ERTH130 – Geologic Hazards (Fall 2022) Scott Rowland, POST 716A, 956-3150, scott@hawaii.edu Text: Living on the Shores of Hawai'i (Fletcher et al. 2010)

We live on an active dynamic planet. It is important to understand how that dynamism works for basic scientific understanding of our planet, but it is also important because many of these dynamic processes pose risks to human life and infrastructure. We cannot prevent most geologic events from occurring, but if we understand how, why, where, and maybe even when, they occur, we can reduce their impact.



Tentative Schedule

		<u>SLO</u> *
Week 1	Intro., Plate Tectonics I: Earth layers	5
	Plate Tectonics II: How the ideas developed	1, 3, 5
Week 2	Plate Tectonics III: Plate boundaries	5
	Plate Tectonics IV: Magma generation	5
Week 3	Earthquakes I: Stress, strain, faults	5
	Earthquakes II: Earthquake measurement and sizes	5
Week 4	Earthquakes III: Earthquake hazards and risks	1, 5
	Earthquakes IV: Case Histories	1, 5
Week 5	Earthquakes V: Case Histories, Hawai'i	1, 5
	Midterm I	
Week 6	Tsunami I: Intro. to waves	5
	Tsunami II: Generation of tsunami	5
Week 7	Tsunami III: Case Histories	1, 5
	Tsunami IV: Case Histories, Hawai'i	1, 5
Week 8	Volcanic Eruptions I: Volcano types	5
	Volcanic Eruptions II: Eruption mechanisms	1, 3, 5
Week 9	Volcanic Eruptions III: Eruption types	1, 3, 5
	Volcanic Eruptions IV: Case Histories	1, 5
Week 10	Volcanic Eruptions V: Case Histories, Hawai'i	1, 5
	Midterm II	
Week 11	Floods I: Causes	5
	Floods II: Case Histories	1, 5
Week 12	Floods III: Case Histories, Hawai'i	1, 5
	Landslides I: Causes	5
Week 13	Landslides II: Case Histories	1, 5
	Landslides III: Case Histories, Hawai'i	1, 5
Week 14	Giant Landslides and Mega Tsunami	1, 3, 5
	Soil Problems and Sinkholes	1, 5
Week 15	Coastal Hazards I: Waves and coastlines	5
	Coastal Hazards II: Case Histories	1, 5
Week 16	Coastal Hazards III: Case Histories, Hawai'i	1, 5
	Student Presentations	*
May 12	Final (Thursday of Finals week, 9:45-11:45)	

Powerpoints are on-line at: http://www.higp.hawaii.edu/~scott/GG130/PowerPoint_presentations/

If you have a disability and related access needs the Department will make every effort to assist and support you. For confidential services students are encouraged to contact the Office for Students with Disabilities (known as $K\bar{o}kua$) located on the ground floor (Room 013) of the Queen Lili'uokalani Center for Student Services.

*SLOs - Student Learning Objectives

G&G undergraduate courses have to consider how they address a number of SLOs, which the G&G Department has decided are key attributes and/or abilities of any G&G student. They are (in no particular order):

- 1. Students can <u>explain the relevance</u> of geology and geophysics to human needs, including those appropriate to Hawaii, and be able to discuss issues related to geology and its impact on society and planet Earth
- 2. Students can <u>apply technical knowledge</u> of relevant computer applications, laboratory methods, and field methods to solve real-world problems in geology and geophysics.
- 3. Students use the scientific method to define, critically analyze, and solve a problem in earth science.
- 4. Students can <u>reconstruct</u>, <u>clearly and ethically</u>, geological knowledge in both oral presentations and written reports.
- 5. Students can <u>evaluate</u>, <u>interpret</u>, <u>and summarize the basic principles</u> of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relationship to other core sciences, to explain complex phenomena in geology and geophysics.

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CHEATING, PLAGIARISM (COPYING AN ANSWER ON AN EXAM, FOR EXAMPLE), ETC. IS TOTALLY UN-COOL AND VIOLATES THE UHM STUDENT CODE OF CONDUCT (SEE PP. 565-566 OF THE 2011-2012 UH CATALOG). IT WILL NOT BE TOLERATED, AND WILL RESULT IN AN **F** GRADE FOR THE COURSE AND A LETTER SENT TO YOUR ACADEMIC DEAN EXPLAINING THE REASON FOR THE F.

Title IX: The University of Hawai'i is committed to providing a learning, working and living environment that

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dating violence, and stalking. If you or someone you know is experiencing any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community. Here are some of your options:

As members of the University faculty, your instructors are required to immediately report any incident of potential sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and your instructors cannot guarantee confidentiality, you will still have options about how your case will be handled. Our goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

If you wish to remain ANONYMOUS, speak with someone CONFIDENTIALLY, or would like to receive information and support in a CONFIDENTIAL setting, use the confidential resources available here: http://www.manoa.hawaii.edu/titleix/resources.html#confidential

If you wish to directly REPORT an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support, contact: Dee Uwono, Title IX Coordinator (808) 956-299 t9uhm@hawaii.edu