

Undergraduate Academic Assessment Plan 2012 2013

Botany, Dept. of Biology

Liberal Arts and Sciences

Colette St. Mary
stmary@ufl.edu

Edward Braun
ebraun68@ufl.edu

Botany Major, Department of Biology, College of Liberal Arts and Sciences Undergraduate Academic Assessment Plan

Mission Statement

The Department of Biology studies life at all levels from molecules to the biosphere to understand the evolution, structure, maintenance and dynamics of biological systems. Our teaching and research provide the integrative and conceptual foundations of the life sciences. The Botany major aligns with the missions and values of CALS, CLAS, and the University of Florida to provide undergraduate students with an intellectual foundation and comprehensive education that will result in gainful employment, productive citizenship and leadership, and lifelong learning. The botany curriculum provides a broad background in the biology of plants, from the molecular to the organismic level. Students who major in botany will take courses in anatomy, ecology, genetics, physiology, taxonomy and molecular biology of plants and biochemistry

Student Learning Outcomes (SLOs)

Existing SLOs in the 2012-13 undergraduate catalog:

1. Knowledge of the scientific method and how it facilitates the discovery of new knowledge in botany and biology.
2. Knowledge of biodiversity, its evolution and significance.
3. Knowledge of the acquisition, flow, organization and uses of information, energy and nutrients in living systems, and how organisms and ecosystems function.
4. Critically evaluate hypotheses and conclusions in botany and biology using veritable data.
5. Clearly and effectively present ideas in speech and in writing concerning major botanical and biological concepts and hypotheses.

Revised SLOs for the 2013-14 undergraduate catalog:

Content Knowledge

#1. Students identify, describe, and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.

Critical Thinking

#2. Students analyze biological information and develop reasoned solutions to problems using the processes and applications of scientific inquiry.

#3. Students discriminate ethical behavior from unethical behavior in scientific research.

Communication

#4. Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.

New/Revised SLOs, 2013-14*	Link to 2012-13* SLOs
Content	
Students identify, describe, and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.	Knowledge of the scientific method and how it facilitates the discovery of new knowledge in botany and biology.
	Knowledge of biodiversity, its evolution and significance.
	Knowledge of the acquisition, flow, organization and uses of information, energy and nutrients in living systems, and how organisms and ecosystems function.
Critical Thinking	
Students analyze biological information and develop reasoned solutions to problems using the processes and applications of scientific inquiry.	Critically evaluate hypotheses and conclusions in botany and biology using veritable data.
Students discriminate ethical behavior from unethical behavior in scientific research.	
Communication	
Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.	Clearly and effectively present ideas in speech and in writing concerning major botanical and biological concepts and hypotheses.

*undergraduate catalog date

Curriculum Map

Curriculum Map for:

Botany

Liberal Arts and Sciences

Key: **I**ntroduced

Reinforced

Assessed

Courses	BSC 1920	BSC 2010	BSC 2011	BSC 3307C	BOT 2010C	BOT 2011C	BOT 2710	BOT 3151C	BOT 3503	BSC 3402	BSC 3911	PCB 3023	PCB 3063	PCB 4043C	PCB 4674	BSC 4936	Additional Assessments
SLOs																	
Content Knowledge																	
#1	I	I	I	R	I	R	R	R	R			R	R	R	R	A Major Field Test	
Critical Thinking																	
#2		I	I		I	R	R	R	R	R		R	R	R	R	A Analytical Skills Assessment Indicator of Major Field Test	
#3	I	I		R						R	R			R		A Bioethics Module Quiz	
Communication																	
#4	I			R	I	I	R		R	R	R		R	R	R	A Scientific Literacy Paper	

Assessment Cycle

All SLOs will be assessed annually.

Assessment Cycle Chart

Assessment Cycle for:

Botany

Liberal Arts and Sciences

Analysis and Interpretation:

May-June

Improvement Actions:

Completed by August 15

Dissemination:

Completed by September 15

SLOs	Year	10-11	11-12	12-13	13-14	14-15	15-16
Content Knowledge							
#1		X	X	X	X	X	X
Critical Thinking							
#2		X	X	X	X	X	X
#3		*	*	X	X	X	X
Communication							
#4		*	*	X	X	X	X

* Data were not collected for SLO 2 or SLO 3 in 2010-2012 because these were newly-added SLOs for the major and no assessment was in place.

Methods and Procedures

SLO Assessment Matrix

The SLO Assessment Matrix is new for the 2012-13 Academic Assessment Plans. We have populated the matrix to the extent possible with the information we have available. Please complete the matrix.

Assessment Method - For each SLO, please enter the assessment method you are using – exam (course, internal, or external), project, paper, presentation, performance, etc.

Measurement – list the measurement procedure you use for this outcome. It can be a faculty-developed rubric with the minimum acceptable level identified, an exam score and the minimum passing score, or other measurement. **Required for 2012-13: Include at least one example of a rubric used to assess an SLO.**

SLO Assessment Matrix for 2012-13

2012-13 Student Learning Outcome	Assessment Method	Measurement Procedure
Students identify, describe, and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.	Major Field Test	Content subscore
Students analyze biological information and develop reasoned solutions to problems using the processes and applications of scientific inquiry.	Analytical Skills Assessment Indicator of Major Field Test	Analytical skills assessment indicator score
Students discriminate ethical behavior from unethical behavior in scientific research.	Bioethics Module Quiz	Scoring developed and reviewed by Biology Major Committee
Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.	Scientific Literacy Paper	Department Rubric

We will conduct both direct and indirect assessments of the program. Enrollment into the major as provided by Academic Advising will be used as an indirect assessment of the program. The report will be reviewed annually.

Direct assessments will be administered in BSC 4936 (Critical Analysis of Biological Research), which is restricted to seniors:

- **Content Knowledge** (SLO #1): Major Field Test for Biology ([Educational Testing Service](#), or equivalent assessment). Assessment will consider all Content Subscore areas: cellular biology; molecular biology and genetics; organismal biology; evolution, ecology and population biology.
- **Critical Thinking** (SLO #2): Major Field Test for Biology ([Educational Testing Service](#), or equivalent assessment). Assessment will consider only the Analytical Skills Assessment Indicator.
- **Critical Thinking** (SLO #3): Bioethics Module Quiz. This quiz and its scoring are developed and reviewed by the Biology Major Committee.
- **Communication** (SLO #4): Scientific Literacy Paper. This assignment is assessed using the Biology department rubric* which has been reviewed and accepted by the Biology Major Committee.

* See Appendix

Assessment Oversight

Name	Department Affiliation	Email Address	Phone Number
Colette St. Mary	Dept. of Biology	stmary@ufl.edu	392-1636
Edward Braun	Dept. of Biology	ebraun68@ufl.edu	846-1124

Appendix: Grading Rubric for Scientific Literacy Paper (SLO #4)

Graded item	Unsatisfactory	Satisfactory
1. Title page contains descriptive title, student's name, student's Gatorlink ID, instructor's name, course, date.	Title page is missing, or is missing items, or is disorganized and poorly formatted.	Title page is complete and neat.
2. Introductory paragraph states the driving question and effectively introduces the three main points/claims.	Introductory paragraph is missing, or does not effectively define each of the three main points/claims, or prematurely provides a conclusion to the driving question	Introductory paragraph provides a clear overview of the driving question, effectively defines the three main points/claims of the paper, and does not prematurely provide a conclusion to the driving question.
3. Body of paper (paragraphs 2-4) explores the three points introduced in paragraph 1, each in its own paragraph. Main points/claims are supported by evidence.	Body of the paper does not address the main points/claims, or supporting arguments are not evidence-based, or supporting arguments do not directly relate to the points/claims.	Body of the paper clearly addresses all three main points/claims, supporting arguments are all evidence-based, and supporting arguments directly relate to the points/claims.
4. Conclusion (paragraph 5) synthesizes the three main points to provide an answer to the driving question.	Concluding paragraph is missing, or does not synthesize the evidence to provide a conclusion to the driving question, or provides a conclusion that is not supported by the evidence presented.	Final paragraph restates the main points/claims and effectively synthesizes the evidence to provide a conclusion to the driving question.
5. All references are peer-reviewed.	Cited references are not from peer-reviewed sources.	All references are from peer-reviewed sources.
6. Council of Science Editors (CSE) format is used for all in-text citations and reference list.	Citations are not included, or are not in CSE format.	Citations are included and are in correct CSE format.
7. Punctuation, spelling, grammar	>3 errors	< 3 errors
12. Concise writing	Writing is imprecise and rambling.	Writing is precise and concise.
13. Overall impact	Paper is uninteresting and not persuasive or compelling.	Paper is interesting, persuasive and compelling.