

## Assurance of Student Learning in the Department of Biological & Physical Sciences, KSU

The purpose of the KSU assurance of student learning (AOL) program is to support and improve student learning by developing methods to

- a) articulate the goals of each academic program and general education,
- b) gain feedback on each unit's progress towards achieving those goals, and
- c) use the feedback to modify the academic programs and general education to ensure that the goals are effectively achieved.

KSU's AOL initiative, and the SACS accreditation requirements that it is designed to satisfy, focuses on "program-level" rather than "course-level" assessments of student learning. A fundamental expectation at the heart of AOL is that a program's faculty will articulate and document what the graduates of their program know (expected knowledge), are able to do (expected skills), and are like (expected dispositions, attitudes, professionalism, etc.) as a result of their total educational experience in the program.

In the Department of Biological and Physical Sciences, we have identified the following learning outcomes.

- a) **Learning Outcome I (Knowledge)** - Graduates should be able to demonstrate a broad knowledge of the central themes, principles and technologies of biology, as well as a broad familiarity with appropriate supporting areas of science, mathematics, and computer technology;
- b) **Learning Outcome II (Skills)** - Graduates should be able to demonstrate an operational understanding of science and how it may be used to explain natural phenomena. Students should understand science as an epistemological method and be able to conduct and interpret a good scientific investigation;
- c) **Learning Outcome III (Attitudes)** - Graduates should be able to demonstrate an appreciation of science as a human endeavor which influences and is influenced by the social context in which it is practiced. They should have developed value systems to guide them in the practice of science and an awareness of ethical concerns raised by science and technological advances.

A more detailed matrix showing how these outcomes will be assessed can be found here:

[Biology AOL Matrix.pdf](#)

[Biotech AOL Matrix.pdf](#)

Documenting AOL requires gathering evidence that usually transcends individual course experiences and focuses on the cumulative effects of the program as a whole on what students have learned. Toward that end, initial assessment efforts in Assurance of Learning for the Biology, Biology Secondary Education (content areas) and Biotech programs will focus on Learning Outcome I. Two courses, Genetics (BIOL 3300) and Evolution (BIOL 3380), were chosen for this initial assessment effort because they

comprise the final set of common classes taken by students in all three degree programs. The courses will be evaluated every other year, starting in Fall 2005 with Genetics.

In particular, with input from the AOL assessment team, our representatives to the Assurance of Learning committee and the faculty teaching Genetics this Fall, we have devised an assessment plan that includes the following components:

- a) A rubric for grading laboratory reports has been developed by faculty teaching Genetics this 2005 Fall semester. This rubric reflects the learning outcomes for biology and biotechnology degree programs.
- b) Questions that directly address the stated learning outcomes for the course will be included on exams in all sections of Genetics.