

Category C – Biological & Physical Sciences

Catalog Description

Basic scientific literacy is necessary for knowledge of ourselves as a species and of the universe in which we live. The courses in this category have two comprehensive objectives:

1. to make clear what kinds of problems in the physical world are susceptible to scientific investigation and what kinds of solutions such investigation can produce and
2. to provide an appreciation of the practice of scientific research and methodology, with its interaction of experiment and hypothesis.

While the requirements of this category may be satisfied without a course containing a laboratory component, the university strongly encourages the selection of such courses. Experimentation in the laboratory allows the student both to observe and to participate directly in the systematic observation of nature and the principles of its investigation. One course must be taken from those listed in three of the following disciplines.

Commonalities among the courses:

Courses in this category are aimed at developing a scientific understanding of the universe in which we live, and of ourselves as a species. To this end, Category C courses introduce students to the scientific method and its use in the description of natural phenomena. This method of inquiry is based on the following framework:

1. The development of abstract models, theories, or laws to describe or gain understanding of natural phenomena
2. The application and the testing of these models through empirical observation or experimentation.

In spite of this common framework, the different disciplines of Category C, as well as different courses within those disciplines, may place significantly different emphasis on the various aspects of scientific inquiry.

Learning Objectives

Courses in Category C share the following learning objectives, again with the possibility of significant differences in their relative emphasis:

1. Students will understand the role of scientific models, theories or laws as abstract representations of natural processes.
2. Students will understand how experimentation or empirical observations are used for the development, testing and application of these models, theories or laws.

3. Students will learn about measurement and data analysis which are both necessary to quantify the outcome of experiments and observations.
4. Students will learn about the influence of science on everyday life.
5. Student will develop an ability to critically evaluate scientific results and reports.