

The crust of the earth is deformed at many scales, locations, and times; this deformation produces identifiable structures in the crust such as fractures and folds. An appreciation of earth structures has both enormous practical value and profound intellectual implications for how we view this planet. This class deals with ways to recognize and characterize major structures in the earth's crust and ways to gain insight into how they form. The class will focus on macroscopic structures but will also introduce structures at the microscopic scale. The course laboratory and field trip to the Big Island (on Veteran's Day weekend) tie critical course concepts together.

Our ability to understand geologic structures depends largely on how we perceive them. Few geologic structures form by trivially simple processes, but we can view them in ways that helps make them amenable to understanding; perspective is critically important. The class will develop systematic ways to visualize the geometry, kinematics, and mechanics of geologic structures such that the underlying essential forms emerge clearly.

A second key thread is the usefulness of integrated knowledge, which can be idealized as a fishing net. A net is a light, strong, and flexible and practical tool, even though it full of holes. Its outstanding feature is the connection of its nodes. Similarly, scientific concepts are vastly more powerful when they are connected rather than isolated. Developing the connection process is a key part of thinking, problem recognition, and problem solution for a scientist.