

**Course Number/Name:** *GEO 3030-090 Living with Earthquakes and Volcanoes, 3-Credits*  
**Instructor and email address:** *Erich U. Petersen, Professor, [erich.petersen@utah.edu](mailto:erich.petersen@utah.edu)*

## **Course Information**

### **GOALS AND OBJECTIVES:**

This course, Living with Earthquakes and Volcanoes, explores two of Earth's most spectacular phenomena from a variety of perspectives: physical sciences (basic and applied), social sciences, and engineering. This course will cover the following weekly modules in order:

- A Multiple Perspectives Approach to E&V
- Minerals, Rocks, & Deep Time
- Dynamic Earth: Plate Tectonics
- Volcanism: Kinds of Eruptions
- Volcanoes: Where & Why?
- Living with Volcanoes
- Review & Midterm Exam
- Stress, Strain, and Seismic Waves
- Earthquakes: Where and Why?
- Earthquakes and People: Earthquake Hazards
- Living with Earthquakes: Some Examples
- Earthquake Prediction: 3 Countries, 3 Approaches
- Tsunami: Multinational Impact & Response



My goals are: a) to describe the basic geology of earth, b) to explain where and why earthquakes and volcanic eruptions occur today, and c) explore how local cultural attitudes and economic conditions affect the local consequences of earthquakes and volcanoes eruptions.

GEO 3030-90 satisfies some of the **General Education** and **Bachelor's Degree Requirements** (Science Foundation, SF; International, IR). The Essential Learning Outcomes satisfying the SF requirement are: Inquiry and Analysis, Civic Knowledge and Engagement – local and global. The essential Learning Outcomes satisfying the IR requirement are: Quantitative Literacy, and Intercultural Knowledge and Competence.

At the end of this course, I will expect you to understand each of the topics that are covered and be able to interpret them in both the local and international context.

### **EXPECTATIONS FOR STUDENTS IN COURSE:**

The course is entirely 'Online'; work on your own schedule and at your own pace! Because this class is 3-credit hours, students are expected to devote about six (6) hours per week to it. In a typical week, you might spend 2 hours on the module readings, 1 hour on the homework

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assignment, 30 minutes on slideshows, 15 minutes on the quiz, 10 minutes on Discussions messages, and 1-2 hours reviewing what you've learned. Everything within the modules, including every link, is required unless it is labeled as “optional”.

The relative weights of each of the course components is as follows: Quizzes (~13%), Homework Assignments, (~24%), Quakewatch Project (~13%), Mid-Semester Exam (~22%), Final Exam (~28%). Quizzes and Homework assignments are done online. Students register online for the mid-semester and final exams; the exams are administered at the University Testing Center (or other approved facility).

The three best predictors of student success in online courses such as this one are self-motivation, time management and persistence.

### **EXAMS/MAJOR ASSIGNMENT PRELIMINARY SCHEDULE:**

The primary readings for this course are PDF documents. All the course materials are on CANVAS (free). Students are expected to be proficient in the use of the Internet (CANVAS, research strategies), EXCEL (tables, graphs, figures), WORD (report documents), POWERPOINT (figures) and ACROBAT PRO (for submission of documents). The course has no prerequisites.

Almost every module has an associated online multiple-choice quiz (~10 min). Quizzes are open for five (5) days. Seven of the 15 weekly modules include a short (<1 hour) homework assignment. Each homework assignment is open for a seven (7) day window (167 hours!). The semester project (Quakewatch Project) is an 8-week exercise culminating in a short report summarizing the results, observations and interpretations and is submitted online in pdf format in early November. The mid-semester and comprehensive final exam consist of a mixture of short answer and multiple choice questions. The mid-semester and final exam are scheduled during a 3-day window in October, and December, respectively (tentatively during the third week in October and the last week of classes, respectively).

