



Directions

1. Describe the 2024-2025 assessment activities and follow up for your program below. This form also is shared on the [CSU Pueblo Assessment web page](#).
2. Duplicate Table I and II for each SLO within the program being reported for the program.
3. You will create a separate report document for each undergraduate major, stand-alone minor, stand-alone certificate, or graduate major program in your department (e.g. B.A., B.S., B.A.S., M.A.) Stand-alone refers to minor or certificate programs not fully incorporated within the program's major.
4. Please title your document **program name-degree-2025-assessment-report** for consistency and web posting. (e.g. biology-bs-2025-assessment-report or chicano-studies-minor-2025-assessment report)
5. Any addenda (e.g., rubrics) which are necessary for the review but not present in your posted assessment plan may be copied and pasted to the end of this document or saved in a clearly labelled separate file. Save and submit documents to the Dean of your college/school and to the SharePoint folder **here**: by 6/1/25.
6. Address any questions to the Associate Provost for Academic Affairs, Helen Caprioglio at helen.caprioglio@csupueblo.edu

(This directions page may be deleted from your final submission.)

Program Name	Date Completed
Biology, BS	May 30, 2025
Report Completed By	Report Contributors
Amaya Garcia Costas, Chair	All Biology instructors except for adjuncts (eg. tenure track, lecturers, VAPs) contribute to assessment activities
Brief Statement of Program Mission and Goals	
The mission of the Biology Department at Colorado State University – Pueblo is to provide quality undergraduate and graduate education for a diverse student population through a comprehensive curriculum that emphasizes experiential learning opportunities, course-embedded laboratories, field experience, internships, and scientific research opportunities. Biology Program Goals: these include giving our students a solid grounding in the biological sciences and critical thinking skills. We aim to 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 2024-2025 that was implemented to improve student learning, in response to prior assessments or other data.

A. Describe issues or SLOs addressed in the AY 2024-2025 cycle. Paste SLOs verbatim below.
SLO1. Students will develop a broad-based knowledge and application of concepts, techniques and terminology in molecular, cellular, organismal, evolutionary and ecological biology. SLO2. Students will develop applied scientific skills through field and laboratory experience and data analysis.
B. In which academic year and semester was this SLO last assessed to generate data that informed the change(s)?
SLO1 is assessed every academic year (2023-2024 was the last) SLO2 is assessed every three years (2023-2024 was the last)

C. What were the recommendations for change in the previous cycle? (See Column H in the previous cycle's report.)
SLO1_A. Because in previous years the Cell and Molecular category scores were particularly low we have changed our core curriculum to include more Cell and Molecular Biology (now the Molecular course is 3 credits; the Cell Biology course is required rather than elective); we don't expect to see the outcomes of these changes for a couple of years, as students go through the program SLO1_B. Faculty were of two minds and we will revisit this first thing in the Fall: either take out the GRE component of the Assessment) or, if kept, rewrite or rechoose the 50 questions used so that they better reflect what we expect our students to learn SLO2. Faculty discussed how difficult it is to give all students the chance to do some of the calculations assessed here (eg. make dilutions of solutions, as those are done by stockroom staff to speed the labs along). It was suggested that, even though students don't get to carry out the actual dilutions, they could still learn how to make them and have questions about that in lab quizzes (even if they didn't make them themselves). The Chair uses a Math packet at the beginning of one of her lab courses and she will suggest in the fall that Math packets are generated for other lab courses. We will revisit in the Fall to come up with strategies where we don't just ask students to interpret graphs, but also to predict and extrapolate data from them
D. How were the recommendations for change acted upon?
SLO1. We revisited our tools and rewrote (as a department) our 50 question GRE-like exit exam during the fall semester and administered it for the first time in the spring semester. The instructor administering this and the national MFT exam also incorporated these into the course grading to encourage students to put effort in them.
E. How did the change(s) impact student learning? If the change was not effective, what are the next steps or new recommendations?
SLO1. These changes are to guide us on where we need to act to improve student learning. In general, we have acted on them by changing our curriculum (see previous years report) but we will not be able to assess that effect until we have students who have gone through the new curriculum from the beginning.

Enter Table I Closing the Loop Comments Below
We are taking a closer look at our assessment tools in order to make sure that we get accurate and useful data to help us make better decisions.

Program Name	Date Completed
Biology, BS	May 30, 2025
Report Completed By	Report Contributors
Amaya Garcia Costas, Chair	All Biology instructors except for adjuncts (eg. tenure track, lecturers, VAPs) contribute to assessment activities

Table II Annual assessment of Student Learning Outcomes (SLOs) in AY 2024-25

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

A. Program SLO assessed in this cycle. Copy the SLOs verbatim from the assessment plan.
SLO1. Students will develop a broad-based knowledge and application of concepts, techniques and terminology in molecular, cellular, organismal, evolutionary and ecological biology. SLO4. Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific method.
B. Semester and year this SLO was reported on prior to this cycle.
SLO1. Spring 2024 SLO4. Spring 2021
C. Describe the assessment method for this SLO.
SLO1_A. All students taking the Senior capstone course take the national standardized test for Biology (MFT) SLO1_B. All students taking the Senior capstone course and all students taking the first year seminar course take a Biology GRE-like 50 question test SLO4_A. All students taking our senior capstone course are evaluated by faculty during their project presentation SLO4_B. Students lab reports from various courses spanning 100 to 400-level courses are evaluated by faculty
D. Described student group(s) assessed. Provide the number of students or number of artifacts assessed.
SLO1_A. Twenty-one senior biology students were assessed with the MFT in the senior capstone course SLO1_B. Twelve senior biology students and seventeen first year students were assessed with our GRE-like exam (this was only done in the spring since we were developing this new tool in the fall)

SLO4_A. Eleven senior biology students from spring 25 were assessed with new form; 35 students from spring 24 and 54 students from spring 25 were assessed with old form.
SLO4_B. Fifty different student reports were assessed (16 from 100-level courses, 16 from 300-level courses, and 18 from 400-level courses).

E. 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

SLO4_A. 80% of our senior capstone students be at Proficient level
students

SLO4_B. Show increased proficiency across the 4-year curriculum

F. Assessment results and % of students who met proficiency level.

SLO1_A. 43% of our senior students score at or above 50% of National percentile on the MFT exam

SLO1_B. 50% of our senior students score at 70% or higher on the GRE in the BIOL 493 class.

In addition, when comparing to the first year students: 53% of first year students scored 50% or higher (highest=66%); whereas 92% of seniors scored 50% or higher (highest=82%)

SLO4_A. 36% of our senior capstone students were at Proficient level overall. The categories of "Question/Hypothesis" and "Aims" both having 55% of the students proficient or higher on the high end, and the category "Interpretation of Results" having 27% of students at proficient or higher. This was using the first form which averaged the results for each student (see comments below).

SLO4_B. Students only showed increased proficiency from 100 to 300 level courses but not in 400 level courses. Percentage of students showing overall proficiency was: 25% (100 level), 45% (300 level) and 25.5%(400 level). In individual categories, "Experimental design" and "Presentation of data" showed the highest sustained growth with 19 and 25% (100 level), 38 and 50% (300 level) and 28 and 39% (400 level); whereas

G. Describe what results indicate about student performance.

SLO1. If valid (see comments at the end): Although we have students who excel in our assessment tools (individual data not shown), based on these tests, we still have a high percentage of graduating students that are unable to retain, recall, connect and apply core biological concepts.

SLO4. If valid (see comments at the end): our students are not using critical thinking skills in their 400 level courses.

H. Describe program level changes/improvements planned for AY 2025-2026 informed by this assessment.

We did not get a chance to discuss these results as a department as the data were collected at the end of the semester. We will start the fall semester with a discussion of these results and report next year in the closing the loop section.

Enter Table II AY 2025 Assessment Comments Below

We have been critically examining our assessment tools and finding flaws in them that could have led to artifacts.

SLO1. Both the GRE-like exam and MFT exam are given at the end of the semester to graduating seniors (the MFT is actually the last thing they do before graduation), and we suspect that some of them are not making an effort in the exam which is leading to skewed results. We may try to administer these earlier in the semester if possible to keep engagement high.

SLO1. We were unable to get significant differences between first year and seniors with our previous GRE-like exam. A faculty member took it last year alongside the students and found it to be outdated and not representative of our curriculum. We are pilot testing a new version for a couple of years to see if we get more useful results.

SLO4. We realized that the way we were evaluating our senior capstone students led to artifacts as we were not combining scores for each student. We started doing this at the end of the Spring semester and that is what is reported here.

SLO4. Evaluating reports from different courses is creating artifacts as different instructors might have different prompts. We will examine this tool in the fall.