

**Geology and Geophysics 454: Engineering Geology**  
**Spring Semester, 2017, 3.0 Units**  
**MWF 9:30-10:20 POST 703**

**Instructor:** Steve Martel, POST 805, 956-7797, smartel@hawaii.edu

**Office Hours:** After class or by arrangement\*

**Text:** "Engineering Geology" by Perry Rahn, *or* "Practical Engineering Geology" by Steve Hencher

**Class Themes**

This class emphasizes a modern approach to engineering geology that can be applied to a broad variety of "real-world" problems; it will not be a class in "geology for engineers" or "engineering for geologists." The lectures will emphasize the approach as it pertains to a broad variety of geologic phenomena that impact people, engineering structures, and engineering operations. The lectures will be built around reviews of selected case histories and discussions of the underlying geological phenomena. Specific topics to be addressed include general characteristics development of soils, sedimentary deposits, and rocks; geologic structures; earthquakes; landslides and rockfalls; coastal erosion; and ground subsidence. The course will introduce students to the concepts of hazards and risks.

One of the major goals of the class is to give engineers and geologists an appreciation of the advantages and frustrations of working with each other; this will be done through a series of written group projects. The projects will provide class members an opportunity to practice the approach developed in the lectures, develop individual and collective writing skills, and to improve their ability to organize and carry out group projects. For many student this will be the first opportunity for thorough scrutiny of your technical writing, both from the instructor and from classmates. Students can expect to write a total of at least 16 pages in this class.

In this class students will develop their ability to: (1) recognize, characterize, evaluate, and assess the relevance and significance of geologic conditions and processes of engineering relevance; (2) apply mathematics and physics to problems of common interest to engineers and geologists; (3) apply the scientific method to practical problems in applied geology; (4) communicate in written form through a series of group projects; (5) plan, organize, and complete multi-disciplinary technical projects in a timely manner; (6) develop their ability to understand and apply geologic principles to help explain geologic phenomena that impact the planning, design, construction, and operation of engineering projects.

**Grading and Assignments**

Grading will be based on a few homework assignments and three group projects; no exams are given. The grades will be primarily based on the written group projects. The homework assignments are intended to give you an opportunity to practice some of the mechanics concepts that we discuss. People are encouraged to work with other members of the class on the homework assignments but should turn in their own work.

Tentative Grading Scheme

Homework I	5%
Group Project I (report)	25%
Homework II	5%
Group Project I (report)	25%
Homework III	5%
Group Project III (report)	25%
Field trip	5%
Class Participation	5%

**Field Trip**

One local field trip is planned to examine sites of landslides, rockfall, and coastal erosion.

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).