

BIOLOGY ASSESSMENT PLAN 2008 - 2009

March 31, 2008

I. MISSION

The Biology program's mission is to prepare students for professional careers in areas such as medicine, veterinary medicine, dentistry, optometry and biology, and for acceptance into advanced graduate degree programs. The mission is consistent with the IU Kokomo Mission Statement.

II. PROGRAM GOALS AND STUDENT LEARNING OUTCOMES

A. The goals for attaining these objectives and the relationship of these goals pertaining to the overall campus mission are indicated below. The goals prepare students for professional careers in areas such as medicine, veterinary medicine, dentistry, optometry and biology, and for acceptance into advanced graduate degree programs.

B. Student Learning Outcomes and Components.

Goal 1: Content

Outcome 1: Students will describe the phylogenetic interrelationships between living organisms.

Components: observation, comparison, data collection, interpretation, evaluation.

Outcome 2: Students will describe chemical and molecular processes fundamental to living organisms.

Components: experimentation, measurement, data collection, interpretation, evaluation.

Outcome 3: Students will describe the biological world and its relationship to basic human needs and activities.

Components: measurement, data collection, observation, evaluation, calculation.

Outcome 4: Students will describe the interaction of plants, animals, microorganisms and their environment.

Components: measurement, data collection, observation, evaluation, calculation.

Outcome 5: Students will describe the cellular and molecular basis of genetics.

Components: measurement, data collection, observation, evaluation, calculation.

Goal 2: Methodology

Outcome 1: Students will apply the methods biologists use to explore living organisms.

Components: observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, employment of mathematical analysis.

Outcome 2: Students will evaluate the outcomes of scientific experiments.

Components: observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, employment of mathematical analysis.

Goal 3: Impact on Biodiversity

Outcome 1: The students will discuss the effect of the natural environment on humans.

Components: measurement, data collection, observation, evaluation, calculation.

Outcome 2: The students will evaluate the implications of human modification of the environment.

Components: measurement, data collection, observation, evaluation, calculation.

Outcome 3: The students will assess the consequences of the modifications.

Components: measurement, data collection, observation, evaluation, calculation.

Goal 4: Unifying Principles within Biodiversity

Outcome 1: The students will explain similar/identical features of living systems.

Components: observation, comparison, data collection, interpretation, evaluation.

Outcome 2: The students will explain biodiversity.

Components: observation, comparison, data collection, interpretation, evaluation.

III. Curriculum Map (updated March 2008)

[Outcomes] Students will :	BIOL L105	BIOL L321	BIOL L 364	BIOL L345	BIOL L367	BIOL L473	PLSC B203	MICR M310	MICR M315	PHSL P416	ZOOL Z315
describe the phylogenetic interrelationships between living organisms.				X	X		X	X		X	X
describe chemical and molecular processes fundamental to living organisms.	X		X		X			X		X	
describe the biological world and its relationship to basic human needs and activities.		X	X			X		X			
describe the interaction of plants, animals, microorganisms and their environment.				X	X	X		X	X	X	
describe the cellular and molecular basis of genetics.	X		X					X			
apply the methods biologists use to explore living organisms.	X	X	X			X	X	X	X		X
evaluate the outcomes of scientific experiments.					X	X			X	X	
discuss the effect of the natural environment on humans.						X					
evaluate the implications of human modification of the environment.						X		X			
assess the consequences of the modifications.			X	X		X					
explain similar/identical features of living systems.	X			X	X			X		X	X
explain biodiversity.	X		X			X	X	X	X		X

IV. Assessment of student learning planned for 2008-2009.

A. Learning Outcome: We plan to assess goal 4 (Unifying Principles within Biodiversity) and the following outcomes.

Outcome 1: The students will explain similar/identical features of living systems.

Outcome 2: The students will explain biodiversity.

B. - D. No assessment will be conducted in ZOOL Z315 in 2008-2009 because a new faculty member will be teaching this course. This faculty is not yet hired.

Unifying Principles within Biodiversity

	BIOL L 105	BIOL L 364	BIO L367	PLSC B 203
Outcomes	The students will explain similar/identical features of living systems.	The students will explain biodiversity.	The students will explain similar/identical features of living systems.	The students will explain similar/identical features of living systems.
Component(s)	Comparison, interpretation	Comparison, evaluation	Comparison, interpretation	Comparison, interpretation
Activity(ies)	1) <u>Lecture and exam questions:</u> Comparison of organ systems. 2) <u>Lecture and question(s):</u> Interpretation of convergent evolution.	1) <u>Assignment:</u> Comparison and analysis of different DNA sequences (prokaryotes & eukaryotes) and genes through the online GENBANK database. 2) <u>Essay exam question:</u> Comparison of genome sizes and evaluation of complexity in different organisms based on genomics.	1) <u>Exam question(s):</u> Comparison of the primary mechanisms of gene regulation in prokaryotic and eukaryotic cells 2) <u>Essay exam question:</u> Interpretation of biochemical pathways involved in cellular metabolism	1) <u>Essay exam question(s):</u> Comparison and interpretation of the evolution of the plant kingdom.
Performance Characteristics	Correct/incorrect	Correct/incorrect	Correct/incorrect	Correct/incorrect
Benchmark	70%	70%	70%	70%

V. Ongoing Assessment

A. Describe status of your larger program assessment (II and III).

Our biology program assessment is complete. Assessment has been conducted in the biology program since 2005-2006.