

SIO 45- Volcanoes

MWF 8:00-8:50

Instructor

Geoffrey Cook

Office: Galbraith 366

Phone: 534-3406

Email: gwcook@ucsd.edu

Hello! I am thrilled to be introducing you to the exciting world of volcanology! This class is designed to give students from a diverse array of backgrounds a general understanding of earth science and the earth system using volcanoes as a teaching tool. You need not have a background in geology to enjoy the class, and during the quarter you will learn a lot about Earth materials and Earth processes in addition to how volcanoes work. Regardless of your background, I believe you will find the class both interesting and informative. Throughout the quarter, I ask that you remember that we are here to help you further your education, so please do not be inhibited to visit office hours, seek help/guidance, or discuss any concerns or issues you may have. I always encourage questions and discussion in class and am happy to re-address or clarify concepts. I very much want this to be a positive and useful learning experience for everyone.

Class Organization and Grading:

This class will include weekly lectures, demonstrations, and discussions that will take place during the regularly assigned class periods. Grades will be based on one midterm exam worth 100 points, and a final exam (scheduled during finals week) worth 125 points. Throughout the quarter assignments (homework, in-class assignments) will be given out that will total 75 points. Consequently, your grade will be based on a total of 300 points.

Textbooks and Readings

There is no assigned text for the class. Rather, materials will be handed out and assigned in-class. These materials will consist of scientific articles, news articles, and web-based readings. *Volcanoes 3rd ed.* By Francis and Oppenheimer is a recommended text that will augment and enhance the experience for those that choose to obtain it. It is not, however, required to complete the class.

Absences and Missed Work:

There will be no make-up examinations. In the case of legitimate conflicts, notification is required at least one week before the regularly scheduled examination. In the case of deaths, accidents, or sickness, notification is appreciated as soon as possible and is required within one week of the regularly scheduled examination time. *All excuses must be in writing.*

Classroom Conduct:

Disruptions during lecture will not be tolerated. Disruptive behavior including talking, excessive noise, poor behavior towards other students or instructors/TAs, arriving late/leaving early, reading newspapers in class, inappropriate language/comments in lecture or on-line, or ringing cell phones will result in your being asked to leave the class. It is to your benefit to arrive on time because most announcements and assignments occur at the beginning of lecture.

Class schedule

General Note: This syllabus is an outline of proposed events. It is subject to change; however, never without notification, and never to advance the due dates of assignments.

Date Lecture Topic

- 1-5 Welcome and introduction to volcanology
- 1-7 Introductions to geology: rocks and minerals, plate tectonics and geologic processes
- 1-12 What is a volcano? How are they defined? Why do volcanoes erupt?
- 1-14 Volcano taxonomy: types of volcanoes (structures)
- 1-19 Volcano taxonomy: eruptive activity
- 1-21 Products of volcanic eruptions: mafic volcanoes
- 1-26 Products of volcanic eruptions: intermediate to felsic volcanoes
- 1-28 SUPERVOLCANOES!!!! (Calderas)
- 2-2 An historical look at the study of volcanoes
- 2-4 **MIDTERM EXAM**
- 2-9 Volcanic hazards
- 2-11 Volcanic hazards and society: a look at some of the most deadly historical eruptions
- 2-16 Volcano monitoring: can we really predict eruptions?
- 2-18 Analogue experiments in volcanology
- 2-23 Case studies: Mt. Pinatubo (Philippines)
- 2-25 Case studies: Mt. St. Helens (Washington, U.S.A.)
- 3-1 Case studies: Kilauea (Hawai'i, U.S.A.)
- 3-3 Case studies: Colombian volcanoes; Nevado del Ruiz; Volcan Galeras
- 3-8 Case studies: Mt. Vesuvius and the A.D. 79 eruption
- 3-10 Volcanoes and their influence on climate