

Geol 1042: Natural Disasters and Civilization Spring 2008

Instructor: Professor Karen Gran
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Office: HH 217, 726-7406
Office Hours: M/W 9:30-10:30 or by appt.

Class Time: T/Th 11:00-12:15 pm, HH 216

Required Texts:

1. *Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophe*, 2nd edition, 2007, by E.A. Keller and R. H. Blodgett
2. *Isaac's Storm*, 2001, by Erik Larsen
3. *Control of Nature*, 1990, by John McPhee

Class Description:

This class will examine earth processes through the study of natural disasters and how these disasters affect civilizations both modern and ancient. An emphasis will be placed on the geological framework for natural disasters. We will also investigate how humans interact with the landscape, and how these interactions can both minimize and/or increase the risk of natural disasters. We will cover a broad spectrum of natural disasters including volcanoes, earthquakes, landslides, flooding, hurricanes, and tsunamis, and study selected events and their effects on human civilizations.

Class Goals/Objectives:

By the end of this class, you should be able to:

- 1) Understand the geologic framework, landscape setting, and underlying processes associated with common natural hazards including volcanoes, earthquakes, tsunamis, floods, landslides, and hurricanes.
- 2) Relate landscape setting (tectonic setting, local topography, and geology) to hazard potential for common natural hazards and conduct basic hazards assessments.
- 3) Understand how natural hazards affect humans and society through readings and analyses of case studies.
- 4) Analyze how human alterations to the landscape can either minimize or increase the potential for future natural disasters.
- 5) Think critically about the landscape you live in to assess the potential for natural hazards before they become disasters.

Class Outline:

Week	Date	Topic	Reading
1-2	1/22-1/31	Introduction & Plate Tectonics	K&B 1 & Supplement
3-4	2/5-2/14	Earthquakes	K&B 2
5	2/19-2/21	Tsunamis	K&B 3
6-7	2/26-3/6	Volcanoes	K&B 4, CN 2
8-9	3/11-3/27	Landslides/ Mudflows	K&B 6, CN 3
10-11	4/1-4/10	Flooding	K&B 5, CN 1
12	4/15-4/17	Coastal Processes	K&B 10
13-14	4/22-5/1	Hurricanes	K&B 9, Isaac's Storm
15	5/6-5/8	Presentations on Disaster Preparedness	
	5/14	Term paper due	

*K&B is from Keller & Blodgett text; CN is from Control of Nature

Grading:

There are no exams in this course. The following assignments will comprise your grade:

- 1) (20%) Periodic in-class quizzes (6) to assess reading and comprehension of material.
- 2) (10%) Hazard City assignments to integrate material you learn with hazards assessments.
- 3) (20%) Term paper examining how manipulations of natural settings affect hazards and disasters. Your paper should focus on specific examples and explain how human actions affected the outcome of the event – the focus is on changes to the environment pre-disaster rather than on post-disaster management.
- 4) (15%) Develop a disaster preparedness or relief plan. This should focus on a disaster with short time frame (volcanic eruption, earthquake, tsunami, mudflow, etc.) and should include a plan for civil authorities, aid workers, and citizens to respond. You will work in groups of 2-3, write up your plan in outline form, and present it to the class during the last week of the term.
- 5) (10%) Media critique paper examining portrayal of natural disasters in film, art, music, or news. In writing, evaluate the fact vs. fiction and discuss the imagery of the work.
- 6) (10%) Disaster of the week group presentations. Work with a partner on a disaster of the week – investigate the nature of the event (type, magnitude, area affected, etc.), who was affected, and why it was so bad. Pick your topic ahead of time and present it in class. We will sign up for slots in week 2.
- 7) (10%) Journal entries. You will keep a journal throughout the course to respond to questions raised in class and reflect on material we are covering or natural disasters in the news. Your journal will also offer a venue to communicate with me regarding topics related to natural disasters in general.
- 8) (5%) Class participation (attendance, participation, discussion, etc.).

Late policy:

All assignments are to be completed on time. I will not accept late assignments. No make-up assignments will be granted unless arranged prior to the original due date.

Attendance:

This may seem obvious, but please attend class. Activities, quizzes, and in-class discussions simply cannot be made up.

Classroom technology:

Many forms of technology, while useful, are highly disruptive to classroom activities and distracting to other students. **Turn off cell phones.** No laptops in class, please.

Special Accommodations:

Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor at the start of the term. Adaptation of methods, materials, or testing may be made as required to provide for equitable participation.

Academic Dishonesty:

Academic dishonesty tarnishes UMD's reputation and discredits the accomplishments of students. UMD is committed to providing students every possible opportunity to grow in mind and spirit. This pledge can only be redeemed in an environment of trust, honesty, and fairness. As a result, academic dishonesty is regarded as a serious offense by all members of the academic community. In keeping with this ideal, this course will adhere to UMD's Student Academic Integrity Policy, which can be found at www.d.umn.edu/assl/conduct/integrity. This policy sanctions students engaging in academic dishonesty with penalties up to and including expulsion from the university for repeat offenders.

Student Conduct:

The instructor will enforce and students are expected to follow the University's Student Conduct Code (<http://www.d.umn.edu/assl/conduct/code>). Appropriate classroom conduct promotes an environment of academic achievement and integrity. Disruptive classroom behavior that substantially or repeatedly interrupts either the instructor's ability to teach, or student learning, is prohibited. Disruptive behavior includes inappropriate use of technology in the classroom. Examples include ringing cell phones, text-messaging, watching videos, playing computer games, doing email, or surfing the Internet on your computer instead of note-taking or other instructor-sanctioned activities.

Class Outline:

Week	Date	Topic	Reading	Quiz	Assignment
1	1/22-1/24	Introduction & Plate Tectonics	K&B 1		
2	1/29-1/31	Plate Tectonics	K&B 2 & Supplement		
3	2/5-2/7	Earthquakes	K&B 2	Quiz #1: Plate Tectonics (T)	
4	2/12-2/14	Earthquakes	K&B 2		Disaster #1: Earthquake (T) HC Exercise (Due Th)
5	2/19-2/21	Tsunamis	K&B 3		Disaster #2: Tsunami (Th)
6	2/26-2/28	Volcanoes	K&B 4	Quiz #2: Earthquakes & Tsunamis (T)	Disaster #3: Volcano (Th)
7	3/4-3/6	Volcanoes	CN 2 – Discuss Th		Disaster #4: Volcano (T) HC Exercise (Due Th)
8	3/11-3/13	Landslides/ Mudflows	K&B 6	Quiz #3: Volcanoes (T)	Disaster #5: Landslide (Th)
	3/17-3/21	Spring Break			
9	3/25-3/27	Landslides/ Mudflows	CN 3 – Discuss Th		Disaster #6: Landslide (T) HC Exercise (Due Th)
10	4/1-4/3	Flooding	K&B 5	Quiz #4: Landslides (T)	Disaster #7: Flood (Th) Media Paper Due - Th
11	4/8-4/10	Flooding	CN 1 – Discuss Th		Disaster #8: Flood (T)
12	4/15-4/17	Coastal Processes	K&B 10	Quiz #5: Rivers and Floods (T)	HC Exercise (Due next T)
13	4/22-4/24	Hurricanes	K&B 9		Disaster #9: Hurricane (Th) Term Paper Topic Due - T
14	4/29-5/1	Hurricanes	Isaac's Storm – Discuss T	Quiz #6: Hurricanes (Th)	<i>Disaster #10: Hurricane (T)</i>
15	5/6-5/8	Presentations on Disaster Preparedness			
	5/16	Term paper due			

*K&B is from Keller & Blodgett text; CN is from Control of Nature; HC refers to Hazard City Exercise