

**APPENDIX 3. BIOLOGY DEPT
COMPREHENSIVE ASSESSMENT PLAN FOR GENERAL EDUCATION COURSE OFFERINGS**

Overview

The Department of Biology supports Academic Foundation Plans (AFPs) as part of its general education course offerings. Currently, the Department of Biology has 9 general education courses and 7 associated lab sections, as follows:

GENERAL EDUCATION COURSES with labs

BOT2010/L	General Botany
BSC1005/L	Biology for Non-majors
BSC1085/L	Anatomy and Physiology
BSC1086/L	Anatomy and Physiology II
BSC2311/L	Introduction to Oceanography/Marine Biology
MCB1000/L	Fundamentals of Microbiology
ZOO1010/L	General Zoology

GENERAL EDUCATION COURSES without labs

BOT1801	Introduction to Plant Science
BSC1050	Fundamentals of Ecology

To develop meaningful and sustainable plans for data collection leading to systematic review of all general education course offerings, as well as undergraduate and graduate programs, the Department of Biology developed and implemented a comprehensive and staged assessment plan. Table 1 provides historical information regarding this plan.

**Table 1
Historical Summary of Department of Biology Comprehensive Assessment Plan**

Stage	Time Frame	Action Plans and Associated Tangible Products
1 ALCs	Spring 2005	<p>DESIGNED ALCs and INITIAL ASSESSMENT PLANS</p> <ul style="list-style-type: none"> • Developed ALCs associated with: <ul style="list-style-type: none"> ○ Biology/Marine Biology/Pre-dentistry ○ Interdisciplinary Sciences • Identified “capstone pathway” through each program to target assessment strategies • Identified initial set of tools for direct and indirect assessment of a “capstone pathway”
2 ALCs	Summer 2005-Fall 2005	<p>Designed tools for INDIRECT ASSESSMENT of ALCs</p> <ul style="list-style-type: none"> • Incorporated standard 3/5-part Likert scale feedback on program-related student learning outcomes (SLOs) within currently used exit survey • Collected baseline data from exit survey from Summer 2005 graduates • Refined exit survey as needed based on analysis of baseline data • Submitted SACS FOLLOW-UP REPORT ON STANDARDS (November 21, 2005), summarizing initial results and plan for continued use
3 ALCs	Fall 2005	<p>Designed tools for DIRECT ASSESSMENT of ALCs</p> <ul style="list-style-type: none"> • Reviewed/restructured syllabi in each course within a “capstone pathway” to ensure compliance with stated SLOs in related program ALCs • Designed/reviewed data collection plan within “capstone pathway” for B.S. Biology courses to: <ul style="list-style-type: none"> ○ Identify exact SLO-linked materials to be collected in each course ○ Identify exact evaluation rubric to be submitted with collected materials to measure compliance with proposed SLOs ○ Identify exact process for selecting random subset of students for assessment • Collected baseline data from students in related “capstone pathway” courses in Fall 2005
4 ALCs ALPs AFCs	Spring 2006	<p>REFINEMENT of ASSESSMENT PLANS for ALCs and EXTENSION OF ASSESSMENT PLANS for ALPs and AFCs:</p> <ul style="list-style-type: none"> • Refined process of direct assessment for ALCs as needed based on analysis of baseline data • Identified capstone courses within all departmental ALPs and finalized plans for utilization and collection of baseline data from embedded direct assessment instruments in Summer 2006 • Identified subset of AFCs emphasizing project management and critical thinking and finalized plans for utilization and collection of baseline data from embedded direct assessment instruments in Summer 2006 • Developed data analysis plan for project management criteria in ALCs, ALPs, and AFCs • Developed specific departmental syllabus coherency plans • Submitted SACS FOLLOW-UP REPORT ON STANDARDS (March 31, 2006), summarizing current status
5 ALPs AFCs	Summer 2006-Fall 2006	<p>REFINEMENT of ASSESSMENT PLANS for ALPs and AFCs:</p> <ul style="list-style-type: none"> • Collecting baseline data from students in courses within the targeted ALPs and AFCs • Refining process of direct assessment for ALPs and AFCs as needed based on analysis of baseline data

Future stages of this plan will be summarized using the templates provided as part of the UWF Annual Report process. The Department of Biology’s assessment plan for general education courses calls for the identification of at least one direct and indirect measure of assessment for the courses under review in a given academic year. Instruments utilized in these areas are described in the following sections.

Summary of Indirect Assessment, GENERAL EDUCATION

The Department of Biology’s plan for indirect assessment of its general education course offerings is scheduled for development in 2006-2007. In 2006-2007, we anticipate requesting general-education-specific data from the National Survey of Student Engagement (NSSE) instrument (if available for students taking general education courses). This data would form the basis for our indirect assessment of students at the general education level.

Summary of Direct Assessment, GENERAL EDUCATION

The Department of Biology’s plan for direct assessment of its general education course offerings begins with the utilization of embedded assessment instruments within two courses, one emphasizing project management and a complimentary course emphasizing critical thinking. Evaluation of these two courses over a two year period will serve as the prototype for assessing the primary and secondary outcomes to be

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monitored in all general education courses. Feedback from analysis of baseline data collected in Summer and Fall 2006 will be used to refine this process. These courses in particular were selected as prototypes over other courses due to their emphasis on project management (and associated critical thinking strategies employed to complete a project). The Department of Biology currently accepts the University level definition of project management (*Responses to Recommendations*, Volume 1, pp. 8-9) and supports embedded instruments tailored to the lab-based aspects of courses in life sciences for the project conceptualization and project delivery outcomes. On a course-by-course basis, the incorporation of assessment items related to the team-work skills or self-regulation outcomes are also required, depending on the nature of individual or team-based laboratory assignments within a specific course. Table 2 summarizes the specific course assignments to be utilized as prototypes for assessing related outcomes for the AFP domains under evaluation. Items highlighted in yellow indicate the subset of all possible items that are currently targeted for evaluation.

**Table 2
Summary of Course Assignments Utilized for Direct Assessment of AFP Domains**

GENERAL EDUCATION BIOLOGY	Associated AFP Domains/Outcome Criteria and Selected Course Assignment to be Utilized for Embedded Assessment		
	Critical Thinking	Project Management	
	Problem Solving and Analysis/Evaluation	Project Conceptualization and Project Delivery	Team-Work Skills OR Self-Regulation (at instructor discretion)
Course Name			
Biology for Non-majors	Selected lab report assignment	Selected lab report assignment	Selected lab report assignment
General Botany	Selected lab report assignment	Selected lab report assignment	Selected lab report assignment

The collection of baseline data from these courses began in Summer and Fall 2006 and is staged in two-year increments. During this initial period, faculty will be asked to consider data management/utility strategies to be appended to the general education assessment plan, such as:

1. Collect additional data for these prototype courses.
2. Select an alternate subset of general education courses to assess.
3. Select a more focused assessment plan on one AFP domain (critical thinking or project management). If this option is selected, faculty will additionally be asked to:
 - a. Design a more focused assessment plan for an AFP domain
 - b. Determine the subset of courses best suited for the initial collection of baseline data for the newly focused assessment plan.

Such discussions will be considered and reviewed on an annual basis thereafter. Action items associated with these discussions will indicate how data will be analyzed and reviewed for programmatic review at the general education level. Copies of derived action plans resulting from annual meetings will be forwarded to the Dean and UWF's CUTLA and also summarized for 5-year program reviews. Table 3 summarizes the current subset of faculty identified to facilitate the implementation of the assessment plan for general education course offerings in the Department of Biology.

**Table 3
Summary of Faculty Identified for Facilitating Implementation of General Education Assessment**

COURSE NAME	FACULTY	2006-2007 AFP domains under evaluation
Biology for Non-majors	Dr. Karen Pritchard	Critical thinking
General Botany	Dr. Theodore Fox	Project Management

Finally, Appendix A of this document provides sample descriptive data collected from faculty in Fall 2005 for rubrics utilized within the BS Biology ALC. Appendix B shows use of this data in a newly structured syllabus, and Appendix C provides a summary of action words to be utilized in constructing student learning outcomes on a syllabus.

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**Appendix A
Faculty Reports on Rubric Ratings Utilized in Fall 2005 Embedded Assessment Instruments for BS Biology ALC**

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments, FALL 2005
Very Good-Excellent	Consistently demonstrated clarity of thought process; ability to communicate well; consistent demonstration of abilities and understanding that surpassed expected average
Satisfactory	Demonstrated basic level of understanding and ability that rarely surpassed expectations.
Unsatisfactory	Critical inability to grasp central concepts, execute technologies, [or] think logically to synthesize appropriate conclusions.

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments, FALL 2005
Very Good-Excellent	Student who was relatively good in mathematics or had a history of above average academic performance showed competence in the beginning; after practicing problem solving and data analysis, they just got even better.
Satisfactory	Student who had no habit of doing logic reasoning or was weak in mathematics tends to have difficulty in the beginning; however, after practicing logic reasoning more often, they showed satisfactory performance.
Unsatisfactory	Student who had a history of learning difficulty tend to be in this category; so is student who rarely spent effort in learning.

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments, FALL 2005
Very Good-Excellent	Clarity of writing, adherence to style, comprehensive review of literature and integration of data/results with existing literature, understanding of basic ecological principles controlling distribution and abundance of animals.
Satisfactory	Adequate implementation of above [very good-excellent characteristics].
Unsatisfactory	Inattention to edited draft comments, lack of adherence to technical writing style, improper grammar and spelling.

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments, FALL 2005
Very Good-Excellent	Students in general have a good sense on value of genetic research and ethical issue of genetic research. Therefore, all of them are in the rating of satisfactory or above. However, students who do better in reading comprehensively tended to be more capable in describing their ideas with specificity, which leading to rating of very good- excellent.
Satisfactory	No comments.
Unsatisfactory	No comments.

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments, FALL 2005
Very Good-Excellent	Consistently demonstrated clarity of thought process; ability to communicate well; consistent demonstration of abilities and understanding that surpassed expected average
Satisfactory	Demonstrated basic level of understanding and ability that rarely surpassed expectations.
Unsatisfactory	Critical inability to grasp central concepts, execute technologies, [or] think logically to synthesize appropriate conclusions.

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**Appendix B
Sample Undergraduate Syllabus with SLO Statements and Associated Rubric Linked to Program ALC**

**EPIDEMIOLOGY OF INFECTIOUS DISEASE
MCB4276/MCB5273
Class Syllabus**

Fall 2005

Instructor: Dr. George L. Stewart

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Course Objectives and Student Learning Outcomes:

This course meets the following programmatic goals for the B.S. Biology and MPH degree programs:

- *Content and Critical Thinking:*
 - Students will be expected to apply the basic principles of epidemiology and demonstrate an understanding of the rules governing the occurrence of epidemics of infectious diseases.
- *Communication:*
 - Students will be able to describe the contemporary and future importance of infectious diseases on a global scale and the role played by environmental destruction and overpopulation on the success and spread of infectious diseases.
 - Students will be able to discuss the most important infectious diseases affecting man, and of the microbial, host and environmental factors that contribute to such epidemics.

Fulfillment of these goals will be assessed in weekly essay quizzes in which students will demonstrate their ability to apply the principles of infectious disease epidemiology and the rules governing the occurrence of epidemics of infectious disease. For the purposes of programmatic assessment, the following mastery levels will be used:

SKILL MASTERY LEVEL	Characteristics of Submitted Student Work and Assignments	
	CONTENT AND CRITICAL THINKING	COMMUNICATION
Very Good-Excellent	Student consistently shows clarity of understanding of, and an ability to apply, the principles of infectious disease epidemiology and the rules governing the occurrence of outbreaks of infectious disease.	Student shows clear expression of ideas in writing with proper spelling and grammar and an ability to integrate their ideas into the literature on infectious disease epidemiology.
Satisfactory	Student demonstrates a basic level of understanding of, and ability to apply, the principles of infectious disease epidemiology and the rules governing the occurrence of outbreaks of infectious disease.	Student demonstrates only adequate implementation of above Very Good-Excellent characteristics.
Unsatisfactory	Student has a critical inability to grasp and apply the principles of infectious disease epidemiology and the rules governing the occurrence of outbreaks of infectious disease.	Student maintains a lack of adherence to technical writing style and skills, uses improper grammar and spelling, and has an inability to clearly express ideas in writing and to integrate those ideas into the literature on infectious disease epidemiology.

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**Appendix C
Help Sheet for Required Action Words in Student Learning Outcomes
[Source: Bloom's Taxonomy via Dr. Claudia Stanny, UWF]**

BANNED words that will lead to SLO rejection: understand, know

KNOWLEDGE	UNDERSTAND	APPLY	ANALYZE	EVALUATE	CREATE
copy	ask	act	advertise	appraise	adapt
define	associate	administer	analyze	argue	anticipate
describe	cite	apply	appraise	assess	arrange
discover	classify	articulate	break down	choose	assemble
duplicate	compare	calculate	calculate	compare	choose
enumerate	contrast	change	categorize	conclude	collaborate
examine	convert	chart	classify	consider	collect
identify	demonstrate	choose	compare	convince	combine
label	describe	collect	conclude	criticize	compile
list	differentiate	complete	connect	critique	compose
listen	discover	compute	contrast	debate	construct
locate	discuss	construct	correlate	decide	create
match	distinguish	demonstrate	criticize	defend	design
memorize	estimate	determine	deduce	discriminate	develop
name	explain	develop	devise	distinguish	devise
observe	express	discover	diagram	editorialize	express
omit	extend	dramatize	differentiate	estimate	facilitate
quote	generalize	employ	discriminate	evaluate	formulate
read	give examples	establish	dissect	find errors	generalize
recall	group	examine	distinguish	grade	hypothesize
recite	identify	experiment	divide	judge	imagine
recognize	illustrate	explain	estimate	justify	infer
record	indicate	illustrate	evaluate	measure	integrate
repeat	infer	interpret	experiment	order	intervene
reproduce	interpret	interview	explain	persuade	invent
retell	judge	judge	focus	predict	justify
select	observe	list	illustrate	rank	make
state	order	manipulate	infer	rate	manage
tabulate	paraphrase	modify	order	recommend	modify
tell	predict	operate	organize	reframe	negotiate
visualize	relate	paint	outline	score	organize
	report	practice	plan	select	originate
	represent	predict	point out	summarize	plan
	research	prepare	prioritize	support	prepare
	restate	produce	question	test	produce
	review	record	select	weigh	propose
	rewrite	relate	separate		rearrange
	select	report	subdivide		reorganize
	show	schedule	survey		report
	summarize	show	test		revise
	trace	simulate			rewrite
	transform	sketch			role-play
	translate	solve			schematize
		teach			simulate
		transfer			solve
		use			speculate
		write			structure
					substitute
					support
					test
					validate
					write