

University of Maine

Student Learning Outcomes for General Education

The following updated category titles, descriptions, and student learning outcomes were approved by the Faculty Senate in the spring of 2012. They will become effective for the fall 2014 semester.

Science

Preamble

Students are required to complete two courses in the physical or biological - sciences. This may be accomplished in two ways:

1. By completing two courses with laboratories in the basic or applied sciences;
2. By completing one approved course in the applications of scientific knowledge, plus one course with a laboratory in the basic or applied sciences.

Definitions and Explanations

1. A laboratory course in the applied physical or biological sciences brings basic knowledge to bear on the solution of practical problems in engineering, medicine, agriculture, forestry, and other fields for which natural science forms the foundation. Normally applied science courses require one of the basic natural sciences (biology, physics, chemistry, geology) as a prerequisite, and carry at least 4 degree credits.
2. A course in the applications of scientific knowledge has the following attributes:
 - a) it focuses on one or more basic or applied natural sciences
 - b) it includes significant blending of presently accepted science with its application in common situations;
 - c) it discusses both the applications and limitations of the relevant scientific methodology;
 - d) it includes as a major component of the course the observation of natural phenomena coupled with the gathering of data and its quantitative analysis, and its interpretation in an expository format;
 - e) its overall focus is on guiding students towards the scientific literacy necessary for modern life rather than on training future science professionals.

A science course, laboratory or applied, will have the following student outcomes embedded within the course. The outcomes are based on "The Nature of Science" as published in "Science for All Americans Online" at <http://www.project2061.org/>

publications/sfaa/online/chap1.htm (sponsored by American Association for the Advancement of Science (AAAS)). Retrieved February 2012.

Student Learning Outcomes

Students completing the general education area of Science will be able to:

1. Explain what makes knowledge scientific, i.e., "...things and events in the universe occur in consistent patterns that are comprehensible through careful, systematic study." (AAAS)
2. Demonstrate the appreciation that scientific knowledge is subject to change as new observations and interpretations challenge current understanding.
3. Recognize that valid scientific information is durable, i.e., it is continually affirmed as new observations are made.
4. Perform scientific inquiry including aspects of the scientific method, such as observation, hypothesis, experiment, and evaluation. Note: Covered in laboratory science courses but not necessarily in applied science courses.