

Introduction to Biology TCSU LBST 740

Note: this course must be approved currently for CSU GE-Breadth Area B2.

A. Description

This life science course focuses on general principles and methods of scientific inquiry and on the major conceptual principles underlying all of biology, with emphases on evolution, inheritance, cellular life, biodiversity, ecology, and behavior of living organisms. Course topics include a comparison of plant and animal structure and function, reproductive processes, and life cycles.

B. Recommended Preparation

Intermediate Algebra (or “Eligibility for GE mathematics”)

C. Prerequisites

None Specified

D. Minimum Unit Requirement

3 semester units

E. Course Topics

Must include but are not limited to:

Structure of Living Organisms and Their Function (Physiology and Cell Biology)

- Describe levels of organization and distinguish related organizational functions in plants and animals
- Identify structures and compare related functions of systems in plants and animals at multiple levels of organization
- Explain principles of chemistry underlying the functioning of biological systems including the energetics of respiration and photosynthesis

Living and Nonliving Components in Environments (Ecology)

- Identify the characteristics and the basic needs of living organisms
- Distinguish between environmental adaptations and accommodations
- Describe the relationship between the number and types of organisms an ecosystem can support and relationships among members of a species and across species (population ecology)
- Illustrate the flow of energy and matter through an ecosystem from sunlight to food chains and food webs
- Identify the resources available in an ecosystem, and describe the environmental factors that support it including biotic and abiotic factors

Life Cycle, Reproduction, and Evolution (Genetics and Evolution)

- Diagram life cycles of familiar organisms
- Explain the factors that affect the growth and development of plants
- Distinguish between sexual and asexual reproduction in plants and animals including mitosis, meiosis and basic transmission genetics
- Distinguish between environmental and genetic sources of variation
- Distinguish between natural and artificial selection
- Apply evidence from the fossil record, comparative anatomy, and DNA sequences to support the theory that life gradually evolved on earth over billions of years
- Explain the basis of Darwin's theory that species evolved by a process of natural selection

F. References

Elementary Subject Matter Content Specifications for Science, Domain 2
CSU Executive Order No. 405