Microbiology Program student learning goals

Students majoring in Microbiology will understand basic principles relating to molecular, cellular and organismal biology. In addition, these students will exhibit proficiency in selected empirical laboratory skills, develop knowledge of contemporary research using the scientific method and demonstrate competence in oral and written communication. This background of knowledge and experience will prepare the students for entry into professional/graduate school or for employment in government, academic or industrial positions. The learning goals are divided in to five parts including (1) Conceptual knowledge; (2) Critical and independent thinking skills; (3) Communication skills; (4) Collaborative skills; and (5) Societal impact.

(1) Conceptual knowledge: Proficiency in basic principles of biology of microorganisms including:

- Microbial cell biology
- Microbial genetics
- Microbial physiology
- Microbial diversity and ecology
- Medical microbiology
- Microbial biotechnology

(2) Critical and independent thinking skills: Ability to acquire, present, and develop scientific ideas

- Proficiency in scientific method and hypothesis testing
- Ability to develop theoretical and practical skills in the design of experiment
- Ability to assess the validity of data or scientific information
- Ability to draw conclusions based on results or findings
- Ability to perform statistical and quantitative analyses

(3) Communication skills

- Ability to search literature for pertinent information
- Ability to discuss and present scientific information (i.e. laboratory results, scientific articles, etc.)
- Ability to communicate scientific information in writing (includes scientific format, appropriate citations, etc.)

(4) Collaborative skills

- Ability to work effectively in groups or teams
- Ability to manage time and tasks to be done simultaneously by individuals and within group

(5) Societal impact

- Ability to describe the societal place of microbiology as a science
- Ability to integrate knowledge and make informed judgments about microbiology in everyday life