

# North Hennepin Community College

## NSCI 1170: Minnesota Field Geology Series: Glacial Geology

### A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science, Goal 10 - People/Environment

Come explore the glacial geologic history of Minnesota! We will also examine its influence on some of the state's economic, environmental and political issues. Topics include: geologic time, plate tectonics, hydrologic cycle, rock cycle, rock classification and identification, formation, climate change and destruction of continental ice sheets, sedimentary processes, recognition of erosional and depositional glacial landforms, and topographic map usage. This course is a field experience including observations, hypothesis, predictions, and evaluation of scientific data and results. Three-day field trip around Minnesota is mandatory. Course is open to all students. 2 credits

**B. COURSE EFFECTIVE DATES:** 07/21/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Students will be introduced to and work with the tools that geoscientists use in their scientific practice to unravel our understanding of various aspects of Minnesota's geologic history.
2. Students will be introduced to and practice using the scientific process with basic geologic concepts and content such as plate tectonics, rock and mineral classification and identification, geologic time, sedimentary environments and stratigraphy, hydrologic cycle, formation and destruction of continental ice sheets and the resulting erosional and depositional processes and landforms, climate change, Minnesota mineral resources, topographic and geologic maps.

## **D. LEARNING OUTCOMES (General)**

1. Demonstrate an understanding of the development of Minnesota's Quaternary glacial geologic history and its economic, environmental and political influence/impact on the state. (MnTC G-3a,c,d; MnTC G-10a,b,d,e,f; NHCC ELO #1, 2)
2. Formulate and test hypotheses related to the recognition and interpretation of continental glacial processes, their resulting erosional and depositional landforms and climate change (MnTC G-3a,b,c; NHCC ELO #2)
3. Analyze and critique current theories and hypotheses as well as propose their own for observations in the classroom and in the field. (MnTC G-3a,b,c; NHCC ELO #1, 2)
4. Evaluate field data & make geologic interpretations using an understanding of present geologic processes & environments as a template for interpreting evidence in the rock record. (MnTC G-3a,b,c,d; NHCC ELO #1, 2)
5. Develop individual and collaborative reasoning skills by evaluating geologic information. (MnTC G-3a,b,c; NHCC ELO #1, 2)
6. Use quantitative and graphic methods to describe or model 3-dimensional geologic processes or features which will improve their ability to think and visualize in 3-D space. (MnTC G-3a,b,c; NHCC ELO #1, 2)
7. Practice their powers of observation of the natural world around them by recognition of subtle geologic features in the field. (MnTC G-3a,c,d; MnTC G-10a,b,d,e,f; NHCC ELO #1, 2)
8. Demonstrate their ability to communicate their observations and interpretations both in writing and a poster presentation. (MnTC G-3a,c,d; MnTC G-10a,b,d,e,f; NHCC ELO #1, 2)

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

### Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. 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.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

### Goal 10 - People/Environment

1. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
2. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
3. Describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
4. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
5. Propose and assess alternative solutions to environmental problems.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

1. Knowledge of Human Cultures and the Physical and Natural World --Through study in the sciences, mathematics, social sciences, humanities, histories, languages, the arts, technology and professions.
2. Intellectual and Practical Skills - Including: Inquiry and analysis; Critical and creative thinking; Written and oral communication; Quantitative literacy; Information literacy; Teamwork and problem solving.