



BROWARD COLLEGE COURSE OUTLINE

LAST REVIEW: 2009-10
(i.e. 2003-2004)

NEXT REVIEW: 2014-15
(i.e. 2008-2009)

STATUS: A
(A, I, D)

COURSE TITLE: Ecology

COMMON COURSE NUMBER: PCB4043

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN
(per 16 week term)

CLOCK HOURS:
(Voc. Course ONLY)

Lecture:	48	Lab:
Clinic:		Other:

PREREQUISITE(S):

COREQUISITE(S):

PRE/COREQUISITE(S):

COURSE DESCRIPTION *(750 characters, maximum):*

This course is an introduction to ecological principles covering physiological, behavioral, population, community, ecosystem, landscape and global ecology. This course examines the integrated working of nature at all levels, from atoms and molecules to global cycles that sustain life on earth. The ecology of individuals is examined, in the realm of physiological ecology and in the adaptations of organisms to the abiotic factors of the environment.

UNIT TITLES

1. The Scope of Ecological Science
2. Abiotic Factors of the Environment
3. Physiological Ecology
4. Population Ecology
5. Population Interactions
6. Community Ecology
7. Ecosystem Ecology
8. Biodiversity

EVALUATION:

Assessment will be based on quizzes, exams and reports.

**** Complete the following only if course is seeking general education status ****

GENERAL EDUCATION Competencies and Skills *:

Please highlight in **green** font all Competencies/Skills from the list below that apply to this course. In the box to the right of the Competency/Skill, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 5.12) that apply.

1. Read with critical comprehension	
2. Speak and listen effectively	
3. Write clearly and coherently	
4. Think creatively, logically, critically, and reflectively (analyze, synthesize, apply, and evaluate)	
5. Demonstrate and apply literacy in its various forms: (highlight in green ALL that apply) (1. technological, 2. informational, 3. mathematical, 4. scientific, 5. cultural, 6. historical, 7. aesthetic and/or 8. environmental)	
6. Apply problem solving techniques to real-world experiences	
7. Apply methods of scientific inquiry	
8. Demonstrate an understanding of the physical and biological environment and how it is impacted by human beings	
9. Demonstrate an understanding of and appreciation for human diversities and commonalities	
10. Collaborate with others to achieve common goals.	
11. Research, synthesize and produce original work	
12. Practice ethical behavior	
13. Demonstrate self-direction and self motivation	
14. Assume responsibility for and understand the impact of personal behaviors on self and society	
15. Contribute to the welfare of the community	

** General Education Competencies and Skills endorsed by '05-'06 General Education Task Force*

Common Course Number: PCB4043

UNITS

Unit 1 The Scope of Ecological Science

General Outcome:

1.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

1.1 Define ecology.

1.2 Describe the levels of organization of living things.

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Unit 2 Abiotic Factors of the Environment

General Outcome:

2.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 2.1 Define climate.**
- 2.2 Differentiate between the major types of soils and soil horizons.**
- 2.3 Explain pH.**
- 2.4 Describe the Coriolis effect.**

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Unit 3 Physiological Ecology

General Outcome:

3.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 3.1 Describe various adaptations made by plants in response to changes in the environment.**
- 3.2 Describe various adaptations made by animals in response to changes in the environment.**
- 3.3 Explain how energy balance is achieved among living things.**

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Unit 4 Population Ecology

General Outcome:

4.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 4.1 Define population.**
- 4.2 Understand population growth and regulation using growth curves.**
- 4.3 Explain how populations change over time in response to their environment.**
- 4.4 Compare the types of population distributions.**
- 4.5 Describe population life history patterns.**

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Unit 5 Population Interactions

General Outcome:

5.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

5.1 Define symbiosis.

5.2 Describe the three different types of symbiotic relationships which may be observed in living things.

5.3 Explain what predation is.

5.4 Differentiate between intraspecific and interspecific competition.

5.5 Explain the niche concept.

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Unit 6 Community Ecology

General Outcome:

6.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 6.1 Define trophic levels.**
- 6.2 Explain the difference between a food web and a food chain.**
- 6.3 Define ecological succession.**
- 6.4 Differentiate between primary and secondary succession.**
- 6.5 Describe the roles of pioneer species, opportunistic species and exotic species within communities.**

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Unit 7 Ecosystem Ecology

General Outcome:

7.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 7.1 Relate productivity within an ecosystem to energy flow.**
- 7.2 Describe the major biogeochemical cycles (C, N, S, P) and the importance of these nutrients to living things.**
- 7.3 Explain how human inputs have changed the biogeochemical cycles.**
- 7.4 Describe the effects of various air pollutants on the atmosphere.**
- 7.5 Describe the effects of various water pollutants on water quality throughout the planet.**
- 7.6 Define eutrophication.**
- 7.7 Describe the major biomes found on the planet and the characteristics of each.**
- 7.8 Describe the major aquatic ecosystems found on the planet and the characteristics of each.**
- 7.9 Define landscape ecology.**
- 7.10 Describe the concept of island biogeography.**

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Unit 8 Biodiversity

General Outcome:

8.0 The student shall:

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

8.1 Explain the importance of biodiversity.

8.2 Describe current methods of conservation.

