

COURSE SYLLABUS

EARTH 406 [ERTH 406 Natural Disasters: Geoethics and the Layman \(3\)](#)

Fall of 2023

Class: 16:00 to 17:15 pm, Mondays and Wednesdays August /21- to December /15, 2023, CRN 77546

Classroom: POST 723 and 715!

Instructor: *Emilio Herrero-Bervera*

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Office hours: After class or arranged in POST 716A and/or 715

Target Audience and Course Content

This class is about the evaluation of the ethical practice of geoscience as it relates to studies of natural disasters that result from geological and meteorological phenomena and the means that earth scientists interact with the laymen. Pre: 101, 103, 104, or 170. (Once a year)

This class will study both the global and local phenomena from a Natural disaster perspective.

It is suited for students who:

- i) are preparing for a career in the geological and geophysical natural disaster environmental and geotechnical fields in industry or academia.
- ii) Want to know more about the natural disasters and hazards relative to the environment around them
- iii) Plan to pursue the new GGMGeo professional masters degree.

This course will cover natural and anthropogenically produced problems of the planet's interaction with the crust, the hydrosphere, biosphere and atmosphere. This class will analyze the application of geology and geophysics to attack and solve problems related to natural disasters

Topics include:

Introduction to Natural Hazards

Internal Structure of Earth and Plate Tectonics

Earthquakes

Tsunamis

Volcanoes

Flooding

Mass Wasting

Subsidence and Soils

Atmospheric Processes and Severe Weather

Hurricanes and Extratropical Cyclones

Coastal Hazards

Climate Change and Natural Hazards

Wildfires

Impacts and extinctions

Additional topics
Minerals
Rocks
Maps and related topics
How geologists determine geologic time

Text Book: NATURAL HAZARDS, Earth's processes as hazards, disasters, and catastrophes

Authors: Edward A. Keller and Duane E. DeVecchio

FIFTH Edition

GRADING. We will have to answer 5 Critical questions per chapter in order to obtain 100% grade.

Class Format: This is a lecture class. It is anticipated that the students participate actively asking questions and general class discussions. Studying and keeping up with the reading will help the student to get the most out of the lectures and exercises.

GG Learning Objectives:

GG department has defined 5 learning objectives for the undergraduate degree program related to Relevance of Geology and Geophysics, Technical knowledge, Scientific method,

Oral and written skills, and Evaluating Phenomena. This course directly incorporates content relevant to 4 of those:

- SLO1 - throughout the course you will learn about the relevance of magnetism to understanding and providing for human needs, and to impacts on society and planet Earth.
- SLO2 - you will solve problems using real world data sets
- SLO4 - you will reconstruct knowledge in a written report (final project).
- SLO5 - in all assignments you will evaluate, interpret, and summarize basic principles to explain complex phenomena at the interfaces of geology, biology, rock magnetism and soil science, environment and human industry.