A. Course Description

Credits: 4

Prerequisites:
MATH 098 Introduction to Mathematical Thinking
OR
MATH 102 Mathematics of Sustainability or placement at or above the College Algebra level on the University's placement exam.

Lab Hours/Weeks: Corequisites: None

Lecture Hours/Week:

MnTC Goals: Goal 03 - Natural Science

This course introduces and develops major concepts in our understanding of earth’s history - geologic time, global atmospheric evolution and climate change, plate tectonics, evolution of life, and the causes of major extinctions. Readings, presentations, and laboratory activities will emphasize the scientific nature of evidence for ancient earth history.

B. Course Effective Dates: 01/12/2009 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. 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.
2. Demonstrate quantitative reasoning skills and competency with arithmetic and elementary statistics at a level appropriate for graduates of bachelors degree programs.
3. Identify and describe fossils from the 15-20 taxa most commonly preserved in the stratigraphic record.
4. Understand and explain the causes of the six major extinctions in earth history.
5. Understand and explain the forces behind global climate change, and why the current rate of anthropogenic climate change is unusual, if not unique, in earth history.
6. Understand and explain the use of radiogenic isotopes to determine the geologic age of a rock or fossil to a variety of age groups and audiences.
7. Understand and interpret processes of deposition and erosion as they are recorded in the stratigraphic record.

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
None