

SIO 170- Introduction to Volcanology

T/TH 12:30-1:50

Vaughan 100

Instructor: Geoffrey Cook

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Office Hours: by appointment (please don't be afraid to contact me anytime!)

Welcome to the wonderful and spectacular world of volcanoes! I am thrilled to be able to offer you this experience, and I hope it is educational and stimulating throughout. The class will introduce you to the science of volcanology, including fundamental principles and processes of volcanic eruptions. I hope to give you a better understanding of what volcanologists do and why volcanology is an important scientific discipline from a societal standpoint. As always, please let me know if you have questions or concerns and know that I am here to help at all times.

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 the following:

Midterm exam: 50 points

Final exam: 50 points

Homework and in-class assignments: 50 points

Volcano paper: 25 points

Total = 175 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.

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.

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.

| <u>Date</u> | <u>Lecture Topic</u> |
|-------------|--|
| 4-1 | Introduction to volcanology |
| 4-3 | Tectonics, Earth's volcano distribution, and volcanic structures |
| 4-8 | Magmas and volcanic rocks |
| 4-10 | Magmas and volcanic rocks |
| 4-15 | Styles of eruption: eruptive classification |
| 4-17 | Styles of eruption: eruptive classification |
| 4-22 | Lava flows |
| 4-24 | Lava flows |
| 4-29 | Pyroclastic eruptions and pyroclastic density currents |
| 5-1 | Pyroclastic eruptions and pyroclastic falls |
| 5-6 | MIDTERM EXAM |
| 5-8 | Pyroclastic deposits from mafic eruptions |
| 5-13 | Domes and associated block and ash flows |
| 5-15 | Mudflows and debris avalanches |
| 5-20 | Super volcanoes and calderas |
| 5-22 | Super volcanoes and calderas |
| 5-27 | Volcanic hazards and monitoring techniques |
| 5-29 | Volcanic hazards and monitoring techniques |
| 6-3 | Volcanoes and climate |
| 6-5 | Inquiry-guided topics (student driven) |

Final Exam: Monday, June 9, 11:30 AM-2:30 PM