

Mission Statement

The fundamental mission of the department of Biology is to provide students with a comprehensive, contemporary understanding of the biological sciences by enthusiastically offering experiences that are stimulating and challenging. The goal of these efforts is to foster an appreciation for the complexities of living systems and to promote the development of competent biologists and scientifically literate citizens equipped for life-long learning.

Program Outcomes

1. Critical Thinking

- can describe the process of science and how it judges between competing theories
- can differentiate between science and pseudoscience
- can distinguish cause and effect from correlation
- knows how to use the scientific method to draw defensible conclusions that explain biological observations in the natural world
- applies concepts from biology to evaluate current issues and problems in science

2. Knowledge/Content

- understands the basic chemical composition of living cells
- can describe the structure and function of prokaryotic cells
- has a comprehensive understanding of cell organelle structure and function
- demonstrates detailed knowledge of cell maintenance, photosynthesis, and respiration
- can describe the structural organization of genetic material in prokaryotic and eukaryotic cells
- demonstrates knowledge of cell division and the principles of transmission genetics
- understands the principles underlying expression of genetic material and organism development
- can describe the mechanisms of the origin of genetic variation and principles underlying population genetics
- can describe the origin of life and the mechanisms of evolution and speciation
- understands the principles behind modern taxonomy and systematic
- demonstrates knowledge of major taxa, their structure, and physiology
- understands how the physiological adaptations of an organism determine its ecological niche
- understands the ecological ideas concerning the niche, population growth, population interactions, community structure, and the flow of energy and cycling of matter in ecosystems
- knows the general characteristics of biomes on earth
- demonstrates knowledge of the major historical events in biology and when they occurred

3. Practical skills

- demonstrates the proper use of dissecting and compound microscopes
- demonstrates proper dissection technique
- can prepare chemical solutions for laboratory use
- demonstrates proper use of common laboratory equipment
- demonstrates proficient library and computer skills related to data acquisition and analysis
- performs appropriate mathematical and statistical skills

4. Communication skills

- uses correct taxonomic nomenclature
- writes a publication quality paper in which the problem is introduced, the materials and methods are precisely summarized, data are analyzed and summarized correctly, relevant literature is reviewed and cited correctly, and data is interpreted in light of past findings
- prepares an effective professional oral presentation, which concisely reviews a topic or presents results of an experimental study

5. Professional Attitude

- acquires a positive attitude towards science, and appreciates its role in everyday life
- is able to judge the value of science and its limitations when applied to problems in society
- demonstrates the ability to work collaboratively with others
- is well prepared to pursue a career in his/her chosen field
- continues to read science-related publications after graduation