

UWXGE170: Disasters: Living on the Edge

Course credits:

4

Prerequisites:

None

Course Description:

Study of various environmental hazards, their causes, impacts on humans, and mitigations. Core topics are natural hazards (earthquakes, flooding, volcanic eruptions, tsunamis, tornadoes, hurricanes, mass movements, extraterrestrial impacts), and anthropogenic hazards (climate change).

Required Course Materials

There is no required textbook for this course.

Hardware Requirements

Students are asked to download Google Earth Pro to their personal computers. The minimum requirements to run Google Earth Pro are:

- Operating System: Windows 7
- CPU: 1GHz or faster
- System Memory (RAM): 2GB
- Hard Disk: 2GB free space
- Internet Connection
- Graphics Processor: DirectX 9 or OpenGL 1.4 compatible

Program Learning Competency and Outcomes

Knowledge of the Natural World (NW): Courses focus on concepts and applications related to the natural and physical sciences and mathematics.

- Learning Outcome 1: describe and evaluate existing knowledge of the natural world
- Learning Outcome 2: interpret, analyze and communicate data, results, and conclusions
- Learning Outcome 3: apply concepts across disciplines.

Course Learning Objectives

By the end of the course, students will be able to:

- Describe how the tectonic motion of Earth’s lithosphere leads to geologic disasters such as volcanoes, earthquakes, landslides, and tsunamis.
- Explain how global atmospheric circulation and Earth’s hydrologic cycle create weather-related disasters such as hurricanes, floods, and droughts.
- Analyze specific geologic risk factors that can be used to determine the probability of natural disasters occurring in a specific region.
- Identify how geologic disasters impact our everyday lives

Course Overview

TOPIC	ACTIVITIES
Introduction to Natural Disasters	<ul style="list-style-type: none"> • Introduction’s discussion • Explore Google Earth Lab • Reading Quiz
Plate Tectonics	<ul style="list-style-type: none"> • Earth Layers Quiz • Plate Tectonics Lab • Risk Assessment Assignment • Reading Quiz
Rocks and Minerals	<ul style="list-style-type: none"> • Minerals Up Close and Personal Discussion • Reading Quiz
Earthquakes	<ul style="list-style-type: none"> • Earthquake Lab • Risk Assessment Assignment • Faults Overview Assignment • Reading Quiz • Earthquake Hazards Assignment • 2004 Sumatra Earthquake Case Study
Tsunami	<ul style="list-style-type: none"> • Boxing Day Tsunami Lab • Waiting for the Tsunami Assignment • Reading Quiz
Volcanoes	<ul style="list-style-type: none"> • Volcanoes Lab • Risk Assessment Assignment • The Armero Tragedy Case Study • Identifying Volcanoes Assignment • Reading Quiz • Volcano Paper
Mass Movements	<ul style="list-style-type: none"> • Living with Mass Movements Lab • Forces in Mass Movement Assignment • Reading Quiz

Steams and Flooding	<ul style="list-style-type: none"> • Discharge Assignment • Risk Assessment Assignment • Observing Streams and Rivers Lab
Hurricanes	<ul style="list-style-type: none"> • Introduction to Hurricanes Assignment • Hurricane Anatomy Assignment • Hurricane Season Assignment • Hurricane Storm Tracks Assignment • Air Pressure and Wind Assignment • Sea Surface Temperature and • Hurricanes Assignment • Hurricane Hazards Assignment
Climate Change	<ul style="list-style-type: none"> • Climate Change Assignment • Climate Trends Assignment • Climate Impacts and Mitigation Assignment
Large Earth Impacts	<ul style="list-style-type: none"> • Impact Paper • The Day the Mesozoic Died Assignment • Earth Impact Simulator Assignment

Evaluation Methods and Weights

Your final grade will be based on your performance on the following:

- Lab Activities (~200 points)
- Reading Quizzes (~100 points)
- Discussions (30 points)
- Risk Assessment (~150 points)
- Exploratory Assignments (~300 points)

Lab Activities (~200 Points)

The lab activities will be conducted 100% online. They will utilize online programs like Google Earth, Google Maps, and Virtual Geology Labs. You will submit worksheets for your labs on Canvas.

Reading Quizzes (~100 Points)

Each lesson has at least one reading “quiz”, which is an untimed, multiple-choice worksheet that covers the main topics in the learning resources for that lesson.

Discussions (30 Points)

There are two class discussions. The discussions have two components: the initial post and the replies. Each component has a separate due date. The first due date is the date by which your initial post should be submitted. The initial post is your answer to the discussion prompt. The

replies are your responses to me and your fellow students. It is recommended to respond to at least three other students.

Risk Assessments (~150 Points)

Risk assessments are projects completed in several lessons and include conceptual and critical thinking questions from the entire lessons. These assignments are meant to be challenging and to encourage you to think more deeply about the material. You might need to be creative or think beyond the material you have previously encountered.

Exploratory Assignments (~300 Points)

Students will explore some key concepts introduced in the readings in greater detail. These assignments are untimed, open note online worksheets. Not all lessons include exploratory assignments.

Grading Scale

The following grading scale is used to evaluate all course requirements and determine your final grade:

Percent	Letter Grade
94-100%	A
90-93%	A-
87-89%	B+
84-86%	B
80-83%	B-
77-79%	C+
74-76%	C
70-73%	C-
67-69%	D+
64-66%	D
60-63%	D-
59 and under	F