

Class Plan Fall 2007

Geology 007 EARTH HAZARDS

<http://uvm.edu/~pbierman/classes/ehaz>

also

<https://www.uvm.edu/webct/>

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Ever wondered where in the world to live if you want to feel an earthquake? How about finding an erupting volcano? Want to buy a house and make sure it doesn't end up the victim of a landslide? Think science is interesting but were afraid to admit it? Enjoy all those disaster videos on the Discovery Channel but wonder what was really going on? If you can answer yes to any of these questions, then this course is for you.

Over 15 weeks of spring semester, we will take a world-wide odyssey examining how the Earth and its inhabitants interact in dangerous ways. You will carry away from this course a basic understanding of how Earth works and how people put themselves in harm's way because they repeatedly fail to appreciate the awesome power of our planet.

You will learn why and where earthquakes happen and how the giant waves they trigger destroy entire seaside villages. You will know where to ski to minimize your chances of becoming an avalanche victim. The next time the Cascadia subduction zone lets loose, you'll be able to tell your friends why Seattle is in ruins.

Class Goals. We have very specific goals for this class. Using a combination of lecture, demonstrations, videos, activities and discussion in section, we strive for you to:

- recognize how scientists think and learn about Earth,
- improve your understanding of how geologic processes shape human cultures and how human cultures modify the Earth,
- think and work like a scientist in sections,
- gain practical knowledge of Earth Hazards and how to avoid them as best you can
- recognize that science is fun, interesting, and relevant to your life, and
- practice discussing with your peers scientific and moral issues of political, societal, and personal importance.

EXPECTATIONS

This is a class about learning and finding out just how much fun and how interesting science can be. We have several simple and straightforward expectations of you as a student in this class:

1. We expect you to respect your classmates and faculty at all times when they voice opinions that may differ from yours. This is a class that may raise emotions. Please respect your peers' feelings. If you cannot conduct yourself respectfully, you will be asked to leave the class.
2. We expect full attendance at every class and every discussion section; such attendance will figure into your grade. We expect you to be in your seat before 11:00 and not to leave the class until the period is over at 12:15. Coming to class late and leaving class early are extremely distracting and interfere with others' ability to learn.
3. We expect you to participate in the class by asking questions and doing in-class exercises. We expect you to participate out of class by doing all assigned readings before class.
4. We expect complete academic honesty. We expect that you will neither give nor receive information on the quizzes and that assignments you hand in are your own work. Violations of this trust and our community will be handled in strictest way possible. Cheating will not be tolerated. In the past, cheating students have failed the class.

We also have high expectations of ourselves as faculty. We will come to class prepared every time with the most interesting and informative slides, videos, and demonstrations we can muster. We will have quizzes graded within a week and turned back to you. We will grade as objectively and fairly as possible using rubrics that you can check. We will treat every student with respect and we will do our best to maintain a fair and balanced learning environment in the classroom so that everyone's opinion is valued.

GRADING

We will use a variety of means to assign grades. Your grade will be based on weekly quizzes, a written assignment, your participation and performance in discussion sections, and your attendance in class. There is no final exam. There are no make ups and there are no extra credit assignments available.

Quizzes 40%. Weekly 10-minute quizzes will be given starting the third week of the semester. Each quiz will include two parts:

One part from the reading assigned for the week of the quiz

One part from the previous week's classes including information from the video and lecture.

You will be allowed to drop one quiz, either your lowest or the zero that results if you miss a quiz. There will be no make up quizzes. Plan your travel for breaks accordingly. Plan to be in your seats when class starts and stay for the entire class period so as to get all the information you might need and so as not to miss the quiz.

You will be allowed to bring one piece of paper into each quiz on which you can write whatever information you deem pertinent to help you answer the quiz questions. The paper must be your own work and may not be shared.

Discussion Section 35%. Discussion sections are a key part of this class. Specifics are provided on a separate sheet. We expect full attendance at the discussion section for which you are registered. No section switching is allowed without instructor permission.

Class Attendance 15%. We expect your attendance in all classes. We expect you to stay for the entire class period, not to come in late and not to leave early.

Paper 10%. Toward the end of the semester, there will be a short paper for which you will do research and in which you can express yourself creatively. The paper will be graded both for content and for the clarity of writing.

Any exceptions to the above requirements will only be made with a formal letter from the Deans Office, the health center, or ACCESS.

HINT! Passing this class is simple...come to every class and discussion section, do every reading, read some of the optional web sites, and spend the time needed to organize your ideas onto a sheet of paper for each quiz!

CLASS STRUCTURE

We will tackle a topic a week so the class moves fast! On Tuesday, there will usually be a quiz and a video followed by discussion. On Thursday, there will be presentations, demonstrations, and small group activities. Sometimes videos will appear on Thursday and presentations on Tuesday. We expect that the reading for the week will be done by Tuesday class time.

OFFICE HOURS

Although this is a very large class, we enjoy getting to know as many of you as we can. We will stay after class as needed to answer questions. Paul will hold an office hour each week. He is easiest to reach by email since he does part-time child care with his seven and four year olds, works in his lab, trains to do ski marathons, and spends lots of time in the field doing geology. Thus, he isn't in his office very much! Matt and Will will be in their offices, Delehanty Hall, for office hours. They will also stay after class. We are all accessible by email.

READINGS

There are a variety of readings for this class, most of them from popular sources. There is a new text book. You should purchase the following books from the bookstore or from the web or from your favorite local bookseller or borrow them from a friend:

1. The Control of Nature, John McPhee, ISBN 0374522596
2. Geology and the Environment, Pipkin et al., ISBN 9780495113058, Edition 5 ONLY

Your other readings are on electronic reserve to save trees and to save you \$\$\$\$. They may be accessed using Voyager, the library catalog. Go to <http://library.uvm.edu/>, select course reserves from the upper right, and find GEOL 007 or search under BIERMAN. These readings are on electronic reserve:

Tsunami!, May 1999, Scientific American, p. 56-65.

Tsunami: Wave of Change, 2005, Scientific American, p. 56-63.

Infamy and honor at the atomic cafe, Oct, 1999, Scientific American, 42-43.

The great radium scandal, August 1993, Scientific American, p. 94-99.

Dissecting a hurricane, March 2000, Scientific American, p. 80-85.

Wrath of the gods, July 2000, National Geographic, p. 32-70.

Abrupt Climate Change, Scientific American, November 2004, p 62-69.

"Avalanche!" Discover, December 1999, p. 88-93

Nor'easters, American Scientist, volume 81, September/October, 1993, p. 428-439

After the deluge, National Geographic, November 1999, p. 108-129.

Rain of Iron and Ice, Introduction and several chapters.

Reviews of Dr. Strangelove and Atomic Café – various authors, various dates

The triumph of fringe science, Salon, 8/03

The human impact on climate, Scientific American, p. 98-105