

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

**Submission date:** 11/15/2024

**Assessment Plan covered in this report:** Biological Sciences MS

**College:** College of Arts and Sciences

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

**Submitted by:** Eric Bortz, Assoc Professor of Biological Sciences, ebortz@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. Have mastered the fundamental concepts of biology, including cell and molecular biology, genetics, physiology, evolution and ecology. – Met Faculty Expectations.
2. Will have a working knowledge of the principles of scientific methodology, of the methods and technology of biological research, of quantitative analysis of scientific data, and will be capable of writing a publishable scientific paper. – Met Faculty Expectations.
3. Will have a demonstrated mastery of at least one focus area within biology or biochemistry. – Met Faculty Expectations.
4. Are prepared for a career in biological sciences or are prepared to pursue more advanced research opportunities. – Not evaluated in AY21/22-AY22/23 revised assessment plan implementation.

- 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)**

Assessment of graduate student achievement of the PSLO for the MS Biological Sciences degree was based on the UAA Department of Biological Sciences “Master of Science, Biological Sciences Educational Effectiveness Assessment Plan”, v.3, adopted 18 March 2022, by the program faculty. The assessment plan encompasses achievement of PSLO for the Biological Sciences M.S. Thesis option, Non-Thesis option, and Accelerated options for both. With a limited number of enrolled students (typically less than 20), graduating students, and faculty advisors involved the program, assessment relied principally on individualized, annotated feedback and achievement scores (1 – achieved; 0 – not achieved) on graduate program progress, milestones, graduation, and scientific products, rather than a statistical data-gathering methodology. Delineated assessment include: Oral Defense, Thesis Defense (Thesis option); Capstone Project, Oral presentation, Comprehensive Exam (Non-Thesis

option); Graduate publication record and Graduate Alumni survey (not assessed in detail this year).

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

PLSO #1 and PLSO #2 assessments were achieved by measuring completion of course requirements for the MS degree for each program, according to a Graduate Study Plan (GSP) for each student and advisory committee, and for the Non-Thesis option, a Comprehensive Exam that was developed and graded by faculty. Course progress for accelerated students are accounted for in the GSP according to program requirements. As a whole, in general, UAA Biological Sciences graduate students achieved passing scores (B or above, or P in P/NP courses) for all required courses and electives in their individual GSP. This included courses taught at UAA and remote courses (for example UAF courses). In a few individual cases, courses were substituted, advisors were changed (2 cases), or a student delayed program progress for personal reasons or changed from Thesis to Non-Thesis option (2 cases); or left the program (1 case); but these were the exception rather than the rule.

PLSO #3 assessment was achieved by informal and formal faculty assessment of student progress, achievement of milestones in the GSP, and scientific quality of the Capstone project oral and written forms (Non-Thesis option), and thesis and defense (Thesis option – 5 theses). For both in-progress and graduating students (4 MS graduates in 2024, 1 pending final thesis approval; >15 students enrolled, with 6 new ones), by faculty thesis review, scientific achievement was impressive if anecdotal in many instances, with co-authorships on peer reviewed publications, scientific presentations and state and national/international conferences, and positive feedback in graduate student engagement of peers, undergraduate mentorship in research, and community engagement.

**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)**

- A detailed assessment summary of PSLO #4, and will be gathered and provided in AY24/25 assessment planning for the Department's programs.
- Tools include a qualitative and quantitative survey of student achievement of PSLO for each graduate student in the program, to inform PSLO #1, #2 and #3.
- Graduate publication record and Graduate Alumni survey were not assessed in detail this year (relating to PSLO #4). These tools will be developed in AY24/25.

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)**

We developed the expectations for the non-thesis comprehension exam and the non-thesis capstone. Both were approved by our faculty in Dec 2023. Also, in AY23/24 the UAA catalog text was revised to remove non-academic requirements of the degree and to remove the word "project" from the requirements of the non-thesis option, to be consistent with UAA language.

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)

Program assessment tools in AY24/25 will attempt to capture details of student achievement of PSLO in a more systematic, qualitative manner, by use of surveys, grade and graduation data analysis, and informational discussion with students and faculty in MS Biological Sciences programs. In AY22/23/24, we had 4 MS graduates (3 thesis, 1 non-thesis).

---

#### 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)

The program is encouraged to implement the changes to assessment as described above. It is also recommended that in future reports the impacts of changes to the program be

discussed in more detail. For example, in this report the effect on student learning in response to the changes selected in item 5 could be discussed in items 4 and 6.

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 faculty are applauded for the individual attention and mentoring that they give to students in the program.

Dean's signature: Jenny McNulty

Date: 1/13/2025