

**BIENNIAL PROGRAM STUDENT LEARNING OUTCOMES ASSESSMENT REPORT FORM –
ASSESSMENT COMPLETED IN AY2023-2024 (Due to the dean on November 15)**

Submission date: 11/13/2024

Assessment Plan covered in this report: Natural Sciences BS

College: College of Arts and Sciences

Campuses where the program(s) is delivered: Anchorage KOD KPC MSC PWSC

Submitted by: Cindy Trussell, Professor, Biological Sciences citrussell@alaska.edu

- 1. Please list and number the Program Student Learning Outcomes your program assessed in the past academic year. For each outcome, indicate one of the following: Exceeded faculty expectations, Met faculty expectations, or Did not meet faculty expectations.**

(1) Design and implement scientific investigations to explore natural phenomena using experimentation, which includes exploration and discovery, and testing ideas (gathering and interpreting data). - Met Faculty Expectations

- 2. Describe what your assessment process was last year for these Program Student Learning Outcomes, including the collection of data, analysis of data, and faculty (and other, e.g., advisory board) conversations around the findings. (1000 words or less)**

We collected artifacts from BIOL A243 (UAA), BIOL A273 (Kodiak), and CHEM A105L (MatSu) course instructors for AY 23 and 24. The assessment committee evaluated a subset of 16 artifacts from the courses with the AAC&U INQUIRY AND ANALYSIS VALUE RUBRIC. We applied all rubric categories to the two BIOL courses but found that only the analysis categories applied to the CHEM A105L artifacts. We then calculated the medians and modes for each category of the rubric. We discussed the process and results with the Biological Sciences faculty on November 1st.

- 3. What are the findings and what do they tell the faculty about student learning in your program? (1000 words or less)**

The first learning objective assesses the process of inquiry and analysis. The rubric assesses the following criteria from benchmark (score 1) to capstone (score 4). We are reporting the mode, median, and average scores from our sample of 8 artifacts.

- Topic selection: Mode= 3 Median=2.5 Average = 2.5
- Existing Knowledge, Research, and/or Views: Mode= 2 Median=2
Average = 2.375
- Design Process: Mode= 3 Median=3 Average = 2.875

- Analysis: Mode= 3 Median=3 Average = 2.375
- Conclusions: Mode= 2 Median=2.5 Average = 2.675
- Limitations and Implications: Mode= 2 Median=2 Average = 1.875

The findings suggest that students are meeting the milestones in the design process and analysis but struggle with integrating existing literature and discussing the limitations and implications of their work.

When we assessed the CHEM A105L artifacts we were only able to effectively score the analysis criteria of the rubric based on the nature of the assignments in the course. We are reporting the mode, median, and average scores from our sample of 8 artifacts.

Analysis: Mode= 3 Median=3 Average = 2.55

The findings suggest that students are meeting the milestones in analysis.

4. Based on the findings, did the faculty make any recommendations for changes to improve student achievement of the Program Student Learning Outcomes? Yes

- i. Please describe the recommended action(s), what improvements in student learning the program hopes to see, the proposed timeline, and how the program will know if the change(s) has worked. If no recommendations for changes were made, please explain that decision. (1000 words or less)**

We would like to see improvements in the student's ability to discuss the limitations and assumptions of their inquiry and draw conclusions with limited data. We recommended incorporating feedback from presentations into final reports. We also recommended drafting with feedback for discussing limitations. Finally, faculty mentioned incorporating the types of language that is used in primary literature. We will assess this learning outcome again and we will compare the means, medians, and modes from artifacts next time to this time. If these slight changes in assignment structure make a difference we should see an improvement in the scores. For the incorporation of other disciplines we are having conversations with the faculty that teach CHEM A105 and CHEM A106 to better identify artifacts that speak to this learning objective. We will know that this strategy works when we are able to utilize the whole rubric on the artifacts.

5. In the past academic year, how did your program use the results of previous assessment cycles to make changes intended to improve student achievement of the Program Student Learning Outcomes? Please check all that apply.

- Course curriculum changes
- Course prerequisite changes
- Changes in teaching methods
- Changes in advising
- Degree requirement changes
- Degree course sequencing
- Course enrollment changes (e.g., course capacity, grading structure [pass/fail, A-F])

- Changes in program policies/procedures
- Changes to Program Student Learning Outcomes (PSLOs)
- College-wide initiatives (e.g., High-Impact Practices)
- Faculty, staff, student development
- Other
- No changes were implemented last year. *(If no options above were selected)*

If you checked “Other” above, please describe. (100 words or less)

- 6. Do you have any information about how well these or other past improvements are working? Are they achieving their intended goals? Please include any data or assessment results that help you demonstrate this. (1000 words or less)**

This is the first time we are assessing this new PSLO; although we update the PSLOs a number of years ago, we assessed PSLO #2 in AY18-19 and PSLO #3 in AY 20-21 and accidentally assessed PSLO #2 again in 22-23. Another improvement we have implemented is to include artifacts from at least one course outside of the biological sciences department. For PSLO #1, we reached out to those teaching CHEM A105L.

DEAN SECTION (Due to the program on January 15)

- 1. Based on the program’s responses above, what guidance and support do you have for the program moving forward? (200 words or less)**

Tracking lower level student progress is good, the program is encouraged to also include assessment of upper division courses. This gives both formative and summative data. As this is an interdisciplinary degree, an effort should be made to include faculty across the natural science in the assessment and oversight of this program.

- 2. Discuss what the program is doing particularly well in terms of its processes for the assessment and improvement of student learning, for example, the use of a common rubric or prompt, a signature assignment, etc. (200 words or less)**

The program is commended for assessing courses across the UA system and for the use of external rubrics for assessment. The program is applauded for providing a interdisciplinary approach to studying the sciences.

Dean’s signature:

Jenny McNulty

Date: 1/13/2025