



CATALOG DESCRIPTION

A study of elementary crystallography. Topics covered include description, chemistry, determination, and occurrence of minerals that form common rocks and ore deposits. This class includes a field trip.

Prerequisites: GEOL 110

Semester Offered: Fall

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Understand mineral properties and occurrences, including classification, optical mineralogy, and crystallization.
2. Understand basic crystallography, including three-dimensional symmetry and atomic structure.
3. Identify and describe the major rock- and ore-forming minerals.
4. Discuss the importance of minerals, bonding, and major elements used in formation of minerals.
5. Discuss crystallization, including imperfections like defects, compositional zoning, and twinning.
6. Identify minerals using basic properties such as luster, color, streak, fracture, cleavage, hardness, specific gravity, and etc.

7. Understand the interaction of light and crystals
8. Discuss composition of igneous rocks, crystallization of magmas, and recognize major silicate minerals found in igneous rocks.
9. Discuss weathering, transportation, deposition, lithification, and precipitation of the major sedimentary minerals.
10. Discuss the formation of metamorphic rocks, including changes in composition and crystal form of metamorphic minerals.
11. Describe the formation of typical ore deposits and other economic minerals.
12. Describe crystal morphology and symmetry, including crystal forms and Miller indices.
13. Identify and describe the basic silicate subclasses (e.g., framework, sheet, chain, ring, paired tetrahedral, and isolated tetrahedral silicates).
14. Identify and describe other common rock- and ore-forming minerals (e.g., sulfides, halides, oxides, hydroxides, carbonates, etc.)