A. Course Description

Credits: 4

Prerequisites: MATH 102 Mathematics of Sustainability or placement at or above College Algebra level on the University's assessment test.

OR

MATH 098 Introduction to Mathematical Thinking

Corequisites: None

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

MnTC Goals: Goal 03 - Natural Science

This course is an introduction to geology, meteorology and astronomy. Topics include measurement and the scientific method, rocks and minerals, weathering and erosion, earthquakes, volcanoes, plate tectonics, geologic time and the history of the Earth, structure and composition of the atmosphere, weather patterns, climate, a history of modern astronomy, the solar system, light and the sun, and stars beyond our solar system. Check the Class Schedule for the dates and times of required field trips. Includes Lab.

B. Course Effective Dates: 08/23/2004 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Articulate the main processes that shape the earth's surface and interpret the features depicted on standard topographic maps.
2. Demonstrate mastery of the earth science concepts and vocabulary necessary for success in teaching General Science at the grades 5-8 level and for informed citizenship.
3. Demonstrate quantitative reasoning skills and competency with arithmetic and elementary statistics at a level appropriate for graduates of bachelors degree programs.
4. Recognize and identify the most common minerals and rocks, recognize the diagnostic properties of rocks and minerals, and use keys to identify unknown samples.
5. Understand and explain current theories pertaining to the origin of the universe, the formation of the solar system, and the life cycle of stars.
6. Understand and explain the fundamental physical and chemical properties of the earth's interior layers and the earth's crust, the fundamental processes in plate tectonics and how they lead to the features found at plate boundaries, and the natural hazards that are posed at each type of plate boundary.
7. Understand the vertical structure of the atmosphere, and the driving forces behind large scale atmospheric patterns.

E. Learning Outcomes (MN Transfer Curriculum)

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. Demonstrate understanding of scientific theories.
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.

G. Special Information

Note: First day attendance required except by instructor permission.