University of Arkansas – Fort Smith
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General Syllabus

BIOL 4284 Freshwater Ecology

Credit Hours: 4 Lecture Hours: 3 Laboratory Hours: 3

Prerequisite: Junior standing and completion of one of the following: BIOL 2203/2201 Human Anatomy/Laboratory, BIOL 2303/2301 General Botany/Laboratory, BIOL 2503/2501 General Microbiology/Laboratory, or BIOL 2703/2701 General Zoology/Laboratory

Effective Catalog: 2018~2019

I. Course Information

A. Catalog Description

The biological, chemical, and physical characteristics of freshwater habitats.

B. Additional Information - None

II. Student Learning Outcomes

A. Subject Matter

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

1. Determine ways that humans affect aquatic ecosystems and explain how these changes affect society.
2. Conclude characteristics that benefit organisms in aquatic environments.
3. Define terms commonly used in limnology and ecology.
4. Describe temporal and spatial changes that occur in aquatic environments.
5. Categorize material on a common aquatic organism.
6. Explain the general physical characteristics of water.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students will use critical thinking skills to analyze current environmental issues associated with freshwater ecology to determine the effects of those problems on freshwater organisms.

Ethical Decision Making
The students will conduct themselves in an ethical manner and evaluate ethical considerations during discussions of freshwater ecology research activities and manipulations common to the discipline.

III. Major Course Topics

A. Introduction to freshwater ecology
   1. Variations in freshwater environments
   2. Origins of freshwater fauna

B. Properties of water
   1. Physical properties of water
   2. Aquatic chemistry
   3. Sampling methods
   4. Variations within and between bodies of water
   5. Effects on habitat

C. Habitats
   1. Characteristics of various freshwater habitats
   2. Types of lotic and lentic habitats
   3. Unusual habitats

D. Community structure
   1. Adaptations of freshwater organisms
   2. Identification
   3. Habitat
   4. Life History
   5. Behavior
   6. Dispersal
   7. Collecting and sampling methods

E. Pollutants
   1. Effects on habitat
   2. Indicator species
   3. Nutrients – eutrophication