Geology 180 -- Introduction to Environmental Geology: Our Changing Earth  
Spring, 2001  
SYLLABUS

Class Hours: MWF 11:00-11:50 p.m., R 11:00-12:50 Shaw Smyser 115

Professor: Carey Gazis  
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Office Hours: MWF 10:00-10:50 p.m. or by appointment

Required Texts:  
1. Environmental Geology by Merritts, De Wet, and Menking  
2. Taking Sides: Clashing Views on Controversial Environmental Issues, Ninth Edition  
edited by Theodore Goldfarb

Course Description: This is a 100-level course aimed at introducing students to topics in Environmental Geology. We will explore the Earth’s surface environment through geologic time with particular emphasis on changes in the Earth in recent times caused by human activity (e.g., increase in atmospheric greenhouse gases, soil erosion, water pollution, etc.). In addition, we will examine the effects of geologic hazards (such as earthquakes, volcanoes, and floods) on humans.

Student Learning Objectives:  
1. Students can analyze topics related to the Earth’s surface environment using the scientific method.  
2. Students understand the role that plate tectonics plays in controlling Earth surface processes.  
3. Students view changes to the Earth’s surface over all of geologic time as well as during the time of humans.  
4. Students can discuss some of the ways that humans have affected their natural environment (e.g. addition of greenhouse gases to the atmosphere, effects of acid mine drainage, etc.).  
5. Students understand the processes the give rise to natural disasters (volcanoes, earthquakes, floods, landslides) and can analyze how a given geologic hazard might affect humans.  
6. Students dispute different sides of environmental issues and can formulate rebuttals to arguments.
Required Elements:

Homeworks – There will be several assignments, either take-home or in-class, throughout the quarter. Late policy: 10% off for each day that homework is late.

Quizzes – Throughout the term, there will be about six short quizzes that will test your recall of important concepts covered in recent lectures. These will be unannounced and will take about 10 minutes. These will help you see how well you are understanding the material and will help me see how well I am teaching. There will be no make-up quizzes. Your lowest quiz grade will be dropped when your overall grade is calculated.

Class Discussion and Presentations – Thursday classes are two hours long in order that we can spend some of this time watching movies and discussing/debating various environmental topics. Students will be given a letter grade based on their performance and participation in these discussions. Obviously, attendance at these Thursday classes will affect this grade.

Midterms – These are hour-long tests that are not cumulative. Expect a mix of multiple choice, short answer and longer answer questions. Any material from lectures and readings, including slides, movies and rock samples used in lectures, is fair game. If you have a conflict with an exam talk to me AT LEAST 7 DAYS PRIOR TO THE EXAM to discuss options. If you do not do this, you may fail the exam.

Final Exam – Similar format to midterms, but this exam is comprehensive, covering ALL material taught in class.

Grading:
Homeworks: 10%
Quizzes (5): 10%
Class Discussions: 5%
Midterm Exams (2): 25% each
Final Exam: 25%

SCHEDULE

Week 1 – March 28, 29, and 30
Topics: The Scientific Method, Introduction to Earth Systems
Reading**: Merritts Chapter 1 (pp. 2-9) and Chapter 2 (pp. 29-32, 40-59)

Week 2 – April 2, 4, 5, and 6
Topics: Earth Systems and Cycles, Population Growth, Geologic Time
Reading: Merritts Chapter 1 (14-27) Chapter 2 (pp. 29-32, 40-59) and Chapter 3

Week 3 – April 9, 11, 12, and 13
Topics: Earth History, Plate Tectonics
Reading: Merritts Chapter 3 and Chapter 4 (pp. 100-121)

Midterm 1 – Monday April 16 (covering material through April 13th)
**Week 4 – April 18, 19, and 20**
Topics: Geologic Hazards -- Earthquakes and Volcanoes
Reading: Merritts Chapter 5 (pp. 138-157)

**Week 5 – April 23, 25, 26, and 27**
Topics: Mineral Resource Use, Soil and Weathering
Reading: Merritts Chapter 5 (pp. 122-138), Chapter 6 (pp. 158-182)
*Taking Sides Issue 14*

**Week 6 – April 30, May 2, 3, and 4**
Topics: Geologic Hazards – Landslides and Floods
Reading: Merritts Chapter 6 (pp. 182-190), Chapter 7 (pp. 206-215)

**Week 7 – May 7, 9, and 10**
Topics: Surface Water and Groundwater
Reading: Merritts Chapter 7 (pp. 193-198, 220-231) and Chapter 8

**Midterm 2 -- Friday May 11 (covering material from April 18th to May 9th)**

**Week 8 – May 14, 16, 17, and 18**
Topics: The Atmosphere, Air Pollution
Reading: Merritts Chapter 9 (pp. 360-367, 380-389)
*Taking Sides Issue 12*

**Week 9 – May 21, 23, 24, and 25**
Topics: Energy Use
Reading: Merritts Chapter 11
*Taking Sides Issue 15*

*Monday May 28th – Memorial Day*

**Week 10 – May 30, 31, and June 1**
Topics: Environmental Change, Global Warming
Reading: Merritts Chapter 12, Chapter 13 (pp. 401-404)
*Taking Sides Issue 18*

**FINAL EXAM – Tuesday June 5th, 8:00 – 10:00 a.m. (covering ALL material)**

**do all reading PRIOR to the week in which it will be discussed. Read entire chapters in Merritts book. Page numbers given in this syllabus are those that will be emphasized in lectures.**

*Academic Honesty – Students are expected to be academically honest. Academic dishonesty is defined in the *Proscribed Conduct* section of the *Student Judicial Code* in the back of your academic catalog. Plagiarism is defined in this section as "the appropriation of any other person's work and the unacknowledged incorporation of that*
work in one's own work offered for credit" (CWU Undergraduate/Graduate Catalog, 2000-2001, p. 244). Plagiarism may range from an entire paper to a phrase within a sentence. When you are paraphrasing an idea that is not your own and is not common knowledge, you need to cite the source. Copying the work of other students on tests, exercises, or extra credit is also considered academically dishonest. Academic dishonesty in any form will result in a failing grade. If one student copies the work of another student, then both students will receive a failing grade.

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**Tips for Success in GEOL 180**

1) **Attend class.** It has been my experience that there is a strong correlation between attendance and performance. Students who rarely miss a class and actively participate in classroom discussions tend to perform well on tests; students who lack the discipline required for regular attendance tend to perform poorly. Therefore, I strongly encourage daily attendance. If you miss a class, have a classmate give you notes and an explanation of those notes. Feel free to come by my office if you need further clarification of the material you have missed.

2) **Take good notes.** Just being physically present in class is not enough. Write down everything on the board, make sketches of slides and overheads. Go over your notes after class and underline important ideas and clarify points while the ideas are fresh in your mind.

3) **Read textbook.** A fundamental element of a liberal education is the development of the ability to read critically. Hence, your success in this course will largely depend on the amount of time and effort you devote to the assigned readings. It is helpful to look at a chapter before it is discussed in lecture. However, the textbook is not a novel, so don’t read it like one (start to finish). Start a chapter by looking at the summary to find out what the chapter is about. Write down the big ideas on a piece of paper. Then flip through the chapter looking at the diagrams and reading the captions to understand the basic ideas. Look to the text to for clarification of ideas. Finally, after class, go back and skim the chapter to make sure you understand the concepts.

4) **Participate in exercises and discussions.** Some classes will be devoted to in-class exercises or discussions that will allow students to work with concepts covered during the lectures. They represent a vital component of test preparation. These exercises are also a good opportunity for you to ask the instructor questions.

5) **Study effectively for tests.** Studying for a test should include more than just reading over your notes. As you go over the material that was covered in class, you should highlight the important points and note any areas where you have questions or where concepts are not clear. You should then refer to your text or ask your instructor to clarify these areas. When you encounter new vocabulary words, make sure you know what they mean and also know how to use them. Review figures, particularly those that we have gone over in class.