Program Student Learning Outcomes

College:  Arts & Science  
Program:  Microbiology, BS

Upon completion of the B.S. in Microbiology, students should be able to:

- Apply and understand the process and nature of science. This includes the ability to:
  - a) Explain how scientific knowledge differs from other ways of knowing
  - b) Recognize and formulate clear, testable hypotheses
  - c) Design and perform an experiment to test a hypothesis
  - d) Collect, analyze, and interpret data
  - e) Find, interpret, and evaluate scientific literature
  - f) Relate biological concepts to other scientific disciplines
  - g) Explain professional ethical standards in science

- Demonstrate knowledge and skills across core areas of biology
  - a) From molecules to ecosystems, describe:
    - important features at each level
    - structure-function relationships
    - interactions within and between levels
    - energy flow and cycling of matter
  - b) Explain evolution as a unifying concept of biology and its relationship to the diversity of life
  - c) Explain the key principles of genetics and how they are applicable in biology
  - d) Explain similarities and differences across the diversity of life
  - e) Apply models and simulations to biology
  - f) Apply quantitative reasoning in science
    - Construct and interpret graphs
    - Use statistical reasoning

- Communicate about biology to specialist and non-specialist audiences
  - a) orally
  - b) in writing
  - c) visually

- Explain the relationship of science and society
  - a) Critically evaluate a popular science article
  - b) Explain the value of scientific approaches to address societal issues
  - c) Explain how science has shaped human history and culture