

# ILLINOIS VALLEY COMMUNITY COLLEGE



## COURSE OUTLINE

DIVISION: Natural Sciences Business

COURSE: BIO 1000 – The Global Environment

Date: August 15, 2013

Credit Hours: 3

Prerequisite(s): none

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 contact = 1 credit hour)  
 Clinical 0 Contact Hours (3 contact = 1 credit hour)  
 Online  
 Blended

Offered:  Fall  Spring  Summer

IAI Equivalent –**Only for Transfer Courses**–go to <http://www.itransfer.org>: L1 905

### CATALOG DESCRIPTION:

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.

## GENERAL EDUCATION GOALS ADDRESSED

*[See the last page of this form for more information.]*

### Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

- To apply analytical and problem solving skills to personal, social and professional issues and situations.
- To communicate orally and in writing, socially and interpersonally.
- To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
- To understand and use contemporary technology effectively and to understand its impact on the individual and society.
- To work and study effectively both individually and in collaboration with others.
- To understand what it means to act ethically and responsibly as an individual in one's career and as a member of society.
- To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
- To appreciate the ongoing values of learning, self-improvement, and career planning.

### EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

*[Outcomes related to course specific goals.]*

#### Upon completion of the course, the student will be able to:

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.

### **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

#### **INSTRUCTIONAL MATERIALS:**

Text: *Environmental Science: A Global Concern*. Cunningham & Cunningham, (current edition)

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

## **STUDENT REQUIREMENTS AND METHODS OF EVALUATION:**

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

## **OTHER REFERENCES**

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
7. Final two-hour semester exam

### Grading scale:

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

## VI. REFERENCES:

1. **TEXT:** *Environmental 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.

# Course Competency/Assessment Methods Matrix

Course Prefix, Number and Name	Assessment Options																																									
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment										
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D																
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.																																										
1.1 Identify the methodology of science.							X		X			X	X																													
1.2 Critically evaluate datasets and infer valid conclusions from those datasets.			X		X	X	X	X		X	X	X						X																								
1.3 Recognize environmental science as an integration of life, physical, and social science.						X	X	X			X	X																														
2.1 Distinguish between biotic and abiotic factors in an ecosystem			X		X	X	X	X		X	X	X						X																								
2.2 Classify 5 major biomes.						X	X	X			X	X																														
2.3 Trace the flow of energy and nutrients through an ecosystem.						X	X	X			X	X																														
2.4 Describe the relationships of biological members of a community.			X		X	X	X	X		X	X	X						X																								
2.5 Describe and apply the principle of sustainability.			X		X	X	X	X		X	X	X						X																								
2.6 Describe the environment and resources in terms of economic and non-economic values.			X		X	X	X	X		X	X	X						X																								
3.1 Describe various world views and						X	X	X			X	X																														

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Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	<b>Direct/ Indirect</b>	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D							
their basis's and biases.																																
3.2 Conduct a survey of a sample population to discover environmental concerns.			x	x	x	x	x	x	x	x	x	x	x	x					x									x		x	x	
3.3 Discuss perspectives on the severity of disruptions of the integrity of ecosystems			x	x	x	x	x	x	x	x	x	x	x	x					x								x		x	x		
4.1 Graph the exponential curve of human population growth and describe the factors that influence the size of the human population.					x	x	x	x		x	x	x															x					
4.2 Classify unwanted results of resource use including depletion, waste, and pollution.			x	x	x	x	x	x	x	x	x	x	x	x					x								x		x	x		
4.3 Describe the demographic transition model.					x	x	x	x		x	x	x															x					
4.4 Define several measurements of economic progress.					x	x	x	x		x	x	x															x					
4.5 Give examples of unsustainable use of resources.			x	x	x	x	x	x	x	x	x	x	x	x					x								x		x	x		



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For each competency/outcome place an "X" below the method of assessment to be used.	<b>Assessment of Student Learning</b>	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment	
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4.6 Describe the positive and negative aspects of food production for human use.			X		X	X	X	X	X		X	X	X					X									X			X	X	X	X
5.1 Discuss the personal relationship with the environment and value judgments they make of their actions			X		X	X	X	X	X		X	X	X					X									X			X	X	X	X
5.2 Describe the processes by which humans can protect the environment, including politically.			X		X	X	X	X	X		X	X	X					X						X			X		X	X	X	X	X