

# Minnesota State University Moorhead

## GEOS 302L: Mineralogy Lab

### A. COURSE DESCRIPTION

Credits: 0

Lecture Hours/Week: 2

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This is a mineralogy lab course that must be taken concurrently with GEOS 302.

**B. COURSE EFFECTIVE DATES:** 08/15/2006 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. Student can use key tools such as phase diagrams, miller indices, Herman-Maugin index, and the concept of space and point groups to discuss and explain the character and behavior of minerals.
2. Student can use phase diagrams to discuss and explain the behavior of minerals and melts and to predict mineral compositions and proportions given system composition and temperature.
3. Students can explain energy levels, bonding, and valence in terms of a simple orbital-filling model for atoms.
4. Students can explain the characteristics and occurrence in minerals of different types of bonds.
5. Students understand and can explain how valence state and cation size influence the substitution of elements into various minerals, particularly pyroxenes and feldspars.
6. Students will be able to recognize key features of minerals and identify rock-forming minerals in hand sample.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted