Introduction to the geometry, kinematics, and mechanics of lithospheric deformation.

Instructors:

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Text: Structural Geology, by H. Fossen
2nd Edition

Office hours: by appointment

Lectures: MW 10:30-11:20 ONLINE
Lab: W 1:30-4:20 POST 708 or ONLINE
Schedule

Aug 24  Week 01  M  Chapter 1: Introduction to Structural Geology  Dunn
W  Chapter 2: Deformation  Dunn
Lab  Deformation  Dunn

Aug 31  Week 02  M  Chapter 2: Deformation  Dunn
W  Chapter 2: Deformation  Dunn
LAB  Mathematics of Deformation  Dunn

Sept 07  Week 03  M  Labor Day: No class
W  Chapter 3: Strain in Rocks  Dunn
LAB  Strikes and Dips  Rowland

Sept 14  Week 04  M  Chapter 4: Stress  Dunn
W  Chapter 5: Stress in the Lithosphere  Dunn
LAB  Stereonets  Rowland

Sept 21  Week 05  M  Chapter 6: Rheology  Ito
W  Chapter 6: Rheology  Ito
LAB  Rheology  Ito

Sept 28  Week 06  M  Review for Midterm 1  Dunn
W  Midterm 1  Dunn
LAB  Ito

Oct 05  Week 07  M  Chapter 7: Fracture and brittle deformation  Ito
W  Chapter 7: Fracture and brittle deformation  Ito
LAB  Creating topographic cross-sections  Rowland

Oct 12  Week 08  M  Chapter 8: Joints and veins  Ito
W  Chapter 8: Joints and veins  Ito
LAB  Ito

Oct 19  Week 09  M  Chapter 9: Faults  Ito
W  Chapter 9: Faults  Ito
LAB  Interpreting geologic maps/constructing cross-sections  Rowland

Oct 26  Week 10  M  Chapter 10: Kinematics and paleostress  Smith-Konter
W  Chapter 10: Kinematics and paleostress  Smith-Konter
LAB  Smith-Konter?

Nov 02  Week 11  M  Chapter 11: Deformation at the microscale  Ito
W  Chapter 11: Deformation at the microscale  Ito
LAB  Including review for Midterm 2  Ito

Nov 09  Week 12  M  Midterm 2  Ito
W  HOLIDAY: Veterans’ Day
LAB  HOLIDAY: Veterans’ Day
Course Structure: Two lectures and one lab per week. Lecture: includes class participation; small group activities; problem solving; Lab: Lab and outdoor activities with required report.

Grading: We will have homework, lab reports, two midterms, and one final exam. The relative weightings are: Homework and in-class assignments 50%; Labs and course participation 25%. Exams 25%.

Questions: Questions are welcome and help everyone. Please ask questions freely!

Learning Objectives: The Department of Earth Sciences has established the following undergraduate student learning objectives. All of these objectives are relevant targets for the curriculum of ERTH303.

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.

Disability Access: 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 “Kokua”) located on the ground floor (Room 013) of the Queen Lili‘uokalani Center for Student Services: KOKUA Program; 2600 Campus Road; Honolulu, Hawaii 96822. Voice: 956-7511; Email: kokua@hawaii.edu; URL: www.hawaii.edu/kokua

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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.