

# **Geology of Alaska and Hawai'i**

## **Geos 293**

3 credits  
Rasmussen 341  
Thursday 11:30 –12:45

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Hawai'i and Alaska have many geologic similarities and cultural links. Both occupy geologically dynamic locations in the Pacific with populations whose cultural history is strongly influenced by their geologic setting. This class will focus on the active geologic processes that have shaped these two unique states. Topics will include: active Hawaiian volcanism, tectonics associated with active volcanoes, weathering of volcanic materials, hazards associated with active volcanism, volcano monitoring, the tectonic setting of southern Alaska, the characteristics of a collisional margin, glacial geology of southern Alaska, and the geohazards associated with active margin tectonics.

The first half of the class will consist of a weekly videoconference class held jointly with University of Hawai'i Manoa. The second half of the class will consist of two, week-long field trips: the first to Hawai'i hosted by UH Manoa, and the second to southern Alaska hosted by UAF.

### **INSTRUCTORS:**

#### **UAF:**

Cathy Hanks: NSF 346, 907-474-5562, [chanks@gi.alaska.edu](mailto:chanks@gi.alaska.edu)  
Office Hours: TBD  
Sarah Fowell: NSF 326, 907-474-7810, [ffsjf@uaf.edu](mailto:ffsjf@uaf.edu)  
Office Hours: TBD

Teaching Assistant:  
Jason Addison: NSF 312, 907-474-7585, [ftjaal@uaf.edu](mailto:ftjaal@uaf.edu)

#### **UHM:**

Scott Rowland: POST 617A, 808-956-3150, [scott@hawaii.edu](mailto:scott@hawaii.edu)  
Office Hours: TBD

Teaching Assistant:  
Tom Fedenczuk: POST 517A, 808-965-3159, [tmf@hawaii.edu](mailto:tmf@hawaii.edu)

### **PREREQUISITES:**

Geos 101x, 120, or equivalent, and permission of the instructor.

## **REQUIRED TEXT:**

We will assign readings from the following two books during this course:

Roadside Geology of Hawai'i by Richard Hazlett and Donald Hyndman  
Guidebook to Geology of Anchorage, Alaska by L.M. Dilley and T.E. Dilley

In addition, a copy of an introductory geology text that you can use as a reference will be put on reserve in the library. Additional readings may be assigned during the course of the class.

## **LECTURES, FIELD TRIPS, AND ATTENDANCE**

The lecture portion of the class will consist of 10, 1.25 hour, joint UH Manoa and UAF videoconference classes. These lectures will provide critical background information that you will use during the subsequent field trips. Consequently, attendance at all the lectures is mandatory.

The two field trips will run immediately after the spring semester. UAF students will depart from Fairbanks May 14 for Hawai'i to begin the UH-hosted Hawai'i field trip on May 15. UAF and UH students will return to Alaska ~May 22.

A complete list of equipment and a more detailed field trip itinerary will be given to the class in early April.

## **GRADING POLICY**

You will be given a letter grade for the course. The grade will be based on a project that compares some aspect of Hawai'i and Alaska geology. Each of you will be paired with a Hawaiian student to do the final project. The project will involve reading and book research during the semester and field observations during the field excursions. You will produce a written report and a PowerPoint presentation on your topic.

The official class ends after the official end of the semester, so you will have to take an incomplete for a grade, but your final grade will be posted shortly after the projects are completed.

## **IF THERE IS A PROBLEM....**

Students are encouraged to contact the teaching assistants or professors early when any questions or problems arise. Don't wait if there is a problem—they generally don't disappear on their own!

The University of Alaska Fairbanks implements the Americans with Disability Act (ADA) and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services to provide reasonable

acommodation to students with disabilities.

**PRELIMINARY LECTURE SCHEDULE**

<b>Week</b>	<b>Topic</b>
	<i>Geology of Hawai'i (From U. of Hawai'i Manoa)</i>
Feb 9	Introduction to hotspots Evolution of a Hawaiian Volcano
16	Large-scale structures of a Hawaiian volcano
23	Small-scale structures of a Hawaiian volcano
March 2	Hawaiian geophysics & geologic hazards
9	Weathering of volcanic products, soil development & groundwater
16	<b><i>No class—UAF Spring Break</i></b>
	<i>Geology of Alaska (from UAF)</i>
23	Review of plate tectonics Geography and tectonic setting of southern Alaska
30	<b><i>No class—UHM Spring Break</i></b>
April 6	Seismicity and volcanism on convergent margins Mountain building on convergent margins
13	Seismicity and structures associated with a strike slip margin
20	Tectonic history of southern Alaska; geologic hazards
27	Glacial features of southern Alaska; groundwater
	<b>Field trip dates (tentative)</b>
May 14	UAF travel to Hawai'i
15-21	Geologic field trip in Hawai'i
May 22	UAF and UHM travel to Alaska
May 23-29	Geologic field trip in Alaska
May 30	Return home