



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Natural Sciences and Business

COURSE: BIO 1000 The Global Environment

Date: Fall 2022

Credit Hours: 3

Complete all that apply or mark "None" where appropriate:

Prerequisite(s): None

Enrollment by assessment or other measure? Yes No

If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): None

Consent of Instructor: Yes No

Delivery Method: **Lecture** **3 Contact Hours** (1 contact = 1 credit hour)
 Seminar **0 Contact Hours** (1 contact = 1 credit hour)
 Lab **0 Contact Hours** (2-3 contact = 1 credit hour)
 Clinical **0 Contact Hours** (3 contact = 1 credit hour)
 Online
 Blended
 Virtual Class Meeting (VCM)

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION and IAI NUMBER (if applicable):

A study of the human relationship with, and responsibility for, the health and well-being of our earth. Ecology, the branch of science investigating the relationships of an organism (man) with its environment (earth) is the emphasis of this course. Major considerations are given to the use and misuse of the earth's energy and material resources, the consequences of and alternatives to human actions, and the individual physical costs plus collective social costs. **IAI Equivalent: L1 905**

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Environmental Science: An Overview
Introduces environmental science and its relation to the human condition, discusses, the classification of environmental problems, shows how environmental improvement is tied to economic and legal concerns, and discusses how the laws of nature limit our response to challenges.
 - A. Studying the Environment
 - B. Environmental Improvement

2. The Ecological Background
Provides a comprehensive look at the biology of natural ecosystems, populations, speciation, extinction and genetic resources, and an overview of the biosphere.
 - A. Ecosystems
 - B. Populations of Organisms
 - C. Changes in Ecosystems
 - D. Extinction and Genetic Resources
 - E. The Biosphere

3. Human Impact on the Earth
Discusses the relationship of human beings and the environment, including the origins of human culture, the growth of human populations, and the effects of chemical and hazardous wastes on human health.
 - A. Human History and The Environment
 - B. The Human Population
 - C. The Environment and Human Health

4. Energy
Provides for an understanding of sources of energy; nuclear energy and its environmental effect; the search for alternative energy sources and their environmental, economic, and political consequences; and the need for both short-term and long-term planning.
 - A. Sources of Energy
 - B. Nuclear Energy and The Environment
 - C. Use of Energy and Its Consequences

5. Soil, Land, and Minerals
Deals with soil and agriculture, the control of pests and weeds and the debate over biocides; food production and the consequences of world hunger; land use and encroaching and urbanization; and non-renewable mineral resources.
 - A. Soil and Agriculture
 - B. Food Production and World Hunger
 - D. Land Use
 - E. Non-renewable Mineral Resources

6. Air, Water, and Wastes
Discusses water resources; water and air pollution and their environmental effects; the social, legal, and economic aspects of water and air pollution; and the disposal of solid wastes.

- A. Water Resources
- B. Water Pollution
- C. Air Pollution
- D. Solid Wastes

INSTRUCTIONAL METHODS:

- 1. Lectures
- 2. Discussions - may include individual oral presentations on specified topics
- 3. Demonstrations
- 4. Audio-visual Aids - films, video tapes, filmstrips, transparencies with overhead projector, slides, charts, and maps
- 5. Supplemental Reading
 - A. Journals and periodicals
 - B. Newspapers
 - C. Books
 - D. Pamphlets and brochures

EVALUATION OF STUDENT ACHIEVEMENT:

- 1. Textbook reading
- 2. Other assigned reading
- 3. Participation in discussion
- 4. Written papers
 - A. Summaries of current topic articles
 - B. Opportunity for optional (independent) additional library research reports
- 5. Several minor quizzes
- 6. Three or four one-hour exams/Final two-hour semester exam

Grading scale:

90 - 100%	A
80 - 89%	B
70 - 79%	C
60 - 69%	D
< 60%	F

INSTRUCTIONAL MATERIALS:

Text: *Environmental Science: A Global Concern*. Cunningham & Cunningham, 15th edition

Supplements: Transparencies, charts, maps, slides, publications, www sites

RESOURCES:

- 1. Text: *Science: A Global Concern*. Cunningham & Cunningham, (current edition).
- 2. Journals such as: *Environment*, *Scientific American*, *EPA Journal*, *National Geographic*, *National Wildlife*, *National Parks and Conservation*, *Defenders*, *Parks and Recreation*, *Wilderness*, and others.
- 3. Reference texts and books such as:
 - Environmental Science*. Kaufmann & Cleveland, 2008
 - Environmental Science* (3rd edition), Nebel, 1990

Environmental Science: Sustaining the Earth (Fifth edition), Miller, 1995.
The Environment: Issues and Choices, Revelle and Revelle, 1988
Environmental Science (4th edition), Turk and Turk, 1988
Ecology, Ricklefs, 1990
Plant-Animal Interactions, Abrahamson, 1989
Tropical Rainforest, Newman, 1990
Environmental Science: An Introduction, Miller, 1986
Saving America's Wildlife. Dunlap, 1988
Environmental Pollution, Newton, 1990
Clearing the Air, Tollison, 1988
The Poisoned Well, Jorgensen (ed), 1989
The Animal Smugglers, Nichol, 1987
Aldo Leopold, Meine, 1987
The Machinery of Nature, Ehrlich, 1986
Nature's Economy, Worster
Silent Spring, Carson
A Sand County Almanac, Leopold
Entropy, Rifkin

4. Numerous other books, pamphlets, and journals on a wide variety of environmental topics published by the government are available in the Federal Depository section of our library.

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

- 1) Communication – to communicate effectively;
- 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
- 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
- 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Understand how science works and the characteristics of environmental science.
 - Competency 1.1: Identify the methodology of science.
 - Competency 1.2: Critically evaluate datasets and infer valid conclusions from those datasets.
 - Competency 1.3: Recognize environmental science as an integration of life, physical, and social science.
2. Understand basic ecological principles
 - Competency 2.1: Distinguish between biotic and abiotic factors in an ecosystem
 - Competency 2.2: Classify 5 major biomes.
 - Competency 2.3: Trace the flow of energy and nutrients through an ecosystem.
 - Competency 2.4: Describe the relationships of biological members of a community.
 - Competency 2.5: Describe and apply the principle of sustainability.
 - Competency 2.6: Describe the environment and resources in terms of economic and non-economic values.
3. Demonstrate an awareness of local, national, and global environmental issues.

- Competency 3.1: Describe various world views and their bases and biases.
- Competency 3.2: Conduct a survey of a sample population to discover environmental concerns.
- Competency 3.3: Discuss perspectives on the severity of disruptions of the integrity of ecosystems
4. Identify the impacts of humans on the environment.
- Competency 4.1: Graph the exponential curve of human population growth and describe the factors that influence the size of the human population.
- Competency 4.2: Classify unwanted results of resource use including depletion, waste, and pollution.
- Competency 4.3: Describe the demographic transition model.
- Competency 4.4: Define several measurements of economic progress.
- Competency 4.5: Give examples of unsustainable use of resources.
- Competency 4.6: Describe the positive and negative aspects of food production for human use.
5. Express insight and judgment with regard to future options that may resolve environmental concerns.
- Competency 5.1: Discuss the personal relationship with the environment and value judgments they make of their actions
- Competency 5.2: Describe the processes by which humans can protect the environment, including politically.