

GE 207 – Environmental Geology – Fall 2005

Tuesday: 9:40 to 11:00 DA 165

Thursday: 9:40 to 2:00 DA 165

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Office hours: Tuesday 1:00 to 2:30 and Thursday 3:00 to 4:30 or by appointment

About the course

The importance of geology extends from local factors, such as a good/safe location to build a home, to global factors, such as the world's dependence on Mid-East oil. In this course you will learn a variety of ways in which geological processes influence the way we live. With your greater awareness of geologic processes after this class, you will be cognizant of the importance to understand basic geologic principles and how they relate to environmental planning, political, social, and economic decisions.

In this course you will learn the basic tools of geology – rocks, minerals, surficial materials, and plate tectonics. You will then apply these principles to a variety of local and global environmental issues.

Class structure

The class is heavily based on field learning. Tuesdays are designed for information sessions where you will learn the background material necessary to perform the tasks assigned for Thursday's field exercise. Thursdays will consist of field learning and several hours of data collection; we will compile the data if there is time.

Field exercises

We will be in the field on Thursdays from 9:40 to 2:00 pm (until mid-November). Since some trips are an hour or more away, we will depart campus promptly at 9:40 to maximize field time, so if you are late you will miss the class. Makeups (for a missed lab) are not an option, unless it is on official Skidmore business and I am notified well in advance.

To be productive and happy in the field you need to be prepared. We will go into the field rain or shine. We will stay inside only if the weather is hazardous (I have never had to cancel a trip, yet). You must be prepared for the weather. You should have good rain gear, sturdy footwear, warm clothes, and anything else you can think of to keep you comfortable in the autumn weather. A snack might be good if you get hungry in the afternoon. You should also have a good field notebook in which you can record data and observations (sturdy cover or clipboard) and that can survive inclement weather. You can purchase these notebooks at <http://www.forestry-suppliers.com>. Just type "waterproof notebook" in search engine and choose the one you want (just make sure there is enough paper for the semester). The cost is under \$10.

Quizzes

There will be one quiz a week held during the last 15 minutes of class on Tuesday. These quizzes are designed to make sure you are up to speed with the material. The material could cover anything from what you did in the field, to what you just learned that day, or even the reading assignments.

Exams

There will be no exams during the semester.

Disability accommodations

Any student with special needs requiring accommodations should give me his/her memo of accommodations in a timely manner. It is the student's responsibility to follow up with me regarding all accommodations that require my participation. The student is advised to ensure full use of testing accommodations by coming to talk to me by next week. The Coordinator for Students with Disabilities is located in the Office of Student Academic Services. You can make an appointment with her by calling extension 5180.

Any student with special needs for field work should discuss this with me so we can make the appropriate accommodations.

Assignments

You will be responsible to complete all field assignments and homework assignments. All assignments will be typed and all figures or graphs will be neatly prepared and sequentially numbered (when appropriate). All graphs should be made using computer software. All field assignments are due at the **beginning** of the following lab session. Late assignments will lose 10% per day (including weekends, you can always email me to let me know that you put the assignment under my door). Prepare in advance...printer problems (unless college wide) is not an acceptable excuse, so don't wait until the last minute to finish the assignment. Hand in your assignment early if need be. A final note, there will be no extensions unless ordered by the Dean. This creates a level playing field for all of you.

Final Project and Presentation

You will be required to write a paper on an Environmental Geology issue about your hometown. This may seem difficult at first, but as the semester progresses you will be enlightened to several environmental issues that affect your hometown. This paper will follow an outline that will be presented to you later at a later date. You will also be required to present your paper to the rest of the class on the last Tuesday of classes. **You are required to attend the presentation session...NO EXCEPTIONS!**

Textbook and Readings

Introduction to Environmental Geology, Third Edition: by Edward Keller

I will hand other reading materials during class.

Grading

Grading percentages are as follows:

Weekly quizzes: 25%
Field assignments: 40%
Draft of hometown report: 10%
Final hometown report: 10%
Final presentation: 10%
Class participation and attendance: 5%

Please notice that class participation can raise or lower your grade by half a letter grade. These points are not awarded automatically; you must participate in class discussions to receive the best grade possible. Obviously, if you are absent you cannot participate in class, so it is in your best interest to come to every class.

Attendance

I will not take attendance, but strongly encourage you to come to class each day. There will not be make-up trips to the field (logistically difficult to impossible). Since many of the projects require group data collection, your classmates need you to attend class on Thursday. Since you have weekly quizzes, and there will be no make-ups, you should attend class on Tuesday as well.

Email

It is very important that you have, use, and check your Skidmore email account frequently. I will use email for announcements about class activities (at least one day in advance). Some assignments may be turned in using email. The emailed assignments are due by the beginning of class (remember each email is stamped with a date and time).

Student Objectives

- Read and complete all assignments before class so you can participate and ask questions.
- Understand the technical terms so the class can communicate effectively.
- Use class knowledge to explore out-of-class environmental situations (i.e. put your knowledge to use outside of class and ask questions if you don't understand)
- Become an active and critical thinker about geological implications on the hundreds of environmental issues that face us each day.
- Think outside of the box

End of course self-assessment (learning goals)

By the end of the semester you should be able to:

1. Apply a scientific (geological) approach to environmental "problems".
2. Do basic surveying.
3. Assess the landscape for geological hazards such as landslides, floods, or sinkholes.
4. Illustrate the systems approach to the environment and the role that geology plays in the system.
5. Analyze the human and natural factors that cause flooding, the reoccurrence of flooding, and geologically flood prone areas.

6. Identify the setting and temporal periods of potential unstable slopes.
7. Appreciate the often-undervalued importance of our soil.
8. Describe the setting, timing, and hazards of earthquakes and volcanoes.
9. Assess global climate change in terms of the past geologic record and the present geologic processes.

GE 207 - Environmental Geology

Meeting times: T: 9:40 to 11:00 and Th: 9:40 to 2:00

Room: DA 165

Tuesday

Thursday Field Exercise

September 6

September 8

Introductions

Systems approach/Katrina/Topo Exercise

September 13

September 15

Minerals

Read 58-72

Surveying

Read 2-29

September 20

September 22

Rocks

Read 72-94

Rock and Mineral Lab

September 27

September 29

Plate Tectonics

Read 31-57

Hometown Report Introduction

Rocks, Sea-level, and Tectonics

October 4

October 6

Rivers

Read 202-235

Rivers and Floods

October 11

October 13

Weather and Climate

Read Handout

Hand in Hometown proposal

Yom Kippur

No Class

October 18

October 20

GSA

No Class

Climate and Weather

October 25

October 27

Slope Processes, Landslides, and Subsidence

Read 236-267

Landslides

Read 240-270

November 1

November 3

Karst

Read: handout

Karst Processes

November 8

Groundwater

November 10

A Civil Action

November 15

Global Climate Change

Read: 530-556

November 17

Climate Change

Hand in Draft of Hometown Report

November 22

Soils

Read 456-478

November 24

No Class - Happy Turkey Day!

November 29

Coastal Processes

Read 268-295

December 1

Coastal Process Lab

December 6

Glacial Landforms

Read Handout

Hand in final Hometown Report

December 8

Project presentations

December 13

Looking at the bigger picture

Read: 558-581

Class evaluations
