Syllabus: ERTH 333: Earth Materials and Structures
Lectures T Th 12:00-1:15, Lab F 1:30-4:20
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This lecture-laboratory-field course (ERTH 333) is designed for upper-division students in either of the Earth Sciences Dept. BA tracks. The first 1/3 of the course will cover structural geology, and the next 2/3 will cover minerals and rocks as well as a few other topics. Lectures will cover key concepts of mineral and rock formation, the information they carry about the past processes and environments, formation mechanisms of various features such as faults, folds, and landslides, and how these can be used to piece together the geologic history of a particular location. The labs will cover identifying minerals and rocks in hand-sample and in thin-section, and will include field trips to measure and record the orientation of rocks and faults, as well as the signs of landslides.

ERTH 333 SCHEDULE

Date	Topic(s)	SLOs
Week 1	Course Introduction, Relative ages Strikes, dips, and stereonets *Strike, dip, and stereonet exercise*	1, 2, 3, 4, 5
Week 2	Faults: types and identification Faults: tectonic settings *Topographic cross section lab*	1, 2, 3, 4, 5
Week 3	Folds: types and identification Faults and Folds: tectonic settings *Geologic map and cross section lab*	1, 2, 3, 4, 5
Week 4	Magma production Mineral families *Strikes, dips, and faults with stereonets*	1, 2, 3, 4, 5
Week 5	No class Mineral bonding and properties *Hand-sample mineral identification*	1, 3, 4, 5
Week 6	Magma compositions Cooling and igneous textures *Petrographic microscope intro.*	1, 2, 3, 4, 5
Week 7	Types of volcanic activity Types of volcanoes *Volcanic rock identificaiton*	1, 3, 4, 5
Week 8	Types of intrusive rocks Tectonic setting of intrusive rocks *Intrusive rock identificaiton*	1, 3, 4, 5
Week 9	Hawaiian volcanism Products of Hawaiian volcanism *Volcanic rock field trip*	1, 3, 4, 5
Week 10	Terrestrial sedimentary environments Marine sedimentary environments *Sedimentary rock identification*	1, 3, 4, 5
Week 11	Metamorphic texture Metamorphic grade and metamorphic rocks *Metamorphic rock identification*	1, 3, 4, 5
Week 12	Chemical weathering processes Clays, oxides, hydroxides, precipitates *Clay mineral identification lab*	1, 3, 4, 5

Week 13	Soils: basic concepts Hawaiian soils *Hawaiian soils ID and field trip*	1, 3, 4, 5
Week 14	Rock and soil strength, slope stability **THANKSGIVING** **THANKSGIVING**	1, 3, 4, 5
Week 15	Landslide case studies I Landslide case studies II *Landslide field trip*	1, 3, 4, 5
Week 16	Roles of organisms and the biosphere in geologic processes I Roles of organisms and the biosphere in geologic processes II	1, 3, 4, 5

***** Earth Sciences undergraduate courses have to consider how they address a number of **Student Learning Objectives** (SLOs), which the Earth Sciences Department has decided are key attributes and/or abilities of any Earth Sciences student. They are (in no particular order):

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.

If you have a disability and related access needs the Department will make every effort to assist and support you. For confidential services, students are encouraged to contact the Office for Students with Disabilities (known as Kōkua) located on the ground floor (Room 013) of the Queen Lili'uokalani Center for Student Services.

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) 956-299 t9uhm@hawaii.edu