

# Bemidji State University

## ENVR 2000: Introduction to Environmental Science

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

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

An introduction to environmental science emphasizing biological, physical-chemical and cross-cultural environmental social principles underlying major world environmental, political and economic issues; examination of the impacts of human activities and technology on global environmental and socio-economic stability; application of critical thinking and working with graphic skills and lab-like data analysis related to global environmental, biological, physical-chemical, cultural, and socio-economic topics. Liberal Education Goal Areas 3 & 10.

**B. COURSE EFFECTIVE DATES:** 08/21/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Air Resources and Pollution Sources
2. Atmosphere Science
3. Biological Resources and Management/Ecosystem Biodiversity
4. Ecological Footprint Analysis
5. Ecological Principles & Sustainability, Application & Dynamic Equilibrium
6. Energy: Fossil Fuels/Conventional/Alternative/Sustainable
7. Environmental Ethics, Values, Environmental Politics and Economics
8. Environmental Problems, Their Causes & Sustainability
9. Food Resources, Hunger and Poverty. Food Safety.
10. Greenhouse Effect and Ozone Depletion
11. Hazardous and Toxic Substances, Pest Control
12. Human Population Dynamics, Growth and Management
13. Mineral and Nuclear Resources
14. Public Lands and Management/Sustaining Terrestrial Biodiversity
15. Soil Resource Management
16. Solid Wastes and 3-R Technology
17. Water Resources and Pollution
18. Water and Wastewater Treatment

## **D. LEARNING OUTCOMES (General)**

1. Communicate scientifically backed opinions, results of data interpretations, and proposed solutions to environmental problems
2. Propose and assess alternative solutions to pollution and other environmental problems, for individuals and for societies
3. Evaluate societal issues from a natural science perspective
4. Explain and evaluate the environmental impacts of different types of human activities, including food and energy production
5. Assess their own interaction with and impact on the natural environment, processes, and cycles
6. Discuss and appreciate living and non-living components of their own local natural and built environment
7. Explain the basic structure and function of natural ecosystems and global cycles
8. Cite examples of how science relates to evaluating and solving environmental problems related to pollution and resource use
9. Explain scientific processes of acquiring new knowledge and the distinction between scientific hypotheses, laws and theories
10. Describe basic human institutional structure (social, legal, economic) that deal with environmental and natural resource challenges
11. Assess the validity of environmental reference materials and use these to make informed judgments about environmental science topics and policies
12. Collect, analyze, and interpret environmental scientific data

## **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. 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. 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.
5. Propose and assess alternative solutions to environmental problems.
6. Articulate and defend the actions they would take on various environmental issues.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted