A. Course Description

Credits: 4

Prerequisites:

- MATH 098 Introduction to Mathematical Thinking
- OR
- MATH 102 Mathematics of Sustainability or placement at or above College Algebra level on the University's assessment test. In addition, proficiency in using the internet is a requirement for this class.

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

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

This course introduces the geological materials, processes and events of the earth's surface and crust that are most relevant to human populations. The phenomena studied include natural disasters such as earthquakes, volcanic eruptions, tsunami, floods, and hurricanes, as well as important resources such as water, soil, traditional and alternative energy resources, and pollution and remediation of water and air quality.

B. Course Effective Dates: 05/10/2010 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Demonstrate mastery of the concepts, knowledge and vocabulary of environmental geology at the level necessary for informed citizenship.
2. Demonstrate quantitative reasoning skills, apply arithmetic and algebraic techniques to scientific problem solving, and use arithmetic, algebra and elementary statistics at a level appropriate for graduates of bachelors degree programs.
3. Make scientifically relevant observations on a variety of scales, from individual mineral crystals to global regions.
4. Understand and explain the geologic and atmospheric mechanisms behind natural disasters.
5. Understand and explain the presentation and interpretation of geospatial data on geologic maps, hazard maps, and satellite imagery such as Google Earth.

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.

Goal 10 - People/Environment

1. Propose and assess alternative solutions to environmental problems.
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. Articulate and defend the actions they would take on various environmental issues.

G. Special Information

Note: First day attendance required except by instructor permission.