

ERTH402 Hawaiian Geology: Course Description and Syllabus

This class is intended to be an up-to-date overview of geological processes that affect the State of Hawai'i, including what is known about the individual islands and the surrounding seafloor.

Course Topics and Format

The main part of the course is devoted to scientific methods (geophysical, geochemical, petrological) and geologic processes influencing the Hawaiian islands: plate tectonics, mantle melting, effusive and explosive eruptions, land sliding and other forms of mass wasting, groundwater flow, sea level change, earthquakes, and tsunamis. We will explore these topics through traditional lecture, reading and writing assignments, and guest lectures from SOEST faculty on topics of their research specialization. The remainder of the course consists of case studies of specific regions, islands, and volcanoes.

The class is restricted to 20 students, in order to promote meaningful professor-student interaction on each student's writing. In turn, you are expected to participate actively in the course, including attending all class meetings and taking part in discussions. This class uses writing to promote learning the course content and is designed to satisfy university hallmarks for writing intensive focus (W¹) through emphasis on short (500-1000 words) assignments, given frequently (usually weekly), covering a range of topics, and on which you will receive detailed constructive feedback. You will have an opportunity to revise some assignments. In all, you will receive feedback on ~20 pages of written work.

The best way to learn geology is to go outside and experience it directly. With this in mind, the course will be supplemented with field trips, typically 3-4 of them spaced throughout the semester; participation in one field trip is required.

Learning Objectives

The Department of Earth Sciences defines five learning objectives for the undergraduate degree program related to the relevance of geology and geophysics, the acquisition of technical knowledge, implementation of the scientific method, developing oral and written skills, and understanding the basic principles of science. This course objectives encompass two levels of maturity in all five categories, by developing understanding of the impact of geology and geophysics on society and human needs, particularly in Hawaii (SLO 1a); utilizing computer applications to support quantitative understanding of geologic data and processes (2b); and articulating scientific problems (3a). You will gain proficiency in

¹ Students receiving a D or better this semester can petition, with the approval of Hammer and Heater Saito (SOEST academic advisor) for an exemption for one upper-division WI-focus course by signing a statement worded along these lines:

Due to an inadvertent lapse by the instructor and the Department of Earth Sciences, the EARTH 402 class in Fall 2021 will not carry an official Writing-Intensive (WI) focus designation. However, EARTH 402 has had a WI-focus in previous semesters taught by the same instructor (e.g., Spring 2020), and the syllabus from Spring 2020 was in the application for a WI-Focus designation for future semesters. Therefore, I respectfully request an **exemption for one upper-division WI-Focus course** toward my UH Manoa Graduation requirements.

applying supporting disciplines (math, physics, and chemistry) to geological problems (2a); conducting geological field work (2d); communicating effectively in writing (4b); and explaining complex geological and geophysical phenomena (5c).

Essential Info

Credits: 3

Semester: Fall 2021

Lecture time and place: MW 1130-1220 POST 733 and online TBA

Instructor: Dr. Julia Hammer, office: POST 617B 956-5996 jhammer@hawaii.edu

office hours: by appointment

Necessary Background

Students with a working knowledge of geology (ERTH 101 or equivalent), petrology (ERTH 302 or equivalent) and structure (ERTH 303 or equivalent), or the willingness to learn these subjects concurrently, *will benefit most* from this course. It is possible to learn and perform well in the course without this foundation, although be advised that doing so is likely to require concerted effort.

Required Text (assigned chapters provided as pdf): Macdonald, G.A., A. T. Abbott, and F. L. Peterson, *Volcanoes in the Sea*, 2nd edition, University of Hawai'i Press

Other Required Materials: Bring your hand lens, field notebook, and something to write with to all field trips. The Bausch & Lomb Hastings triplet 10x or Coddington 10x are good hand lenses.

Assignments and Assessment

Participation in class 10%

Participation in one field trip 10%

Homework assignments (~16 @500-1000 words each) 80%

Title IX information

The University of Hawai'i is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, 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) 956-2299 t9uhm@hawaii.edu.