

North Hennepin Community College

NSCI 1100: Physical Geology

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

A course examining the earth's formation, composition, structure and natural systems. Using the process of science, learners will explore the earth's internal and external processes and how they shape the surface of the earth. Topics include: geologic time, plate tectonics, rock and mineral identification, introduction to topographic and geologic maps, surficial processes, climate change and environmental concerns. Course is open to all students. (3 hours lecture, 3 hours lab) 4 Credits.

B. COURSE EFFECTIVE DATES: 07/18/2016 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Students will be introduced to and work with the tools that geoscientists have used in their scientific practice to unravel our understanding of: 1) how the earth and solar system were formed, 2) the internal structure of the earth and the earth as a system and 3) the internal and external processes that shape the earth's surface and that can be natural hazards.
2. In addition to the topics of origin & evolution of the solar system and earth, students will be introduced to and practice using the scientific process and basic geologic concepts and content along with topographic and geologic maps to explore such topics as plate tectonics, rock and mineral identification, geologic time, earth system and cycles, landform development, climate change.

D. LEARNING OUTCOMES (General)

1. describe and use the scientific method; explain what science is, how it works and the role of science in society; and discriminate/recognize science from pseudoscience by evaluating examples (MnTC G-3a; MnTC G-3c; NHCC ELO#1, 2)
2. using case studies and authentic data, practice making observations, formulating scientific questions, developing hypotheses and means to test them, and predict outcomes related to their hypotheses (MnTC G-3a,b,c; NHCC ELO #1, 2)
3. describe/explain, using words and pictures: a) commonly accepted theories on the origin of our solar system, b) the subsequent development of and controls on the layered structure of earth, and c) the data/observations scientists used in support of such (MnTC G-3a,b,c; NHCC ELO #1, 2)
4. demonstrate, using words and pictures: a) an understanding of plate tectonic theory; b) how and why plate tectonics is considered the unifying theory in geology; and c) recognize its influence, by way of example, in formation of earth materials and landscape construction and their effects on society (MnTC G-3a,b,c,d; NHCC ELO#1, 2)
5. explain and apply, using words and pictures, basic geologic principles in solving geologic problems (MnTC G-3a,c;NHCC ELO #1, 2)
6. develop an understanding of cyclicity and interaction in earth systems (MnTC G-3a,c,d; NHCC ELO #1, 2)
7. recognize landforms in model, diagram, photographic and map form and will relate them to the surficial or internal processes that created them and their effects on society (MnTC G-3a,c,d; NHCC ELO #1, 2)
8. recognize and explain the significance of and show an appreciation for geologic time, the geologic time scale and the methods with which geologists determine the ages of rock layers and the geologic events they represent (MnTC G-3a,b,c,d; NHCC ELO #1, 2)
9. demonstrate an application of the concept of classification; with emphasis on the relationship between rock classification schemes, the origin of various rocks and plate tectonic theory (MnTC G-3a,c; NHCC ELO #1, 2)
10. recognize patterns in geologic information/data and relate these patterns to geologic processes, features and/or earth materials (MnTC G-3 a,b,c,d; NHCC ELO #1, 2)
11. use comprehension skills such as translation, interpretation and extrapolation to interpret geologic data presented in written, graphic or pictorial form (MnTC G-3a,b,c,d; 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.

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.