

## **Department of Biology Programmatic Learning Objectives:**

- 1. Graduates will demonstrate an understanding of the following key biological concepts or themes.**
  - a. Cells as the functional units of all living matter and as the building blocks of multicellular organisms.
  - b. The mechanisms involved in energy flow and transformation.
  - c. The fundamental principles of genetics ranging from molecular mechanisms to population consequences.
  - d. The relationship between structure and function at various levels of organization.
  - e. The processes underlying reproduction and development.
  - f. The mechanisms and patterns of evolution, and the role evolution plays as the central unifying concept of all biology.
  - g. The range of biological diversity and the phylogenetic relationships among major groups of organisms.
  - h. The interactions between organisms and their environments, and their consequences.
  - i. The means by which scientists ask and answer questions.
- 2. Graduates will demonstrate the ability to ask and answer questions.**
  - a. They will be able to apply the scientific method to the design of experiments.
  - b. They will be able to select and competently use laboratory and field equipment, techniques, and technologies to perform experiments.
  - c. They will be able to collect, organize, analyze, interpret and present quantitative and qualitative data and integrate such data into a broader context of biological knowledge.
  - d. They will be able to draw reasonable conclusions from biological data and understand the importance of evidentiary support for conclusions and positions.
  - e. They will be able to collaborate with others and demonstrate an understanding of the importance of cooperative work in the scientific process.
- 3. Graduates will be able to obtain, select and evaluate various forms of scientific information including primary research articles, mass media sources and world-wide web information.**
- 4. Graduates will be able to demonstrate an understanding of how biology informs global and environmental issues.**
- 5. Graduates will be able to communicate effectively in written and oral forms.**
- 6. Graduates will be able to apply material from other disciplines (e.g., physical sciences and mathematics) to achieve an understanding of biology.**
- 7. Graduates will become aware of the careers and professions available in the biological sciences.**

Adopted by the Department of Biology on September 29, 2008