



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: BSC 1815

COURSE TITLE: Survey of Biology for Elementary Teachers

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion 48

Lab

Other

Contact Hours/Week 3

CATALOG COURSE DESCRIPTION:

Prerequisite: None

Corequisite: None

Topics in biology which relate to the state-required minimum basic skills for K-5th grade will be explored including the definition of life, process of science, five kingdoms of organisms, animal biology, plant biology, human senses and ecology. Demonstrations and hands-on activities will be integrated into the program designed to strengthen the students' knowledge base in biology. Course meets state certification requirements for elementary school teachers. This course will not satisfy the General Education Requirements for the A.A. degree.

General Education Requirements - Associate of Arts Degree, meets Area(s):
 General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Introduction to Biology
2. Survey of the Animal Kingdom
3. Survey of the Plant Kingdom
4. Human Senses
5. Ecological Concepts

I. Course Overview:

Upon successful completion of this course, the students should be able to discuss the characteristics of living things, the five major kingdoms of organisms, animal biology, plant biology, the five human senses, and basic ecological concepts.

II. Units:

Unit 1. Introduction to Biology

General Outcome:

- 1.0 The students should be able to recognize the basic characteristics of life, describe the nature of science, and discuss the five kingdoms of organisms.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 List the major characteristics of life.
- 1.2 Discuss the complexity of organization of living things.
- 1.3 Explain how science explores the nature of the universe to gain a better understanding of natural processes.
- 1.4 List the five kingdoms of living organisms, explain the characteristics of the living forms placed in each kingdom, and recognize examples of species found in each kingdom.
- 1.5 Prepare a wet mount slide and observe it using a compound microscope.
- 1.6 Observe organisms under the dissecting microscope.
- 1.7 List and observe laboratory safety rules.

Unit 2. Survey of the Animal Kingdom

General Outcome:

2.0 The students should be able to list the major phyla of animals, discuss the variety of methods of locomotion and feeding behavior found in the various groups, describe reproduction and development in selected species, and recognize the characteristics of the major orders of insects.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Distinguish between the invertebrate and vertebrate phyla.
- 2.2 Discuss the characteristics and examples of animals in the following phyla: Sponges, Cnidaria, Flatworms, Roundworms, Mollusks, and Segmented Worms.
- 2.3 Discuss the diversity of insects, the most widespread group of animals.
- 2.4 List and discuss examples of useful and harmful insects in nature and in environmental applications.
- 2.5 Discuss the characteristics and give examples of animals in the Phylum Echinodermata and Phylum Chordata.
- 2.6 Distinguish the five classes of the Subphylum Vertebrata: fish, amphibians, reptiles, birds and mammals.
- 2.7 Explain the various methods of locomotion found throughout the Animal Kingdom, and the advantages and disadvantages of each.
- 2.8 Survey the various methods of reproduction and development found among the various animal groups.
- 2.9 Identify the phylum of representative preserved and live specimens of vertebrates and invertebrates.

Unit 3. Survey of the Plant Kingdom

General Outcome:

- 3.0 The students should be able to list the major groups of the Plant Kingdom and give examples of each, discuss reproduction and development in seed plants, and explain the functions of the various parts of a seed plant.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 3.1 Distinguish between the algae, mosses, ferns, and seed plants.
- 3.2 List the distinguishing characteristics of gymnosperms and angiosperms and be able to recognize common local examples of each.
- 3.3 Discuss the structure and function of roots, stems, leaves and flowers.
- 3.4 Describe the process of reproduction in angiosperms from flower production through seed germination.
- 3.5 Relate the importance of soil composition to the pH, nutrient, and water requirements of different plants.
- 3.6 Identify where spores are produced on ferns and where seeds are produced on pine cones.
- 3.7 Classify algae (given dried specimens) as red, green and brown., and relate importance to ecosystems.
- 3.8 Identify male and female parts of a typical dicot flower.

Unit 4. Human Senses

General Outcome:

- 4.0 The students should be able to explain the anatomical features of each of the five human senses and be able to relate their structure to function.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Describe the importance of sense organs as a means of communication with the world around us.
- 4.2 Discuss different sense organs found in various species (i.e., infrared detectors in snakes, chemoreceptors in moth antennae) and how this affects their understanding of the world.
- 4.3 Describe the structure and function of the nose as a sense organ of smell.
- 4.4 Describe the structure and distribution of the taste buds on the tongue and describe the close relationship between the sense of smell and taste.
- 4.5 Describe the anatomy and function of the eye.
- 4.6 Describe the anatomy and function of the ear.
- 4.7 Describe the distribution of pressure, heat, cold, and pain receptors in the skin.
- 4.8 Perform tests involving the nervous system, such as two-point threshold, blind spot determination, color-blindness, etc.

Unit 5. Ecological Concepts

General Outcome:

5.0 The students should be able to describe components of an ecosystem, list and describe the biotic communities of South Florida, and discuss the major ecological problems facing our planet and specifically our state.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 Define and use the terms population, community, ecosystem and ecosphere.
- 5.2 Describe the basic components of an ecosystem: producers, consumers and decomposers.
- 5.3 List and describe the major biotic communities of South Florida.
- 5.4 Discuss the major ecological problems facing our ecosphere including global warming, pollution of air, water, and land, depletion of the ozone layer, and destruction of natural habitats.
- 5.5 Describe the major ecological problems facing Florida today including destruction of wetlands and forests, mercury pollution, handling solid wastes, and protection of our water supply and endangered species.
- 5.6 Explore possible solutions to each ecological problem discussed.