



Program Name	Date Completed
BIOLOGY	May 12, 2026
Report Completed By	Report Contributors
Amaya Garcia Costas	All Biology instructors including tenure track, VAP and lecturers contribute to assessment activities
Brief Statement of Program Mission and Goals	
<p>We aim to</p> <ol style="list-style-type: none"> 1) prepare our students to become productive, accountable and responsible employees upon entering the work force; 2) prepare students to enter and succeed in graduate or professional schools; 3) develop in students a broad-based theoretical foundation supplemented by laboratory and field experiences that allow individual observations, interpretations and applications; and 4) allow those students seeking a minor in biology to supplement and strengthen the major field of study. 	

Table I Closing the Loop

Report on at least one data-informed change to your curriculum during AY 2025-2026 that was implemented to improve student learning, in response to prior assessment cycles or other data.

<p>A. Describe issues or SLOs addressed in the AY 2025-2026 cycle. Paste SLOs verbatim below.</p>
<p>SLO1. Students will develop a broad-based knowledge and application of concepts, techniques and terminology in molecular, cellular, organismal, evolutionary and ecological biology.</p> <p>SLO4. Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific method.</p>
<p>B. In which prior academic year and semester was this SLO last assessed to generate data that informed the change(s) this year?</p>
<p>SLO1. Spring 2025 SLO4. Spring 2025</p>



C. What were the recommendations for change in the previous cycle?
<p>These came at the end of February and have not been discussed with the Department yet. We do assessment discussions in the Fall. The recommendations only addressed SLO1.</p> <p><u>Recommendation 1:</u> <i>Provide updated program level changes/improvements planned for AY 2025-2026 once there has been a discussion of the data.</i></p> <p><u>Recommendation 2:</u> <i>I recommend clarifying in the assessment plan that students are being given a department-created approximation of the biology subject GRE test as opposed to the GRE that we all took when applying to graduate schools years ago.</i></p> <p><i>Do you use the GRE/MFAT as a teaching tool or solely for assessment of student learning? I wonder whether the way that students are prepared for the exam and completed the exam could be modified to be more engaging for students and faculty, more fruitful use of classroom time, while still allowing it to be used for assessment.</i></p>
D. How were the recommendations for change acted upon?
<p>We discuss assessment in the Fall and the recommendations came in February, so we did not act specifically on the recommendations. As a Chair observation, however, I do agree that our assessment plan description needs to be updated in our Program Assessment Plan. We can add that to our Fall semester discussions.</p>
E. How did the change(s) implemented impact student learning? If the change was not effective, what are the next steps or new recommendations?
<p>Most of the discussions and modifications were on SLO4. We devoted several hour-long department meetings to evaluate our tool (our rubric). We changed the language, created subcategories, and specified expectations. We have been using the updated rubric this year in the senior seminar course. The instructor has shared the new, improved, more specific and clearer rubric with students. This rubric has better laid out expectations for students to them. Although I don't have quantitative data, based on my observations, students presentations are revealing a more sophisticated level of critical thinking this last semester. Again, at this point this is a "feels like" and not quantitative evaluation. We will score those annually rather than wait for three years, to see if we can identify trends.</p> <p>For SLO1, in the previous assessment cycle we changed one of our tools from a GRE exam to a department generated "Core concepts" exam. On our first year we were only able to obtain a semester's worth of data and the discussion consensus was that we needed another year's worth of data to fully evaluate whether this tool was appropriate. Our initial data was encouraging in that we can now measure improvements from our first years to our seniors. There were a few questions (2or 3 out of 50) that did not seem to discriminate (eg. most students were able to answer them whether they were first years or seniors). As stated, we will use the additional data obtained this year to properly evaluate it.</p>

Enter Comments on Table I Closing the Loop Below
Nothing more to add.



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Academic Program Assessment
AY 2025-2026 [Due 6/1/26]

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Table II Annual assessment of Student Learning Outcomes (SLOs) in AY 2025-26

1. Include information to share assessment processes, results, and recommendations for improved student learning. Copy this table for each assessed outcome.

A. Program SLO(s) assessed in this cycle. Copy the SLOs verbatim from the assessment plan.
<p>SLO1. Students will develop a broad-based knowledge and application of concepts, techniques and terminology in molecular, cellular, organismal, evolutionary and ecological biology.</p> <p>SLO3. Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.</p>
B. Semester and year this SLO was previously reported on before this cycle.
<p>SLO1. Spring 2025 SLO3. Spring 2023</p>
C. Describe the assessment method for this SLO(s).
<p>SLO1_A. All students taking the Senior capstone course take the national standardized test for Biology (MFT)</p> <p>SLO1_B. All students taking the Senior capstone course and all students taking the first year seminar course take a Biology Core concepts 50 question test</p> <p>SLO3. 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 scores to the same skills during their junior or senior year in Evolutionary Biology and Ecology (BIOL 352). Faculty will complete a rubric for each student in Senior Seminar (BIOL 493) that will assess their literature interpretation based on their Senior Capstone Oral Presentation.</p>
D. Described student group(s) assessed. Provide the number of students or number of artifacts assessed.
<p>SLO1_A. Thirty-five senior biology students were assessed with the MFT in the senior capstone course</p>



SLO1_B. Thirty-five senior biology students and one hundred and ten first year students were assessed with our Core concepts exam

SLO3. 18 BIOL202/L (Zoology students), 30 BIOL 352 (Ecology and Evolutionary Biology) and 20 BIOL 493 (Senior seminar) students were assessed using the same rubric for each course (attached).

E. Explain the expected proficiency level and proportion of students who should reach this level.

SLO1_A. 75% of our senior students score at or above 50% of National percentile on the MFT exam

SLO1_B. 75% of our senior students score at 70% or higher on the GRE in the BIOL 493 class

SLO3. 75% of our junior or senior students show increased proficiency in BIOL 352 when compared to those of BIOL202/L; and to have at least 80% of our senior students in BIOL 493 be at Proficient level.

F. Provide Assessment results and number of students who met defined proficiency level.

SLO1 and 3. Assessment results will be available two weeks after the June 1st deadline and will be analyzed and discussed by the department in the Fall. Senior students take these exams the last week of classes, and we find that it is more productive that, rather than rush an analysis and discussion during finals week, we examine them at the beginning of the Fall semester when we can devote a series of departmental meetings to discuss the findings and possible changes to implement. Chair will be absent for two weeks after finals (prior to June 1st deadline) hence cannot report even the scores at this moment.

G. Describe what the results or trends indicate about student performance.

Will be discussed next year during our closing the loop discussions. We are hoping for increased scores in our national exam, and improved literature reading skills in our juniors and seniors

H. Describe program level changes/improvements planned for next AY (2026-2027?) which are informed by this assessment.

Same as G.

Enter Comments on Table II AY 2026 Assessment Below

Our assessment comes at the end of the semester. This year the Department Chair will be absent for the two weeks following graduation hence will not be able to integrate those data until after the deadline for the assessment reporting has passed. The department, nevertheless, will have access to those data in the Fall and we will devote several



department meetings to discussing them, especially SLO1, as we developed a new tool a year ago, and, after this cycle, we have sufficient data to evaluate it and our student's progress.

SLO4: Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific method
BS in Biology Program assessment rubric

		Excellent	Proficient	Developmental	Ineffective
Review of Literature	Describes importance of project	Clear and with supporting data	Basic with supporting data	Incomplete and/or no supporting data	Lacking
	Understanding of science concepts in topic and literature	Clear	Basic	Incomplete	Lacking
	Depth of scope	Complete and thorough	Basic: only obvious main points	Incomplete	Lacking
	Identifies gaps in the literature	Clearly and explicitly	Basic	Incomplete	Lacking
	Connection between literature and research question and/or hypothesis	Clear	Basic connection	Incomplete	Lacking
Research Questions and/or Hypothesis	Research question	Clearly stated	Stated	Poorly stated	Not stated
	Hypothesis is stated	Clearly stated	Stated	Poorly stated	Not stated
	Reasoning for proposed hypothesis/Prediction	Stated and reasonable	Stated and somewhat reasonable	Poorly stated and dubious	Not stated
Proposed Experimental Aims	Aims test the hypothesis	Comprehensively	Mostly	Partially	Poor match or not
Proposed Materials and Methods	Methods address the aims	Appropriately	Most of the aims	Poorly, partially or incomplete	Fail
	Choice of variables and controls	Justified	Questionable on both	Dubious choice	Poor choice
	Adequate sample size	Justified	Questionable	Insufficient	Deficient
	Communicated experimental design	Clearly	Adequately	Partial or incomplete	Poorly communicated
	Statistical analyses	Correct and valid	Meet minimal standards	Questionable	Invalid or missing
Interpretation of the Expected Results	Expected results relate to aims and hypothesis	Clearly related and all outcomes presented	Somewhat related	Poorly	Not linked
	Presentation of results (type of graph, axes labeled, ...)	Clear and adequate	Mostly clear	Incomplete and/or confusing	Lacking
	Communicates significance of results	Clearly	Somewhat or just some	Poorly	Lacking
	Comparisons to literature	Appropriate	Partial	Poor	No comparison
	Extends knowledge in field: additional hypotheses are generated	Appropriately	Partially	Insufficiently, no future directions	Merely repeats previous work; no future direction

Semester and year _____ **Date** _____ **Student name** _____

Faculty name _____

CSU-Pueblo Biology: Student Learning Outcome #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.

Assessment will occur in the following classes, with the following expectations (circle class being assessed):

- 202L Developmental
- 201L Developmental
- 352 Developmental/Mastery
- 493 Mastery

Scores are as follows:

- Excellent: Shows high/professional level of understanding and interpretation.
- Proficient: Shows a high level of understanding, with some holes in interpretation.
- Developmental: Has rudimentary understanding of literature.
- Ineffective: Cannot understand the literature.

Skill	Excellent	Proficient	Developmental	Ineffective
Score	4	3	2	1
Understand and cite main concepts of literature				
Can relate real world questions and/or data to literature				
Can critique validity of the source				
Total Score				

Summary of Assessment

Course:

Instructor:

Semester/Year:

Total number of students:

Total score:

Adopted by Biology Department 1/11/22