BIOLOGY: Assessment Report Format (Academic Programs)

Academic Year 2006-2007

I. Brief Summary of Assessment Plan

The goal(s), student learning outcome(s), associated components of the outcome(s) (if applicable), and the performance characteristics or criteria. For 2006 – 2007 the faculty agreed to assess goals 1) Content and 2) Methodology

Content:

Course	BIOL-L 105	BIOL-L 364	BIOL-L 367	PLSC-B 203
Component (see grid in the 2006-2007 plan below)	6.	5.	1.	6.
Activity	Exam	Exam	Exam	Exam
Performance Characteristics	Correct/incorrect	Correct/incorrect	Correct/incorrect	Correct/incorrect
Benchmark	60%	60%	60%	60%

Methodology:

Course	BIOL-L 105	BIOL-L 364	BIOL-L 367	PLSC-B 203
Component (see grid in the 2006-2007 plan below)	1.	1.	2.	1.
Activity	Write detailed lab reports on DNA & Plasmid experiments	Identification of DNA sequence through the online GENBANK database	Write detailed research papers summarizing, synthesizing and evaluating primary research	Production of labeled drawings
Performance Characteristics	Correct/incorrect complete/incom-plete precise/vague, simple/more fully developed, concise/verbose, straightforward/di-gressive, clear/unclear, comprehensible/ incomprehensible, relevant/irrelevant	Same	Same	Same
Benchmark	70%	75%	75%	70%

GOALS – Biology BA	OUTCOMES - Students will be able to:	Components	Learning Objects	Characteristics	Activities	Indicators
Content	1. describe the phylogenetic interrelationships between living organisms; 2. describe chemical and molecular processes fundamental to living organisms; 3. describe the biological world and its relationship to basic human needs and activities; 4. describe the interaction of plants, animals, microorganisms and their environment; 5. describe the cellular and molecular basis of genetics.	1. Observation, comparison, data collection, interpretation, evaluation; 2.Experimentation, measurement, data collection, interpretation, evaluation; 3. Measurement; data collection; observation; evaluation; calculation; 4. Measurement; data collection; observation; evaluation; calculation; 5. Measurement; data collection; observation; evaluation; calculation. 6. Pre/Post Exam	Objective examinations, T/F examinations, short answer essays, fill-in-the-blank examinations, essays, oral presentations, term papers, senior seminar papers, laboratory practical exams, lab drawings, lab project reports, graded lab homework, data sheets, lab quizzes, review & analysis of journal articles, identification of unknowns, peer review or papers.	Correct/incorrect, complete/incomplete/ precise/vague, simple/more fully developed, concise/verbose, straightforward/digressive, clear/unclear, comprehensible/incomprehensible, relevant/irrelevant.	Lectures, laboratories, assignments, group discussions, presentations, dissections, mathematical analysis, computer simulations	Grades in courses, pre/post tests, Biology Major Field Assessment Test score, Biology Major Field Assessment Test Indicator scores, Medical College Admission Test scores, Dental Aptitude Test scores, Graduate Record Examination Test scores, Optometry Aptitude Test scores, other nationally-normed standard test scores.

Methodology	1. apply the methods biologists use to explore living organisms 2. evaluate the outcomes of scientific experiments	1. Observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence and employment of mathematical analysis. 2. Summarize, draw conclusions.	Same	Same	Same	Same

II. Assessment Methods

See Appendices for each individual course. In addition, a pre/post test was administered in L 105 and in B 203.

III. Description of Assessment Results

See Appendices for each individual course.

1) The pre/post test results in BIO-L 105 indicated the following:

Fall 2006:

Exam Scores (based on 100%)
Pretest: 49%
Posttest: 74%
The Normalized Gain Scores were 0.5096 and 0.4354 for Spring and Fall, respectively
This indicated a mid-level gain in knowledge (Hi = > 0.7; Mid = 0.3-0.7; Low = <0.3) and demonstrates that learning occurred during the semesters.

Spring 2007:

A pretest/posttest was used to assess student learning in lecture. The mean score on the pretest was 34.6, and on the posttest, 60.4. A paired comparisons *t*-test was run to see if the means were significantly different. The calculated value of *t* was -6.916, a value significant at the $p < 0.0001$ level.

2) The pre/post test results in PLSC-B 203 indicated the following:

A pretest/posttest was used to assess student learning in lecture. The mean score on the pretest was 34.0, and on the posttest, 76.0. A paired comparisons *t*-test was run to see if the means were significantly different. The calculated value of *t* was -11.051, a value significant at the $p < 0.0001$ level.

IV. Use of assessment for program improvement.

BIOL-L 105. While students in all sections were able to collect and observe data, all sections had problems stating key principles of the experiment and relating those principles to their results. More teaching emphasis is indicated in this area.
Assessor: R. Roales, G. Dolph, and C. Kinsey.

BIOL- L 364. Student weaknesses were reported in data collection and evaluation of data. More time and emphasis on certain aspects of the

weakness will be done to improve student benchmarks in the future. Assessor: C. Chauret

BIOL-L 367. More time will be spent on writing exercises such as proof-reading and re-writing of scientific papers. More attention will be paid to constructing questions where multiple components can be assessed independently. Moreover, more emphasis is needed so that students understand that they need to be able to explain why a statement is false, rather than restate the statement to make a true statement.
Assessor: M. Finkler

PLSC-B 203. All students exceeded the benchmark. No changes are proposed.
Assessor: G. Dolph

V. Dissemination of results.

A web page has been developed this past year to post the various assessment reports online.
http://www.iuk.edu/~konims/Assessment.shtml

VI. Appendices.

1) Biology Assessment Plans 2006-2007

2) Assessment Report - L 105 Introduction to Biology (Majors Biology)

3) Principles of Genetics L 364 – Assessment

4) Assessment Report 2007 in BIO-B 203

5) Cell Physiology BIOL-L 367 – Assessment