

Undergraduate Academic Assessment Plan 2013-14

Biology

**College of Liberal Arts &
Sciences**

and

**College of Agricultural &
Life Sciences**

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Biology Major

College of Liberal Arts & Sciences and College of Agricultural & Life Sciences

Undergraduate Academic Assessment Plan

Mission Statement

Biology is the study of the many diverse forms, processes, and systems of life. These studies range across all levels of the biological hierarchy, from the simplest to most complex life forms, across all environments on the earth, and across recent and evolutionary time that interconnects ancestors to their descendants. To understand this vast diversity, the field of biology correspondingly relies on integrative and comparative approaches for the resolution of the general processes, principles, and unifying themes that govern living systems. The field of biology is therefore very interdisciplinary, and biologists rely on knowledge from the physical sciences and mathematics, as well as from across the disciplines and sub-disciplines of biology, for advances and breakthroughs. Students majoring in Biology are offered a degree that is flexible, yet ensures a broad coverage of the life sciences. The Biology major has six specializations that are jointly administered by the College of Agricultural & Life Sciences and the College of Liberal Arts & Sciences. The Biology 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.

Student Learning Outcomes (SLOs)

Content Knowledge

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

Critical Thinking

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

#3. Discriminate ethical behavior from unethical behavior in scientific research..

Communication

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

Student Learning Outcomes Matrix

New/Revised SLOs, 2013-14*
Content
Identify, describe and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.
Critical Thinking
Analyze biological information and develop reasoned solutions to problems using the processes and applications of scientific inquiry.
Discriminate ethical behavior from unethical behavior in scientific research.
Communication
Communicate knowledge, ideas and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.

*undergraduate catalog date

Curriculum Maps

Curriculum Map for:

Biology (BIOPRO, BIOINT, BLYPRO, BLYNS, BLYAPB)

Liberal Arts & Sciences and Agricultural & Life Sciences

Key: Intrduced

Reinforced

Assessed

Courses SLOs	BSC 1920	BSC 2010	BSC 2011	AGR 3303 or PCB 3063 or PCB 4522	MCB 3020/L or PCB 3134 or PCB 4674	ANS 3319C or BOT 3503 or HOS 4304 or PCB 3713 or PCB 4723C	BSC 4936	Additional Assessments
Content Knowledge								
#1	I	I	I	R	R	R	A Major Field Test	
Critical Thinking								
#2		I	I	R	R	R	A Analytical Skills Assessment Indicator of Major Field Test	
#3	I	I	I				A Bioethics Module	
Communication								
#4	I			R	R	R	A Scientific Literacy Paper	

Curriculum Map for:

Biology (BLYBTC)

Agricultural & Life Sciences

Key: Intrduced

Reinforced

Assessed

Courses SLOs	BSC 1920	BSC 2010	BSC 2011	AGR 3303 or PCB 3063 or PCB 4522	MGB 3020/L or PCB 3134 or PCB 4674	BSC 4936	Additional Assessments
Content Knowledge							
#1	I	I	I	R	R	A Major Field Test	
Critical Thinking							
#2		I	I	R	R	A Analytical Skills Assessment Indicator of Major Field Test	
#3	I	I	I			A Bioethics Module	
Communication							
#4	I				R	A Scientific Literacy Paper	

Curriculum Map for:
Biology B.A. (BIOBA)

Liberal Arts and Sciences

Key: Introduced Reinforced Assessed

Courses	BSC 1920	BSC 2010	BSC 2011	One of the following: AGR 3303 BCH 3023 PCB 3023 PCB 3063 PCB 3134 PCB 4522 PCB 4553 BOT 3303C BOT 3503/L BSC 3096 MGB 2000/L MGB 3020/L PCB 3134 PCB 3713C PCB 4712 PCB 4723C ZOO 3603C ZOO 3713C	One of the following: BSC 3307C PCB 3601C PCB 4043C BOT 2011C BOT 2710C BOT 3151C PCB 4674 ZOO 3513C ZOO 4205C ZOO 4307C	BSC 4936	Additional Assessments
Content Knowledge							
#1	I	I	I	R	R	A Major Field Test	
Critical Thinking							
#2		I	I	R	R	A Analytical Skills Assessment Indicator of Major Field Test	
#3	I	I	I			A Bioethics Module	
Communication							
#4	I			R	R	A Scientific Literacy Paper	

Assessment Cycle

All SLOs will be assessed annually.

Assessment Cycle Chart

Assessment Cycle for:

Biology

CALS and CLAS

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 SLOs 3 & 4 in 2010-2012 because these were newly-added SLOs for the major and no assessment was in place.

Methods and Procedures

SLO Assessment Matrix

2013-14 Student Learning Outcome	Assessment Method	Measurement Procedure
Identify, describe and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.	Major Field Test	Test score
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	Test score
Discriminate ethical behavior from unethical behavior in scientific research.	Bioethics Module	Quiz and its scoring reviewed by the Biology Major Executive Committee
Communicate knowledge, ideas and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.	Scientific Literacy Paper	Department rubric

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 reviewed by the Biology Major Executive 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

This Academic Assessment Plan for the Biology Major will be managed by the Assistant Director and overseen by the Biology Major Executive Committee (BMEC).

Name	Department Affiliation	Email Address	Phone Number
Members of the BMEC:			
Ed Braun, Assoc Prof	Department of Biology	ebraun68@ufl.edu	352-846-1124
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William Spencer Assist. Director, BMEC (ex-officio)	Department of Biology	wespencer@ufl.edu	352-273-0115

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.