

Class Plan Spring 2012

Geology 007 EARTH HAZARDS

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

and

class page on BLACKBOARD for grades only

Faculty: Paul Bierman, Geology Department, pbierman@uvm.edu, 6-4411

TA: Ben Dejong, School of Natural Resources, bdejong@uvm.edu, 6-3398
Ana Vang, Department of Geology, Analeisha.Vang@uvm.edu, 6-3398

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, and activities, 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,
- 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; attendance will figure into your grade. We expect you to be in your seat before 11:30 and not to leave the class until the period is over at 12:45. 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, doing in-class exercises, and completing clicker questions. 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, and your attendance in class. There is no final exam. There are no make-ups and there are no extra credit assignments available.

Quizzes 60%. 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 semester 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.

Class Attendance 10%. 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. Attendance will be determined by clicker questions during class. You will be excused for one missed class or one clicker malfunction unless there are extenuating circumstances explained to us ahead of the absence.

Paper and Project 30%. There will be a short paper and a project with a short explanatory essay (one page each) 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. The project will be graded for originality, presentation, and the clarity of your explanatory paragraph.

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, 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.

We will use clickers during most classes to gauge learning and class attitudes. You need to purchase a clicker at the UVM bookstore and bring it to every class – without exception. No clicker, no credit for participation. You can learn more at: http://uvmbookstore.uvm.edu/search_index_results.asp?search_text=iclicker

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 ten and seven 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! Ana and Ben will be in their office, Delehanty Hall, for office hours but otherwise, they to are busy. All of us will stay after class and are accessible by email – the best way to ask us questions outside of class as most days we check and reply to 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-10: 0538737557; ISBN-13: 9780538737555, **Edition 6 please**
3. The Perfect Storm, Sebastian Junger, ISBN 006101351X

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 left, and find GEOL 007 or search under BIERMAN. These readings are on electronic reserve:

The Next Big One, April 2006, National Geographic, p.120-147

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

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

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

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

Target Earth, National Geographic, August 2008, p. 134-149

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

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

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

A Scientist, His Work and a Climate Reckoning by Justin Gillis, The New York Times, December 21, 2010

Can Nuclear Power Be Part of the Solution? Robert Costanza and others, Solutions, April 2011

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