

DEPARTMENT OF BIOLOGICAL SCIENCES UNDERGRADUATE STUDENT LEARNING OUTCOMES

M/S/P by Assessment Committee: February 11, 2008

At the completion of the Bachelor of Science degrees in Biology or Microbiology a graduate will have acquired:

- The problem solving, analytical, and communication skills that will provide a strong foundation for lifelong learning and progressive career development (skills and attitudes).
- A clear understanding of the major biological concepts and awareness of how these are connected to various areas of the biological sciences and are applicable to everyday life (knowledge and attitudes).
- A clear understanding of the careers that are available for B.S. graduates.

The following are specific objectives in the areas of attitudes, skills, and knowledge.

1. The student will acquire the following attitudes:
 - 1.1. Learning about both living micro and macro systems is relevant and essential for understanding life.
 - 1.2. All areas of science are integrated and interconnected.
 - 1.3. Scientific ethical conduct and ethical implications of scientific issues in society are important.
2. The student will be able to demonstrate that he/she is skilled at:
 - 2.1. Applying the processes and methods of scientific inquiry, including the search and retrieval of scientific information, the formulation of scientific hypotheses, the design and conduct of experiments, and the analysis and interpretation of data;
 - 2.2. Understanding and critically evaluating the scientific work of others;
 - 2.3. Communicating scientific information effectively using oral presentations and written reports;
 - 2.4. Performing laboratory techniques that are appropriate to the major, with an understanding of the principles of laboratory safety;
 - 2.5. Working collaboratively on group projects.
3. The biology student will be able to demonstrate knowledge of the following:
 - 3.1. Molecular and cellular structure and function;
 - 3.2. Basic principles of anatomy, physiology, and development;
 - 3.3. Taxonomy and phylogenetic and evolutionary relationships of major groups of organisms;
 - 3.4. Ecological interactions among organisms and their relationships with their environments;
 - 3.5. Careers and professions available in the biological sciences.

4. The microbiology student will be able to demonstrate knowledge of the following:
 - 4.1. Microbiological techniques and handling of biohazardous materials;
 - 4.2. Microbial diversity, evolution of microorganisms and transmissible agents;
 - 4.3. Microbial physiology and genetics including cellular structure and function;
 - 4.4. Interactions of microorganisms with multicellular organisms and the environment;
 - 4.5. Applications of microbiology and career opportunities in the field.