A. Course Description

Credits: 4

Prerequisites: MATH 115 College Algebra or Equivalent.

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

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

What is science? Who does it? How is it done? This course explores these and other questions about the nature of science, scientists, and the process of scientific discovery. Through hands-on investigations, readings, web-based media, and class discussions the course will broaden understanding of science and its diverse, social/cultural foundations. It introduces to students the nature of science and scientific thought by drawing on specific examples from across the sciences. By building on students personal experience, it deepens understanding of the world that science reveals to us.

B. Course Effective Dates: 08/23/2014 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Conceptualize the characteristics of scientific inquiry from their direct experiences in the course.
2. Recognize various elements of scientific inquiry, including: direct experience, formal observations, inferences, experiments, hypotheses, and theories.
3. Verbalize the basic characteristics of science through their experience in the world or their experience in class.
4. Create testable hypotheses based on observation and theory.
5. Draw sound conclusions from evidence, based on reasoning (inference).
6. Articulate discipline-specific knowledge for example, evolution, extinction, cell biology, experimental and traditional geoscience, and environmental science.
7. Define and recognize the areas overlap and the inter-relatedness of Science, Technology, Engineering, and Mathematics (S-T-E-M).
8. Engage in reflective awareness of the ways in which S-T-E-M knowledge influences their everyday lives.
9. Recognize that science draws on many cultural and historical ways of understanding the natural world.

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. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those
systems.
3. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
4. Describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
5. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
6. Articulate and defend the actions they would take on various environmental issues.

G. Special Information

None