

**Course discipline/number/title: ESCI 1144: Introduction to Environmental Geology****A. CATALOG DESCRIPTION**

1. **Credits:** 4
2. **Hours/Week:** 3 Lecture, 2 lab
3. **Prerequisites (Course discipline/number):** None
4. **Other requirements:** None
5. **MnTC Goals (if any):** Goal 3/Natural Sciences, Goal 10/People and the Environment

**B. COURSE DESCRIPTION:** This course examines the relationship between geology and short-term human concerns (periods of no more than a few hundred years). Topics include earthquake hazards, volcanoes, flooding, landslides/mass wasting, groundwater and surface water problems, radioactive waste disposal, energy and mineral resources and radon. Environmental issues and effects on society are a major focus.

**C. DATE LAST REVISED (Month, year):** February, 2019

**D. OUTLINE OF MAJOR CONTENT AREAS:**

1. Philosophical principles of environmental geology
2. Population growth
3. Plate tectonics
4. Natural Hazards (e.g. Flooding, Coastal erosion, etc.)
5. Climate Change
6. Natural Resources
7. Waste disposal and pollution

**E. LEARNING OUTCOMES (GENERAL):** The student will be able to:

1. Evaluate societal issues from a natural science perspective and make informed judgments about science related topics and policies.
2. Assess the hazards associated with geologic phenomena such as river flooding, earthquakes, volcanoes and landslides and propose strategies for mitigating them.
3. Determine the value of resources such as water, minerals and energy resources and propose strategies for responsible and sustainable use of those resources.

**F. LEARNING OUTCOMES (MNTC):**

Goal 3/Natural Sciences: The student will be able to:

1. Demonstrate understanding of scientific theories.
2. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.
3. 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.

Goal 10/People and the Environment: The student will be able to:

1. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
2. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems and institutions.
3. Propose and assess alternative solutions to environmental problems.
4. Articulate and defend the actions they would take on various environmental issues.

**G. METHODS FOR EVALUATION OF STUDENT LEARNING:** Methods may include but are not limited to:

1. Laboratory exercises
2. Written exams
3. Writing assignments
4. Homework assignments

- G. METHODS FOR EVALUATION OF STUDENT LEARNING:** Methods may include but are not limited to:  
**Continued. . .**  
5. Quizzes
- H. RCTC CORE OUTCOME(S).** This course contributes to meeting the following RCTC Core Outcomes(s):  
**Critical Thinking.** Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.
- I. SPECIAL INFORMATION (if any):**  
Included in the initial lab session is a discussion on general safety hazards and safety equipment. During the pre-lab instruction of labs involving hazardous materials or equipment, students are given information pertaining to the use, safety precautions, and disposal of these materials or equipment. The instructor directs all students to wear the necessary protective equipment while working with any hazardous chemicals. Safety Data Sheets for chemicals used are available online.