GEL 017-001 -CRN 45055 **Earthquakes & Hazards**
Course Calendar ***Spring Semester: March 28, 2022 – June 9, 2022***

FACULTY

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TEACHING ASSISTANT

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COURSE INFORMATION

Office Hours: MW 1:10 PM to 2:00 PM; or by appointment
Lecture: MW 2:10 PM to 3:00 PM
Lecture Location GIEDT 1001

The UC Davis Canvas links for this CRN is available at https://canvas.ucdavis.edu/

Cancellation of classes: If classes are canceled by the UC Davis due to campus closing, the schedule of topics and exams will be re-evaluated and announcements about any change to the schedule assignments will be sent by email and/or posted on course homepage in canvas.

You are responsible for logging on to UC Davis Canvas Learning Management System website to access material for this course. Updates and news items will be posted in the "**Announcements**" tab in the course homepage.

Student are prohibited from posting any course material on CourseHero, SherlockNotes and similar sites. The UC Davis Student Code of Conduct has a provision under Misuse of an instructor's course materials or the materials of others which states – "Posting, purchasing, obtaining, sharing, or copying any course materials of an instructor without the explicit written permission of that instructor" is prohibited.

NOTE: A reliable internet is your responsibility. It is strongly recommended that you use a desktop or laptop computer for your course activities. Avoid using your cellphone. For computer issues, do not contact instructor. Contact the UC Davis IT Express at https://iet.ucdavis.edu/support or call (530) 754-HELP (4357) (M - F, 7 AM - 6 PM).

COURSE DESCRIPTION

Impact of earthquakes, tsunami, volcanoes, landslides, and floods on humans, structures, and the environment. Discussion of the causes and effects of disasters and catastrophes, and on prediction, preparation, and mitigation of natural hazards. GE credit: SE, SL.

COURSE INFORMATION

Textbook: None
Notes: Lecture notes for the material covered in the course will be summarized as PowerPoint slides. I will post the PowerPoint slides in the "**Announcement**" tab in the course homepage in Canvas.

Supplementary Material: **Physical Geology** by Steven Earle used under a CC-BY 4.0 international license. I will post excerpts needed for this course in the "**Announcement**" tab in the course homepage in Canvas.

Documents and other reading material assigned will also be posted in the "**Files**" tab in the course webpage in Canvas. You will be provided with links to webpages that will be part of the reading material either in the PowerPoint slides or on the "**Assignments**" Tab in the course homepage in Canvas. You will be notified of new documents and webpage links for the readings in the "Announcements" Tab of the course homepage in Canvas.

COURSE GOALS

Our Earth is dynamic and governed by powerful geologic forces that are constantly at work. The violence and (sometimes) unexpectedness of earthquakes and other hazards have furthered our understanding of earth's dynamism. However, the damage, destruction and even death that earthquakes and other hazards can bring about has also, in extreme cases, changed human history and civilization forever.

This course begins with a short overview of natural disasters, followed by earth materials and structure and time, and culminating in the study of plate tectonics which is the unifying theory of geology. This overview is followed by a more detailed study of geologic hazards resulting from plate movements. We will explore questions like: What causes earthquakes and volcanoes? Where do they occur? What are their effects? How much damage can they cause? Can we predict or control them? We will apply our new scientific understanding to case studies of how significant earthquake events and volcanic activities have impacted society and how mankind can live with earthquake, volcanic and related disasters.

GRADES

The course grade will be based on a total of 200 points (100%). You can earn points for the following:

1. Three semester theory exams (one will be a theory final exam)
2. Reading assignments (Online Quizzes in Canvas)

NOTE: I will adhere strictly to the UC Davis' academic integrity policy in this course. Acts of academic dishonesty will be referred to the Office of Student Support & Judicial Affairs. You are responsible for understanding and following the UC Davis Policy on Student Conduct and Discipline. For more information refer to this website: http://sja.ucdavis.edu/academic-integrity.html. The penalty for cheating (e.g., using notes, using someone else's answers) on an exam or any other form of academic dishonesty will be a grade of **zero** for the exam, assignment or activity. There may be additional consequences for academic dishonesty.

Exams – *150 total course points (75% of course grade)*

All examinations are closed book and closed notes. No materials should be used during the exams to assist you. All you may have with you during your exam is a standalone calculator. Please do not browse the internet for answers during the exam.

The exams may consist of multiple choice, definition, fill-in-the blank, and short essay. Diagrams will be used when deemed appropriate for any question – this means you should endeavor to understand figures presented in class. While the exams will not be explicitly

comprehensive, the material in this course builds upon previous concepts. Therefore, once concepts have been introduced, it will be assumed that you have mastered them, and are able to apply such understanding in subsequent topics. The best preparation for the exams is to review the PowerPoint slides, complete the assigned readings to enhance your understanding and complete all assignments and most of all, attend classes.

Reading Assignments (Online Quizzes) – *50 total course points (25% of course grade)*
Reading assignments will be posted on CANVAS before we begin to cover a new topic. I will use Canvas at: https://canvas.ucdavis.edu/ to post required reading assignments. Completing the quizzes for assigned topics is an *excellent* way to study. Online quizzes on the readings will be turned off after we complete the topic. I STRONGLY recommend that you complete the reading assignments before we start the topic as this will help you with in-class activities. The assignments must be completed by the scheduled due date. **No makeups without a medical excuse**.

A summary of the course grade weightings is as follows:

Item	Points	Percentage
Midterm Exam #1	50	25.0
Midterm Exam #2	50	25.0
Final Exam	50	25.0
Reading Assignments (Online Quizzes)	50	25.0
Semester Evaluations	-	1.0
Total	**200**	**101.0**

The letter grade equivalents for the numerical final grade will be:

Points Earned (200 Total)	Percentage	Letter Grade
200-186	101.0-93.0	A
185-180	92.9-90.0	A-
178-174	89.9-87.0	B+
173-166	86.9-83.0	B
165-160	82.9-80.0	B-
159-154	79.9-77.0	C+
153-146	76.9-73.0	C
145-140	72.9-70.0	C-
139-134	69.9-67.0	D+
133-126	66.9-63.0	D
125-120	62.9-60.0	D-
119-0	<60.0	F

Make-up Policy
An unexcused absence from any graded activity will not be normally accommodated. Please take note of important dates in our course schedule and build them into your calendar. Missing an exam or in-class activity compromises your ability to complete the course with a good grade. Students will ONLY be accommodated with a medical excuse or an official excuse from the Dean or Athletic Director.

Tentative Schedule

M 03/28	Introduction to (Geologic) Natural Hazards and Disasters	**Topic 1**
W 03/30	Earth Materials and Earth Structure	**Topic 2**
M 04/04	Earth Materials and Earth Structure	
W 04/06	Geologic Hazards and Geologic Time	**Topic 3**
W 04/11	Geologic Hazards and Geologic Time	
F 04/13	Plate Tectonic as a Driver of Earthquakes and Volcanic Activities	**Topic 4**
M 04/18	Plate Tectonic as a Driver of Earthquakes and Volcanic Activities	
W 04/20	Plate Tectonic as a Driver of Earthquakes and Volcanic Activities	
M 04/25	Earthquake Activity and Related Hazards	**Topic 5**
W 04/27	**Exam 1: Topics 1, 2, 3 and 4: Introduction to Natural Hazards, Earth Materials and Structure, Dating Geologic Hazards, Plate Tectonics Origin of Earthquake and Volcanic Hazards**	
M 05/02	Earthquake Activity and Related Hazards	
M 05/04	Volcanic Activity and Related Hazards	**Topic 6**
F 05/09	Volcanic Activity and Related Hazards	
M 05/11	Tsunamis Hazards generated by Earthquakes, Volcanoes and other processes	**Topic 7**
W 05/16	**Exam 2: Topics 5 and 6: Earthquakes and Related Hazards and Volcanoes and Related Hazards**	
M 05/18	Tsunamis Hazards generated by Earthquakes, Volcanoes and other processes	
W 05/23	Hazard Maps and Communicating Risk	**Topic 8**
F 05/25	Hazard Maps and Communicating Risk	
W 05/30	Evaluating and Reducing Risk from Seismic and Volcanic Hazards	**Topic 9**
F 06/01	Evaluating and Reducing Risk from Seismic and Volcanic Hazards	
M 06/06	**FINAL EXAM (Exam 3): Topics 7, 8 and 9: Tsunamis Hazards Generated by Earthquakes Volcanic eruption and related processes; Hazard Maps and Communicating Risk; Evaluating and Reducing Risk from Seismic and Volcanic Hazards**	

COVID-19: Help prevent the spread of the coronavirus (COVID-19) both on and off the UC Davis campus. Get COVID-19 information and Updates at:
https://campusready.ucdavis.edu/testing-response/dashboard

This course is being taught during a (the end of?) global pandemic where there is a lot of uncertainty. Please have open communication with me on issues that you are having related to COVID-19 and your work in this course. I am dedicated to ensuring that students learn the content of this course. If you are struggling due to mental health issues, sick family members, or become sick yourself, please reach out. I am more than willing to work with you to make sure that you get the most out of this course. That being said, your health (mental and physical), family wellbeing, etc. should always come before any class. Accommodations can and will be made, feel free to send me an email or visit me during my office hour.

DIVERSITY AND INCLUSION: Please see the Diversity Statement of the University @: https://diversity.ucdavis.edu/

In an ideal world, science would be objective. However, much of science is subjective and is historically built on a small subset of privileged voices. GEL017 (Earthquakes and other hazards) is no exception. While providing foundation knowledge on the topics, historically important experiments, ideas, and writings about this topic were mostly constructed by white men. I have periodically acknowledged other voices and views about this topic. However, I also acknowledge that it is possible that there may be both overt and covert biases in the materials used in this course due to the lenses with which it was written, even though the material is published for scientific, US federal and state and citizen consumption. Integrating a diverse set of experiences is important for a more comprehensive understanding of science.

Please contact me (eatekwana@ucdavis.edu) with any feedback that you have, or suggestions to improve the quality of the course materials. Your suggestions are encouraged and appreciated.

Furthermore, I would like to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.). To help accomplish this:

- If you have a name or set of pronouns that differ from those that appear in your official UC Davis records, please let me know!
- If you feel like your performance in class is being impacted by experiences outside of class, please don't hesitate to talk to me about that. I want to be a resource for you.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone or me) that made you feel uncomfortable, please talk to me about it.

STUDENT ACCOMMODATIONS: Any student who believes they may need an accommodation based on disability or any other reason should contact the Student Disability Center (SDC) office as soon as possible (https://sdc.ucdavis.edu/studentportal). You can also reach SDC via email at sdc@ucdavis.edu, by fax at 530-752-0161 or phone at 530-752-3184.

Harassment and Discrimination: UC Davis works to promote an academic and work environment that is free from all forms of discrimination including harassment. As a member of the community, your rights, resources and responsibilities are reflected in the non-discrimination and sexual misconduct policies. Please familiarize yourself with these policies at Sexual Harassment Policy: For more information on recognizing and reporting inappropriate behavior, please visit the university websites about the Sexual Harassment Education Program on campus such as the following:
https://hdapp.ucdavis.edu ; https://sexualviolence.ucdavis.edu.