



Course Syllabus

BIOL 2306 – Environmental Biology

Catalog Description: Introduction to basic ecological principles, biotic and abiotic interrelationships in aquatic and terrestrial communities and environmental issues that have national and global effects.

Lecture hours = 3, Lab hours = 0

Prerequisites: None

Semester Credit Hours: 3

Lecture Hours per Week: 3

Lab Hours per Week: 0

Contact Hours per Semester: 48

State Approval Code: (0301035101)

Course Subject/Catalog Number: BIOL 2306

Course Title: Environmental Biology

Course Curriculum: State Criteria (those marked with an X reflect the state-mandated competencies taught in this course) (*double-click on the box and choose 'checked' or 'not-checked'*)

Basic Intellectual Competencies in the Core Curriculum

- Reading
- Writing
- Speaking
- Listening
- Critical thinking
- Computer literacy

Perspectives in the Core Curriculum

- Establish broad and multiple perspectives on the individual in relationship to the larger society and world in which he/she lives, and to understand the responsibilities of living in a culturally and ethnically diversified world.
- Stimulate a capacity to discuss and reflect upon individual, political, economic, and social aspects of life in order to understand ways in which to be a responsible member of society.
- Recognize the importance of maintaining health and wellness.
- Develop a capacity to use knowledge of how technology and science affect their lives.
- Develop personal values for ethical behavior.
- Develop the ability to make aesthetic judgments.
- Use logical reasoning in problem solving.

- Integrate knowledge and understand the interrelationships of the scholarly disciplines.

Core Components and Related Exemplary Educational Objectives

Communication (composition, speech, modern language)

The objective of a communication component of a core curriculum is to enable the student to communicate effectively in clear and correct prose in a style appropriate to the subject, occasion, and audience.

- To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.
- To understand the importance of specifying audience and purpose and to select appropriate communications choices.
- To understand and appropriately apply modes of expression, i.e. descriptive, expository, narrative, scientific, and self-expressive, in written, visual, and oral communication.
- To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.
- To understand and apply basic principles of proficiency in the development of exposition and argument.
- To develop the ability to research and write a documented paper and/or to give an oral presentation.

Mathematics

The objective of the mathematics component of the core curriculum is to develop a quantitatively literate college graduate. Every college graduate should be able to apply basic mathematical tools in the solution of real-world problems.

- To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
- To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
- To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
- To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
- To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
- To recognize the limitations of mathematical and statistical models.
- To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

Natural Sciences

The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories.

- To understand and apply method and appropriate technology to the study of natural sciences.
- To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
- To identify and recognize the differences among competing scientific theories.

- To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Humanities and Visual and Performing Arts

The objective of the humanities and visual and performing arts in a core curriculum is to expand students' knowledge of the human condition and human cultures, especially in relation to behaviors, ideas, and values expressed in works of human imagination and thought. Through study in disciplines such as literature, philosophy, and the visual and performing arts, students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities as fundamental to the health and survival of any society. Students should have experiences in both the arts and humanities.

- To demonstrate awareness of the scope and variety of works in the arts and humanities.
- To understand those works as expressions of individual and human values within an historical and social context.
- To respond critically to works in the arts and humanities.
- To engage in the creative process or interpretive performance and comprehend the physical and intellectual demands required of the author or visual or performing artist.
- To articulate an informed personal reaction to works in the arts and humanities.
- To develop an appreciation for the aesthetic principles that guide or govern the humanities and arts.
- To demonstrate knowledge of the influence of literature, philosophy, and/or the arts on intercultural experiences.

Social and Behavioral Sciences

The objective of a social and behavioral science component of a core curriculum is to increase students' knowledge of how social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events, and ideas. Such knowledge will better equip students to understand themselves and the roles they play in addressing the issues facing humanity.

- To employ the appropriate methods, technologies, and data that social and behavioral scientists use to investigate the human condition.
- To examine social institutions and processes across a range of historical periods, social structures, and cultures.
- To use and critique alternative explanatory systems or theories.
- To develop and communicate alternative explanations or solutions for contemporary social issues.
- To analyze the effects of historical, social, political, economic, cultural, and global forces on the area under study.
- To comprehend the origins and evolution of U.S. and Texas political systems, with a focus on the growth of political institutions, the constitutions of the U.S. and Texas, federalism, civil liberties, and civil and human rights.
- To understand the evolution and current role of the U.S. in the world.
- To differentiate and analyze historical evidence (documentary and statistical) and differing points of view.
- To recognize and apply reasonable criteria for the acceptability of historical evidence and social research.
- To analyze, critically assess, and develop creative solutions to public policy problems.
- To recognize and assume one's responsibility as a citizen in a democratic society by learning to think for oneself, by engaging in public discourse, and by obtaining information through the news

media and other appropriate information sources about politics and public policy.

- To identify and understand differences and commonalities within diverse cultures.

Instructional Goals and Purposes: Identifying Personal Career Interests

At the end of the semester students will be able to discuss the following:

The purpose of this course is to introduce ecological principles, biotic interrelationships in aquatic and terrestrial communities and environmental issues that have national and global effects. The goals of the course are to organize the information and provide a conceptual framework to facilitate student comprehension and mastery of ecological principles. After studying the material presented in the texts, lecture, laboratory, and other resources, the student should be able to complete all behavioral/learning objectives listed below with a minimum competency of 70%.

General Course Objectives:

- To help students understand the basic need to maintain the earth's ecosystems
- To help students understand the basic earth life support systems
- To make students aware of changing global problems as related to environmental science

Specific Course Objectives:

- Discuss the characteristics of living organisms.
- Identify earth's life support systems.
- Explain why biodiversity is important in ecology.
- Describe the Earth's major biomes. Explain the major cause of the distribution of biomes on the earth.
- Draw and explain an exponential growth curve. Distinguish between exponential growth and linear growth. Discuss *overpopulation* as related to *carrying capacity*.
- Distinguish between the following terms: physically depleted and economically depleted

Assessment:

- Students will be graded on the following scale: 90-100=A, 80-89=B, 70-79=C, 60-69=D, below 60=F. Failure to complete any of the following requirements will be penalize a grade.
- Exams = 50 %
- Final = 20%
- Portfolios =15%
- Presentations = 15%

Texts, Materials, and Supplies:

Other:

- For current texts and materials, use the following link to access bookstore listings: <http://www.panola.edu/collegestore.htm>
- For testing services, use the following link: <http://www.panola.edu/instruction/dl/testing.htm>