

# Geology of the Hawaiian Islands

GG103

MWF 9.30am-10.20am

POST 723

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**Office Hours:** TBA, or by appointment

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\*Note: Email is the best way to contact me and should provide the most timely response

**Website:** using Laulima

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**Course Description:** This course provides an overview of the geology of Hawai‘i, starting with an introduction of geological topics relevant to Hawai‘i. We will focus on the following:

<u>Lecture topics</u>	<u>SLOs</u>
Intro. to Geology, Earth Layers, Plate Tectonics I	1, 3, 5
Plate Tectonics II	3, 5
Minerals, Igneous Rocks	3, 5
Partial Melting, Lō‘ihi	3, 5
Kīlauea and Mauna Loa	1, 3, 5
Calderas and Rift Zones	3, 5
Earthquakes	1, 3, 5
Tsunami	1, 3, 5
‘A‘ā and Pāhoehoe lava flows, eruption styles	1, 3, 5
Mauna Kea, Glaciers	3, 5
Hualālai, Magmatic Differentiation	3, 5
Soils and Soil Formation	1, 3, 5
Kohala, Streams, Water Erosion (P Topics due)	3, 5
East Maui	3, 5
West Maui and Rejuvenation	3, 5
Lāna‘i and Kaho‘olawe	3, 5
East and West Moloka‘i, Aeolian Processes	3, 5
O‘ahu (Ko‘olau and Wai‘anae)	3, 5
Giant Avalanches and Submarine Geology	3, 5
Geologic Age Dating	3, 5
Groundwater Hydrology (drafts of posters due)	1, 3, 5
Shorelines and Sea Level Change	1, 3, 5
Kaua‘i	3, 5
Ni‘ihau, Papahānaumokuākea	3, 5
Life Stages of Hawaiian Volcanoes, review	3, 5

## 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:

1. Students can explain the relevance 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 apply technical knowledge 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 reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.
5. Students can evaluate, interpret, and summarize the basic principles 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.

## Course Goals:

This class is about the modern geological interpretation of natural features in Hawai'i, covering an array of topics from volcanoes to rocks to water to soils. The goal is to achieve a basic understanding of the geological interpretations of our surroundings.

## Textbook:

We will use the book Roadside Geology of Hawai'i, which unfortunately is no longer in print. There are however plenty of used copies available, and segments will be made available through the internet.

**Attendance:** Not all the material discussed in class will be in the book, so it is important to make it to class. To encourage attendance, there will be a "Question of the day".

## Grading Policy

### Grading (see below for more information on grading policy, etc):

Field trip participation	10%
Question of the Day	10%
Midterm Exams (2)	20% each
Poster Project	20%
Final Exam	20

Letter Grade Breakdown: A = 90%+; B = 80 – 89%; C = 70 – 79%; D = 60 – 69% ; F = < 60%

## Academic integrity

University guidelines for acceptable student conduct are very specific and will be strictly followed. Please read the guidelines (<http://www.catalog.hawaii.edu/about-uh/campus-policies1.htm>) and contact your instructors if you have any concerns. Academic dishonesty will be reported, and any exams or assignments affected by dishonesty will receive "0" credit and cannot not be retaken.

## Question of the day

We will have occasional review question covering the material of the previous lecture. These will be given unannounced to encourage class attendance. The question will be posed during the lecture (likely the beginning of the lecture), and we will spent some time reviewing the answer depending on student response.

## **Midterms and Final**

There will be 2 midterm exams and a non-comprehensive final, which will be in multiple choice format.

## **Make-Up Exams/Early Exams**

Make-up exams will not be given except when a student misses the exam for a legitimate reason such as illness or family emergency (a doctor's note is required in the case of illness). Please contact me as soon as possible if such a situation arises. Anyone with official UH-sponsored event conflicts (e.g. UH sports teams) must provide at least 2 weeks notice with appropriate signed paperwork.

Note that make-up and/or early exams will be essay format and may be substantially more difficult.

**Field Work:** There will be at least 1 Saturday field trip, which will be scheduled in the beginning of the semester for a suitable weekend to most. If you cannot attend, there will be an assignment instead that will require equivalent time investment.

**Laboratory:** There is no separate lab component for this class; however, you are encouraged to sign up for the Dynamic Earth laboratory (GG 101L). It is a separate class and will give you lots of good hands-on experience.

**Presentation/ project:** a presentation that discusses a place in Hawai'i. Your presentation will compare the Hawaiian explanation of how a certain Hawaiian place (of your choice) was formed (or a legend about the place) to the western geological explanation of how that place was formed. The presentations will be during the last week at the end of the semester (F, M, W), and during class time; you will be given specific instructions for a 5 minute presentation (+1 minute for questions) to the class.

## **Dropping this class – deadline reminders**

You will need to drop the class by filing appropriate paperwork: non-attendance will not result in being dropped, but you will get zeros for the remaining work and consequently fail the class.

## **Students with Disabilities:**

The Geology and Geophysics Department will make every effort to assist those with disability and related access needs. For confidential services, please contact the Office for Students with Disabilities (known as "Kokua") located in the Queen Lili'uokalani Center for Student Services (Room 013):\_\_  
KOKUA Program; 2600 Campus Road; Honolulu, Hawaii 96822\_\_  
Voice: 956-7511; Email: kokua@hawaii.edu;\_ URL: www.hawaii.edu/kokua

## **Title IX:**

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](mailto:t9uhm@hawaii.edu).