

# Minnesota State University Moorhead

## GEOS 170: Earth Science Today

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

A survey of the components of Earth Science needed for teacher licensure in Minnesota, including aspects of physical geology, historical geology, astronomy, and meteorology. Particular emphasis is placed on critical evaluation of evidence, how we know things in science, what the implications are for our society, and on actual investigation. Topics include volcanoes and earthquakes, the influence of chemical change on natural resources and environment, plate tectonics, planetary science, phases of the Moon, stories told by rocks of the Earth, how weather features form and move, and Earth's climate. Lab included. MnTC Goal 3.

**B. COURSE EFFECTIVE DATES:** 12/26/2001 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Physical Geology (rocks and minerals, seismic waves and earthquakes, volcanology)
2. Historical Geology (Petrology, Stratigraphy, Paleontology)
3. Weather and Climate
4. Astronomy (phases of the Moon, planetary processes, Earth Seasons)
5. Impact of humans on climate and/or environment

### D. LEARNING OUTCOMES (General)

1. Student can solve a variety of geological problems using a variety of approaches.
2. Student can explain how particular geological conclusions were drawn.
3. Student can engage in critical thinking and reasoning as applied to geological problems.
4. Student can understand and interpret geological features in the field.
5. Student can recognize and interpret the meaning of common rock types.
6. Student can read and interpret a variety of geologically relevant graphs and diagrams.
7. Students can explain basic weather processes, such as winds, condensation, cyclones, and fronts.
8. Student can answer questions addressing the basic tenets of geology, including geological processes on other planets.
9. Students can explain how planetary systems are driven by energy input, causing a variety of weather, tectonic, and volcanic processes.

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

### **Goal 03 - Natural Science**

1. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
2. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
3. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.
4. Demonstrate understanding of scientific theories.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted