions for each issue.

2. Assess the hazard potential of an area by observing and quantitatively interpreting data.

**Ancillary goals:**

1. Critically assess information using the principles of the scientific method.

2. Improve quantitative skills with back-of-the-envelope calculations.

**Topics:**

Resources and Earth processes:

The scientific method

Population growth

Structure of the Earth/Los Angeles

Energy and mineral resources

The geologic time scale

Geologic hazards:

Plate tectonics

Earthquakes

Tsunamis

Volcanoes

Landslides

Humans affecting the environment:

Soils and landfills

Water resources

Air pollution

Oceans

Global warming

## Projects:

To receive credit for the project portion of the course, you must complete option 1 or 2 below. Expect to spend a total of about 20 hours of work on your trip/project. It is **YOUR** responsibility to make sure you turn in the paper or handouts associated with each project by **5PM Nov. 30**. The assignment will be docked 20% for each day it is late. Remember, this is worth 10% of your grade.

**1. Field trip Oct.8-9**, Searles Lake. Collect rare minerals dredged from a dry lake, tour a mineral processing factory, investigate geologic evidence of climate change in southern CA (think *Planet of the Apes* landscapes). Visit the San Andreas fault. Brief readings and discussions during the trip, complete summary handout. We will be camping on Oct.8. Sleeping bags and other equipment are available if you don't have your own.

**OR**

**2. Field trip Saturday Oct.22**, Natural History Museum. Peruse the mineral and fossil displays and tour the special exhibit, "Collapse?" which investigates the role of resource management in the success or collapse of five societies. Complete the worksheet about what you have learned. You can also take this trip on your own time, but you will need your own transportation to the museum. Reservations for the special exhibit are recommended.

**AND**

Write a short **term paper** on the following topic:

- Choose an environmental issue or hazard that affects an area of Los Angeles or your hometown community (small city, town, or council district). This should include a scientific summary of the problem, who is responsible for decisions, what policies have been set in the last few years, how the problems affect you or the people who live there, how well proposed solutions are working, how much the solutions will cost, and how you feel about them. Visiting the area or a relevant site is encouraged, if possible, and will provide you an opportunity to take pictures that can be used as figures in your paper. Don't trespass or do anything else illegal!

You must e-mail a title and brief description of your paper to the professor by

**5PM Nov.9**. I encourage you to discuss your ideas with me beforehand.

The text must be typed, with a length of 5-7 pages double-spaced 12 point type. Up to 5 pages of figures and tables may also be included. It is strongly suggested that you include at least one figure in your paper. Any included tables and figures must have an explanatory caption and must be referred to in the text. All borrowed material must be properly attributed, whether paraphrased or directly quoted (this includes web sites!). Any style of reference is fine as long as the reader can infer precisely and gain access to the source of the material used. Proper English grammar and spelling is required. Again, the paper is due **5PM Nov. 30**, if you choose this option.