Framingham State University

Program Assessment Plan for Biology 2022-2026

Please note: Use of this template is optional. The Office of Institutional Assessment is providing it only as a potentially useful tool that could make formulating the plan and tracking implementation easier.

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Department Chair:	Aline Davis
Date Created/Updated:	Fall 2021

1) PROGRAM MISSION STATEMENT

The Mission of the Biology Department at Framingham State University is to provide a cost effective, comprehensive undergraduate education in the life sciences to a diverse student population. Within the context of an anti-racist, liberal arts curriculum, we emphasize experiential learning to prepare students for employment in areas including research, technical applications, teaching, and the pursuit of advanced degrees in biology or health-related professional schools. Located between Boston and Worcester with accessible transit, we are able to connect our students to local and regional opportunities to prepare for a variety of careers in Biology. Students may participate in laboratory exercises, field experiences and collaboration with faculty in biological research. Our graduates act as effective leaders and contributors in biologically related discussions and efforts, be they with academic, government, corporate or public groups.

2) PROGRAM LEARNING OBJECTIVES

1. Explain how the basic principles of the biological hierarchy (molecular, cellular, organismal, population, communal, ecological, and global) are interconnected
2. Differentiate diverse organismal characteristics by their causal evolutionary mechanism
3. Investigate a hypothesis relevant to their concentration by using the scientific process
4. Demonstrate the ability to communicate biological information and deliver it in a form appropriate for the target audience
5. Use a biological perspective as a foundation for civic engagement in discussion of contemporary policy, including anti-racism, public health, and climate change

3) LEARNING OPPORTUNITIES

Title		Year Taken	Basic principles of biological hierarchy	Differentiate organismal characteristics and causal evolutionary mechanisms	Investigate a hypothesis using the scientific process	Communication in a form appropriate for the target audience	Use biological perspective as a foundation for civic engagement
	PLO #		1	2	3	4	5
160	Developmental Level		I	I	I	I	I
IOB	Learning Activity	Fr			Final Lab Report	Final Lab Report	
	Assessment				A	A	
161	Developmental Level		I	I	I	I	I
ICMB	Learning Activity	Fr			Final Lab Report	Final Lab Report	Science & Society
	Assessment				A	A	
208	Developmental Level		R	R	R		
Genetics	Learning Activity	So	Problem Sets				
	Assessment						
262	Developmental Level		R	R	R		
Molecular	Learning Activity	So					
	Assessment						
230	Developmental Level				R	R	
Prof Comm	Learning Activity	So			Lab Report	Lab Report or other written artifact	
	Assessment						
402	Developmental Level		E	E			
Evolution	Learning Activity	Sr					
	Assessment		A	A			
460	Developmental		E		E	E	

	Level						
REB	Learning Activity						
	Assessment				A	A	

Introduced	I
Reinforced	R
Emphasized	E
Assessed	A

4) ASSESSMENT METHODS AND TIMELINE

NOTE: Since there is no accreditation available for General Biology programs, with Dean Carroll's permission, we are in the process of having an external review to determine our PULSE (Partnership for Undergraduate Life Science Education) recognition level. Here is a link to learn more about PULSE: https://circle.wustl.edu/projects/studies/partnership-for-undergraduate-life-science-education-pulse-study/#:~:text=The%20Partnership%20for%20Undergraduate%20Life%20Science%20Education%20%28PULSE%29,and%20Change%20report%20into%20life%20science%20programs%20nationwide.

We are spending much of this academic year preparing materials needed for the anticipated site visit in the Fall of 2022. As such, our assessment plan will most likely be delayed as we work on the PULSE recognition materials, including a review of our current program using the PULSE rubrics for assessment.

https://pulserubrics.org/

The timetable below will only be maintained if it aligns with what is required by PULSE. Once the PULSE review occurs, we expect the assessment methods and timeline to be revised as appropriate for maintaining PULSE recognition.

Indicate when and how program learning objectives will be assessed. Refer to the curriculum map to draft a student learning objective assessment timeline. It is recommended that you outline a 5-year plan for assessment in which you will assess all of your PLOs.

Academic Years	**Objectives(s)**	**Course(s)**	**Assessment Evidence (direct/indirect)**	**Assessment Method**	**Responsibility**
WHEN	WHICH Objectives(s) will you examine in each period (Use number)?	WHERE will you look for evidence of student learning (i.e., list course(s) that will generate evidence for each objective.	WHAT student work or other evidence will you examine in order to assess each objective?	HOW will you look at the evidence; what means will you use to analyze the evidence collected for each objective	WHO will oversee collecting, analyzing, reporting, results? List names or titles.
Year 1 **2021/2022**	4	BIOL 402 Process of Organic Evolution	Written Artifact: Annotated Bibliography or Research Paper		Biol 402 instructor will collect the artifacts, while the assessment committee will analyze and report
Year 2 **2022/2023**	3	BIOL 460 Research Experience in Biology	Student poster presentations, student oral presentations, student multimedia presentations	The assessment committee will produce/revise a rubric to evaluate these student assignments	Biol 460 instructors will collect the artifacts, while the assessment committee will analyze and report
Year 3 **2023/2024**	1	BIOL 402 Process of Organic Evolution	Written Artifact: Annotated Bibliography or Research Paper		Biol 402 instructor will collect the artifacts, while the assessment committee will analyze and report

Year 4 **2024/2025**	2	BIOL 402 Process of Organic Evolution	Written Artifact: Annotated Bibliography or Research Paper		Biol instructor will collect the artifacts, while the assessment committee will analyze and report
Year 5 **2025/2026**	5	The assessment committee is still determining how this objective will be met			

Assessment Committee Tasks for the 2021/2022 Academic Year

- Comparing our Learning Objectives with that of PULSE Vision and Change. Consider modification if necessary for Biology program Recognition
- Other preparation as needed for PULSE recognition review and site visit.

Program Size and Sampling Technique

a. State the number of students in the program or the number who graduate each year.
   There are approximately 210 Biology majors in the program. We tend have approximately 25-35 students graduate from the program every year.

b. Describe the sampling technique to be used
   i. All students are required to complete BIOL 402 Progress of Organic Evolution as a part of the curriculum. BIOL 230 Professional Communication as a prerequisite to BIOL 402.
   ii. The majority of the majors complete BIOL 460 Research Experience in Biology for their capstone course.

5) PLAN FOR ANALYZING RESULTS

- List who is responsible for distributing results and who will receive results?
  Currently, the Department Chair is responsible for the distribution of results, either to the university administration or to the department faculty members.

- State how and at which forums discussion of results will take place.

We will be having an external review in the 2022-2023 school year where the data will be presented as a part of our program presentation and written report.

6) **DISTRIBUTION**. The program will distribute or publish these items in the following ways:

ITEM	***Distribution Method***					
	FSU Catalog (provide section title)	**Website** (provide URL)	**Annual Reports**	**Brochures**	**Course Syllabi**	**Other** (please describe, e.g. department meeting, advising session)
Program Mission		https://www.framingham.edu/academics/colleges/science-technology-engineering-and-mathematics/biology/index				PULSE materials
Program Learning Objectives		https://www.framingham.edu/academics/colleges/science-technology-engineering-and-mathematics/biology/index				PULSE materials
Learning Opportunities (Curriculum Map)						
Assessment Plan			Preparation for PULSE review			

Attach any rubrics or instrumentation that you plan to use for assessment of Program Learning Objectives

See initial reference to PULSE rubrics that will be used for both preparation and maintenance of recognition.