Geological Materials and Resources

Course # EAES 3063

Credits 6

Prerequisites and/or Corequisites: Introduction to Earth and Environmental Sciences, Chemistry

Course Description

Geologic Materials and Resources introduces the physical and chemical properties and characteristics of minerals, rocks and sediments, including the techniques of measuring or determining their values in the laboratory and in-situ. The relationships between rock types and plate tectonics, and the origins and characteristics of geological resources are discussed. Students will complete laboratory and field-based studies as part of this course.

Course Learning Outcomes

Upon completion of this course, the student will be able to:

- Describe and identify hand specimens of common rock forming minerals and rock types, both in the laboratory and in the field.
- Relate mineral properties to composition, atomic structure, bonding, and the occurrence of those minerals in different rock types.
- Describe the processes of formation of common rock types, and use their textural, chemical and mineralogical features to classify them.
- Predict where certain rock types have formed at different periods of geological time and where they are forming today, using plate tectonics through time as a framework.
- Apply knowledge of rock forming processes to interpret the geological history of an area based on samples and geological maps, with a particular focus on the local region.
- Relate important economic minerals to their mineral deposit types, geological setting and deposit formation processes.

Course Assessments and Grading

Item	**Weight**
Active class participation and contribution	5%
Final Project	15%

Field work report	10%
Laboratory reports	15%
Three quizzes (7% each)	21%
Mid-term exam	10%
Final Exam	24%