Academic Program Assessment Report for AY 2022-2023

Program:_Biology, B.S._____

(Due: June 1, 2023) **Date report completed:** __June 14, 2023____

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I. Assessment of Student Learning Outcomes (SLOs) in this cycle. Including processes, results, and recommendations for improved student learning. Use Column H to describe improvements planned for 2023-2024 based on the assessment process.

A. Which of the program SLOs were assessed during this cycle? **Please include the outcome(s) verbatim from the assessment plan.**	B. When was this SLO last reported on prior to this cycle? (semester and year)	C. What method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process.**	D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved (N).	E. What is the expected proficiency level and how many or what proportion of students should be at that level?	F. What were the results of the assessment? (Include the proportion of students meeting proficiency.)	G. What were the department's conclusions about student performance?	H. What changes/improvements to the program are planned based on this assessment?
SLO 1) Students will develop a broad-based knowledge of concepts and terminology in molecular, cellular, organismal, and ecological biology.	Spring 2022	**SLO 1**. Administer the GRE to each class of First Year Seminar (BIOL 171) for baseline assessment. Administer the GRE and MFAT exam to each class of Senior	104 students took the GRE (50 selected questions) exam in Biol 171. 26 students took the GRE (same 50 selected questions) exam in Biol 493.	Our goal is to have 75% of our senior students score at 70% or higher on the GRE in the BIOL 493 class, …and to have 75% of our senior students score at or above 50% of	For the GRE exam, BIO 171 students scored 26 +/- 5%. For the GRE exam, BIO 493 students scored 39 +/- 5%. For the MFAT exam, 27% of BIO 493	We have been conducting these exams for the last 8 years, and these are our lowest scores to date. It could be that students; there is the possibility that students are not takin gthese exams thoughfully so that the scores do not	Faculty will discuss whether the tools, or the delivery of the tools, that we are using to assess this SLO are effective. We have spent the AY22-23 discussing changes to our curriculum within the 120 credit limit, focusing on Cell biology and Genetics. We are hoping to present those changes

		Seminar (BIOL 493).	22 students took the MFAT exam in BIOL 493.	National percentile on the MFAT exam.	students scored above the 50th percentile.	represent actual knowledge. We are also noticing that students are coming less and less prepared for a major in Biology from the start. Lastly, these are students whose first year of college coincided with the onset of the Covid pandemic	to CAPB in the next academic year. We will leverage the opportunity of working with the MAPS program to examine bottleneck courses in our curriculum.
SLO 3) Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.	Spring 2020	Assess the reading, writing and presentation skills of our students during their second year in Botany lab (BIOL 201L) or Zoology lab (BIOL 202L) and compare to the same skills during their junior or senior year in Evolutionary Biology and Ecology (BIOL 352). Faculty will complete a rubric for each	12 students were evaluated in BIOL202L, 30 students were evaluated in BIOL352, and 20 students were evaluated in BIOL493	Our goal is to have 75% of our junior or senior students show increased proficiency in BIOL 352 and … to have at least 80% of our senior students be at Proficient level.	In BIOL202L, 36% of students were Proficient or in this SLO; in BIOL352 83% were Proficient (65%) or Excellent (19%), and in BIOL493 90% were Proficient (30%) or Excellent (30%). The breakdown for specific categories within this SLO is shown below in parenthesis as follows:	These assessments have not been discussed by Faculty yet and will be evaluated in the Fall	Since this is our first time evaluating this SLO and using this tool, we will evaluate both the tool and the results. We are meeting our goals with this SLO so there may not be any changes to the program. Most of our upper division courses emphasize some form of literature analysis, so the growth that we see in this assessment is not suprising

		student in Senior Seminar (BIOL 493) that will assess their literature interpretation based on their Senior Capstone Oral Presentation			"Understand and cite main concepts in Literature" (58% in BIOL202L, 83% in BIOL352, and 90% in BIOL493 were Proficient or Excellent); "Relating real world/questions/data to literature" (25% in BIOL202L, 80% in BIOL352, and 90% in BIOL493 were Proficient or Excellent); "Critiquing validity of sources"(25% in BIOL202L, 87% in BIOL352, and 90% in BIOL493 were Proficient or Excellent).		

Comments on part I:

II. Closing the Loop. Describe at least one data-informed change to your curriculum during the 2022-2023 cycle. These are those that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s) or other issues did you address in this cycle? **Please include the outcome(s) verbatim from the assessment plan.**	B. When was this SLO last assessed to generate the data which informed the change? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment column H and/or feedback?	D. How were the recommendations for change acted upon?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?
SLO 1) Students will develop a broad-based knowledge of concepts and terminology in molecular, cellular, organismal, and ecological biology.	Spring 2022	The department initiated a core-curriculum evaluation and redesign this spring. Major focus is on improving the cell and molecular component of the core curriculum. This is the section in which our students most underperformed in the MFAT exam this year: Total score percentile 46 **Cell bio 37** **Molec/gen 32** Organism 57 Pop bio 61	As time allowed during faculty meetings we discussed possible curriculum rearrangements that would keep student within the 120 credit limit. Given the diversity of Biology expertise and experiences in the department (eg. from organismal to cellular) it wasn't trivial to arrive to a consensus, but we arrived at one as the spring semester was coming to an end. Briefly, we agreed on the possible creation of two tracks within Biology, one Molecular/Cellular and the other Organismal/Ecology, and the addition of a 2XX-level required course in Cell biology for the Mol/Cell track	We were not able to implement the changes, as we were developing them during the AY22-23. We are poised to now act on them. However, we will not be able to see the effectiveness for a few years with our current tools as these are changes to the lower division courses and studetns benefitting from these changes will not be evaluated until they are seniors.

Comments on part II:

We did not work on addressing any other issues or SLOs in this cycle besides the SLO1. I have noticed that there were follow ups suggested in Spring 2020 for SLO3 that did not occur, but when looking at the timing (eg. follow ups would have to have happened in Fall 2020 and Spring 2021), those were the most pandemic-intensive semesters and our efforts then were fully centered on addressing the multiple issues that arose with the newly hybrid or remote teaching delivery methods, and the repeated instances of student absences due to positive tests. These follow ups must have slipped under those extreme circumnstances.