GEOG/GEOL 106 B Introduction to Natural Disasters and Hazards

(5 credits Natural Science)

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Classroom: D273 3:00-5:10 Tues. Thurs.

Winter Quarter, 2009
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Course Description and Objectives:

Geography 106 is a survey course. It is designed to introduce students to Earth and atmospheric potential hazards as reflected or evidenced by actual catastrophes or disasters. The course will strive to elevate student awareness regarding dangerous interactions between earth processes and humans, as well as the interrelationships among potential disasters. In doing so, students may be able to make more informed/educated decisions such as determining the best site location for a future home purchase. Throughout the course **'Case in Point'** examples are used to illustrate the various types of hazards, and record significant disasters. Also, they are useful to help understand the complexities of environmental policies, societal behaviors, and governmental responsibilities regarding hazards. A variety of relevant DVD's along with digital images, and slides will be used to enhance the delivery of information.

Text:

***Natural Hazards and Disasters*: 2009,** Hyndman and Hyndman, Brooks/Cole Publ.

Course requirements and policies:

A minimum of **60%** is required to pass. **Six** exams and a **Final** are scheduled. The best **five** scores on the six exams will count. The Final cannot be dropped. The Final is not comprehensive. The Final is on **Thursday, March 19 at 1:30** in D273. **Finals are not given early. No exceptions!**

Five best Exams	@ 15% ea.	=	75%
Final	@ 25%	=	25%
			100%

The lowest ***Exam*** score will be dropped.

NO EXAM MAKE UPS. Extra credit may or may not be found in the six exams and Final. Pop quizzes are a possibility.

Last day to withdraw: **12:00 noon, February 22 (Online).** A **"W"** will be posted on transcript. Failure to withdraw by the above deadline will result in an **"F"** posted on transcript.

General Education Requirements

The Nature of Science: Rating ⇨ 3 **Science and the Natural World: Rating ⇨ 3**

This course transfers as natural science credit. The class can be taken as Geography or Geology credit to satisfy the College's distribution requirement in Sciences.

GRADE TABLE

LETTER GRADE	GPA	PERCENTILE
A	4.0	93-100
A-	3.7	90-92
B+	3.3	87-89
B	3.0	83-86
B-	2.7	80-82
C+	2.3	77-79
C	2.0	73-76
C-	1.7	70-72
D+	1.3	67-69
D	1.0	60-66
F	0.0	<60

COURSE OUTLINE

Section I. **Introduction to Natural Hazards and Disasters**

Course overview. Terminology. Living with natural hazard risks. Predicting catastrophe. Role of public education.

Read: **Chapter 1:** Natural Hazards and Disasters:

Plate Tectonics and Physical Hazards

Introduction to the Scientific Method. Plate tectonic theory. Plate boundaries and interactions. hot spot tectonics. Cascadian Subduction Zone.

Read: **Chapter 2:** Plate Tectonics and Physical Hazards

EXAM ONE

Section II. **Earthquakes and Their Causes**

How earthquakes work. Causes of earthquakes. Scaling earthquakes. Buildings and ground motion. Liquefaction and slope failure. Earthquakes and tectonic environments.

Read: **Chapter 3:** Earthquakes and Their Damages

EXAM TWO

Section III. **Earthquake Prediction and Mitigation; Tsunami**

Predicting and surviving earthquakes. Tsunami generation, prediction and mitigation.

Read : **Chapter 4:** Earthquake Prediction and Tectonic Environments
Chapter 5: Tsunami

EXAM THREE

Section IV. **Volcanoes, and Volcanic Processes and Risks**

Volcanic materials. Magma composition and eruptions. Types of volcanoes and associated eruptions. Volcanic hazards and mitigation

Read: **Chapter 6:** Volcanoes: Tectonic Environments and Eruptions
Chapter 7: Volcanoes: Hazards and Mitigation

EXAM FOUR

Section V. **Mass-Wasting/Slope Failure**

Slope processes, and materials. Causes and types of slope failure. Hazards and mitigation.

Read: **Chapter 8:** Landslides and Other Downslope Movement

EX A M FIVE

Section VI. **Streams and Flooding**

Basics of stream dynamics. Stream types. The hydrograph. Floods. Development of floodplains. Human impact on stream dynamics.

Read: **Chapter 11:** Streams and Flood Processes
Chapter 12: Floods and Human Interactions

EXAM SIX

Section VII. **Catastrophic Weather**

Hurricanes, typhoons, and cyclones. Nor'easters. Thunderstorms and tornadoes.

Read: **Chapter 14:** Hurricanes and Nor'easters
Chapter 15: Thunderstorms and Tornadoes

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