Geology 170. Volcanoes, Earthquakes, and Civilization  
Spring Quarter Schedule 2003

Meeting: MTWR: 9:00-9:50, Black 151 or 11:00-11:50, Lind 215
Instructors: Dr. Charles Rubin
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email: charlier@geology.cwu.edu
Telephone: 963-2827 (Rubin)
Office hours: Rubin: Monday and Wednesday afternoon, 2:00-3:30 pm or by appointment

Course Description:
GEOL 170 provides an introduction to geologic processes that control volcanoes and earthquakes. I will discuss the occurrence and cause of different types of volcanic eruptions and earthquakes, stressing their relations to plate tectonic theory. The course also deals with the impact of volcanoes and earthquakes on humans, and our attempts to mitigate risks associated with them.

Expectations:
• *Attendance is required for all lectures.* Reading the text is not a sufficient substitute. My lectures cover topics in more depth and from different points of view than the text. If you do miss a class, ask a classmate to give you notes and an explanation of those notes.
• You should be on time, prepared, and ready to *listen and participate* for the full 50 minutes of each class.
• *Take good notes.* Write down everything on the board, make sketches of slides and overheads, and get all the details. Take notes during all slides and videos, *you are responsible for the material covered.* Go over your notes after class and underline important ideas and clarify points while the ideas are fresh in your head. If anything is unclear, please come see me during office hours.
• Assignments should be *neat* and completed *on time.*
• The appropriate chapters should be read before lecture, be careful not to get behind.
• You are responsible for the material presented in reading assignments, lectures, and slides/videos. If you have questions, it is your responsibility to ask during class time or during office hours. *I encourage you to ask questions in class, come to my office hours, or send me questions on e-mail.*

Student learning objectives: Develop an understanding of (1) the scientific method, (2) plate tectonics, rock types, physical properties of rocks, (3) volcanic processes, types of volcanoes, methods of eruption monitoring, and consequences of volcanic eruptions on society, (4) earthquake processes, locations of earthquakes, monitoring earthquakes, consequences of earthquakes on society.

Problem sets: There will weekly assignments during the quarter. Late assignments will be deducted 10% per day that they are late.
**Question of the week:** Each week, a question of the week will be given. The day the question is presented will change each week. The answer will be given during class and each student is required to write the answer to the question and hand it in at the end of that class period. No credit will be given for late assignments and you must attend lecture to get credit. *Questions of the week will not be returned.*

**Videos and slides:** We will see several videos about earthquakes and volcanic eruptions during the quarter. Take notes during the videos. We will also see a numerous photographs; take notes here as well. You are responsible for the material presented in the videos and slides.

**Some tips for a successful quarter:** (1) *Do not miss a class, not one.* Reading your text is not a substitute for attending lecture. (2) Read your text assignments before class *ask questions and participate in class.* (3) *Take good, complete notes.* The more you write, the better. Write the information presented on the board, write the information presented during slide presentations, and write what I say during lecture. If you do not understand a concept or example, ASK. If I go too quickly, ask me to repeat the information. (4) If you do not understand a concept that I discuss in class, *ask questions* during class or come and see me. I am available during office hours and most other times during the day. The only way I can help you understand the material is if you ASK for help!

**Midterm:** The midterm exam schedule will be announced by the end of the first week of classes. The 50 minute-long exam will consist of short answer and essay questions. Any material from lectures and readings, including slides, videos and rock samples used in lectures, is fair game. *If you have a conflict with the exam date talk to me at least a week before the exam to discuss options.* If you do not, you may fail the exam! *There will be no make-up exams.*

**Final Exam:** The final will be cumulative. It will emphasize the material not covered on the midterm. The final will include short answer and essay questions.

**Grading:**

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<th>Component</th>
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<tr>
<td>Midterm 1</td>
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<td>Midterm 2</td>
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<tr>
<td>Problem sets and questions of the week</td>
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<tr>
<td>Quizzes</td>
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<tr>
<td>Final Exam</td>
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The distribution equals 120%. The lowest grade of the first 4 blocks will be dropped. For this reason, no make up exams are offered. If you miss an exam, that exam will be dropped from your lowest score.

**Final exam schedule:**
The 9:00 am G170 final is on: Wednesday, June 11th at 9:00 am in Black 151
The 11:00 am G170 final exam is on: Friday, June 13th at 8:00 am in Lind 215.
Class outline: Lecture, reading, and exam schedule

Week 1 – April 1, 2 and 3
Topics: Introduction to earthquakes, What we feel and where earthquakes occur
Reading: Earthquakes Chapters 1, 2

Week 2 – April 7, 8, 9 and 10
Topics: Measuring earthquakes; Sensing the inside of the Earth; Faults
Reading: Earthquakes Chapters 3, 4, 5

Week 3 – April 14, 15, 16 and 17
Topics: Causes of earthquakes; Earthquakes and plate tectonics; Earthquake size
Reading: Earthquakes Chapters 6, 7, 8
Quiz – next monday

Week 4 – April 21, 22, 23 and 24
Topics: Volcanoes, Tsunamis and Earthquakes, Events that precede earthquakes
Reading: Earthquakes Chapters 9, 10
Quiz, April 21

Week 5 – April 28, 29, 30 and May 1
Topics: Living with earthquakes
Reading: Earthquakes Chapters 11, 12
Midterm – Thursday, May 1

Week 6 – May 5, 6, 7 and 8
Topics: Introduction to global distribution of volcanoes; Why volcanoes erupt?
Reading: Volcanoes Chapters 1, 2

Week 7 – May 12, 13, 14 and 15
Topics: Rock types, Types of volcanic eruptions
Reading: Volcanoes Chapter 3

Week 8 – May 19, 20, 21, and 22
Topics: Case studies—Famous eruptions!, Volcanic hazards and hazard mitigation
Reading: Volcanoes Chapters 5-9, 15
Quiz, May 22

Week 9 – May 27, 28, and 29 (no class Monday, May 26th, Memorial Day)
Topics: Volcanic hazards and hazard mitigation
Reading: Volcanoes Chapters 5-9, 15
Midterm – Thursday, May 29th

Week 10 – June 2, 3, 4, and 5
Topics: Volcanoes and society
Reading: Volcanoes Chapters 11, 13, 14