Minnesota State College Southeast

BIOL 1120: Environmental Science

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

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

Environmental Science introduces the relationship between human populations and their surroundings through the use of course assignments, discussions, virtual labs and/or lab like experiences. Students explore core scientific concepts and the impact of past, present, and future human behavior on the environment. An emphasis is placed on how current practices, policies, and individual behavior impact both the local and global environment. (Meets MnTC goals 3 & 10) (Prerequisite: none) (3 Credits: 3 lecture/0 lab)

B. COURSE EFFECTIVE DATES: 07/20/2016 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Principles & Concepts of Environmental Science
2. People & the Environment
3. Biodiversity & Living System Management
4. Environmental Impacts of Human Policy

D. LEARNING OUTCOMES (General)

1. Define Environmental Science
2. Describe the scientific method and use it to solve problems
3. List the major figures and events in the history of environmentalism
4. Describe the composition and structure of life and explain how energy flow is mediated through photosynthesis, cellular respiration, food webs, and trophic levels
5. Define biological populations, communities, niches, keystone species, species diversity, and biomes and relate how they interact
6. Explain historical changes in population size and distribution and how human populations impact hunger, disease, resource use, and economics
7. Explain the historical impact humans have had on the environment
8. Describe what ecosystem diversity is, where it comes from, and why it is important
9. List the major causes of biodiversity loss and explain the impact of biodiversity loss on ecosystems and human populations
10. Describe agricultural, industrial, and surface/groundwater issues
11. Describe what water conservation is and how it is accomplished
12. Describe historical, current, and future energy needs and sources and the impact of using these energy sources
13. Describe how national policies impact human population size
14. Explain how human populations are changing practices to reduce the impact of agriculture, forestry, rangelands, urban development, land conservation, mining, fishing, and global economics

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. 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.
3. 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. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
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.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

This course was previously BIOL 2520.