BIOL 110: Biology I: Molecular & Cells
Learning Outcomes Assessment Project
Executive Summary

Stage 1: Designing and Proposing a Learning Outcomes Assessment (LOA) Project

BIOL 110 focuses on the basic biological principles common to all living things, including cell structure and function, molecular, cellular reproduction, genetics, energy transformation, and biotechnology. The assessment instrument consisted of in-house designed 55 multiple-choice questions embedded into a common exit exam. In addition, a diagnostic exam was created based on the Biology American College Testing (ACT) exam. Biology professors from four-year institutions and a retired community college professor served as external consultants by reviewing the exam questions and comparing them to the course objectives. The initial assessment occurred in fall 2003 and was repeated in fall 2005.

Stage 2: Implementing the Design and Collecting and Analyzing the Data

The results of the initial assessment showed that of the students enrolled in BIOL 110, 56% were successful in receiving grades in the A-C range. For students to progress in subsequent biology courses and to pursue Allied Health, they must achieve a "C" or better in this biology course. The mean score on the exam for CCBC (all three campuses combined) was 50%, with significant differences between the campuses. Analysis revealed no correlation between the performance on the diagnostic test and LOA exit exam. However, there was a significant correlation between the performance on the LOA exit exam and the final grade percentage at the .01 level.

Stage 3: Redesigning the Course to Improve Student Learning

The following changes were put into place as a result of this assessment. The same text was adopted for use on all three campuses and a faculty handbook, providing details on the major topics covered for use by all but of particular help to adjunct faculty, was developed. The objectives on the Common Course Outline were updated to reflect the rigorous content that the course requires. Additionally, in order to ensure that the student population for BIOL 110 consists of the appropriate biology and pre-allied health majors, BIOL 108, a non-majors general biology course that was previously only offered on one campus, is now offered on all three campuses.

Stage 4: Implementing Course Revisions and Reassessing Student Learning

The second assessment occurred during fall 2005 and the course success rate decreased to 48%. The mean LOA exam score rose slightly, however, to 55% and there was a significant correlation between the diagnostic test score and both the LOA exit exam score and the final grade. In addition, it was determined that the means for students of full time faculty were significantly higher than for students of adjunct faculty at 60% and 52% respectively.

Stage 5: Final Analysis and Reporting Results

In addition to the recommendations outlined in Stage 3 above, the Biology faculty have increased the math prerequisite to MATH 083, Intermediate Algebra, a developmental math course, to help ensure that students will be better prepared for the mathematical rigors of the course. In addition, they are working with the Student Development team to establish a separate course of SDEV, Achieving Academic Success, that will be required for students who score below a specified cut off on the diagnostic test. The course will focus on the types of critical thinking, note taking, and reading skills necessary to be successful in such a challenging course. They intend to continue to refine their diagnostic exam in hopes of better advising students. There is also a new mentoring program being established between full time and adjunct faculty.