

Biology 2

SCIH026061

Credits: 0.5 units / 5 hours | NCAA Approved

Course Description

In this second semester course, students will continue their study of fundamental biological concepts as they explore the structure and function of bacteria, viruses, fungi, and plants. They will investigate the diversity and development of invertebrate and vertebrate animals and learn about the anatomy and physiology of the human body. This course contains hands-on labs and virtual labs, as well as interactive multimedia activities to provide an in-depth investigation into the subjects presented.

Course Objectives

The objectives are listed individually in each lesson, but the ultimate goal is that, by the end of the course, you will know and use science facts, concepts, principles, theories, and models to achieve the following:

1. Compare and contrast the characteristics and actions of bacteria, viruses, and prions.
2. Describe the subdivisions of protists and their characteristics.
3. Differentiate the four phyla of fungi.
4. Discuss the ecology of fungi.
5. Describe plant evolution as a function of adaptation to environmental changes.
6. Discuss characteristics of nonvascular, seedless vascular, and vascular seed plants and their evolutionary advantages.
7. Describe reproduction in the three types of plants, including alternation of generations.
8. Connect animal phylogeny to body plans and adaptations.
9. Explain the stepwise acquisition of evolutionary traits and their connection to adaptations in worms, mollusks, arthropods, echinoderms, and invertebrate chordates.
10. Understand the adaptations in worms, mollusks, arthropods, echinoderms, and invertebrate chordates that allow for successful diversity, population, and persistence.
11. Compare and contrast traits of the 5 classes of vertebrates.
12. Exhibit familiarity with the adaptations in fish to an aquatic environment.
13. Illustrate adaptations to a terrestrial environment in amphibians, reptiles, birds, and mammals.
14. Understand how bird adaptations connect to their capacity for flight.
15. Connect characteristics of the five classes of vertebrates with maintenance of homeostasis.
16. Explain the survival advantages of innate and learned behaviors.
17. Know the structures and functions of the components of the 11 organ systems in humans.
18. Describe each organ system's role in maintaining homeostasis.
19. Explain human reproduction and describe stages of development and growth from fertilization to adulthood.
20. Understand the functioning of the immune system.
21. Explain the causes of diseases and their treatment.
22. Summarize choices regarding health that may result in negative or beneficial consequences.

Course Outline

Unit 1

Lesson 1: Bacteria and Viruses

Lesson 2: Protists

Lesson 3: Fungi

Unit 2

Lesson 4: Introduction to Plants

Lesson 5: Plant Structure

Lesson 6: Plant Reproduction

Unit 3

Lesson 7: Introduction to Animals

Lesson 8: Worms and Mollusks

Lesson 9: Arthropods

Lesson 10: Echinoderms and Invertebrate Chordates

Unit 4

Lesson 11: Fishes and Amphibians

Lesson 12: Reptiles and Birds

Lesson 13: Mammals

Lesson 14: Animal Behavior

Unit 5

Lesson 15: Integumentary, Skeletal, and Muscular Systems

Lesson 16: Nervous System

Lesson 17: Circulatory, Respiratory, and Excretory Systems

Lesson 18: Digestive and Endocrine Systems

Lesson 19: Human Reproduction and Development

Lesson 20: Immune System

Required Textbook

(available through Follett virtual bookstore at <http://highschool.nebraska.bkstr.com>)

Textbook: *Glencoe Biology* (ISBN: 9780078802843)