

UR Biology Undergraduate Majors (all concentrations)
Learning Objectives and Assessment Plan

Program learning objectives (PLO)

The following program learning objectives (PLO) were assessed. Students will:

1. Understand the ways that life functions in terms of the principles of chemistry and physics under the selective screen of evolution.
2. Understand how the process of evolution has led to organismal diversity and adaptation.
3. Understand regulation and feedback systems.
4. Research: Understand the scientific method, including formulation of hypotheses, experimental design, and analysis and interpretation of results.
5. Develop basic practical skills, including laboratory procedures, computational methods and statistics.
6. Read and comprehend original scientific literature.
7. Written and oral communication of scientific concepts, experimental results, etc.
8. Familiarity with scientific ethics.

The following assessment methods were used to assess the program PLOs during the past AY:

Indirect methods

- Senior Survey 2013- student self-assessment of learning outcomes related to PLOs 1-8
- Upper level writing self assessment surveys in selected “W” courses (PLO 7)
- Alumni Survey 2013 – learning outcome self assessment related to PLOs 1-8

Direct methods

- Post-graduation admission to graduate school and other post-graduation careers related to biology (PLO 1-7)
- Faculty Course Reflective Memos in courses selected by Undergraduate Committee each year. Reflective memos require that faculty write course learning objectives, align them with PLOs, review student assessments (exams, papers etc.) for each course objective and whether students achieved objective, and describe planned course improvements for those course objectives not achieved.
- Pilot use of course pre-test/ post-test questions embedded in exams for testing students’ abilities related to one or more PLO.
- Senior exit interviews: A representative group of seniors 2012 were interviewed individually or in 3 person focus groups for 1.5 hours each and asked to reflect on learning at the specific course and program level. A semi structured question protocol was used in the interviews so that individual experiences could shape the direction of discussion. The interview protocol addressed student achievement of the program learning objectives of the undergraduate major, listed below. Questions also explored other key department educational processes including non-course research, academic societies or seminars, career planning and advising. (PLO 1-8)
- Academic Awards won by student majors, 2010-2012 (PLO 1-7)
- Final grade review in required gateway courses, BIO 110, MTH 141, PHY 113, PHY 114, CHM 131 by student characteristic (ethnic group)