

Foundations Biology

COURSE DESCRIPTION:

This course is an introduction to general biology and to the processes of scientific inquiry and thinking. It will include the fundamental principles of living organisms including physical and chemical properties of life, cellular organization and function, the transfer of energy through metabolic systems, cellular reproduction, the classification of living things, the six kingdoms of life will be examined. The main focus is to present biological information in an understandable and straight forward way that will capture the students' interest dealing with up to date principles and concepts.

The course content has been appropriately chunked into smaller topics to increase retention and expand opportunities for assessment. With each topic, quizzes are presented to the student. Audio readings are included with every portion of content, allowing auditory learners the opportunity to engage with the course. Test pools and randomized test questions are utilized in quizzes as well as unit exams, ensuring that students taking the course will not be presented with the same exams. Additionally, the course includes additional practice activities (such as cloze activities), as well as pre-topic vocabulary lists, that introduce key vocabulary in English and in Spanish.

PREREQUISITES: None

COURSE LENGTH: Two semesters

REQUIRED TEXT: None

COURSE OUTLINE:

Biological Principals

- Introduction to Biology
- Characteristics and Organization of Life
- Tools of Biology

Chemical and Molecular Basis of Life

- The chemical context of life
- Properties of water
- Basic atomic structure
- Metabolism and energy

Cells

- The structure and function of cells
- Homeostasis and transport
- Photosynthesis
- Cellular respiration
- Cell reproduction

Foundations Biology (continued)

COURSE OUTLINE (continued):

Genetics

- Fundamentals of genetics
- Mendelian genetics
- Genes and chromosomes
- Human heredity
- Biotechnology

Evolution

- Origin of life
- Darwinism
- Classification of living things
- Evolution in process
- Human evolution

Microorganisms

- Bacteria
- Viruses
- Protists
- Fungi

Ecology and Ecosystems

- Overview of ecology and ecosystems
- Factors affecting organisms
- Aquatic and terrestrial biomes
- Populations and communities

Plants

- Overview of plant kingdom
- Plant structure and function
- Plants reproduction

Animals

- Major groups of invertebrates
- Major groups of vertebrates

Human Biology and Populations