

Biological Sciences – Master of Science

Current Compliance Year: 2023-2024

Mid-Cycle Review

Recent Recommendations

Feedback will include recommendations from the last Expedited Review or from your most recent review by your school or college. You may not see any feedback or recommendations until you have completed your first full or mid-cycle review.

Response to Previous Recommendations (if any):

Not applicable

Student Learning Outcomes

The previous Student Learning Outcomes Assessment has been submitted as its own report. Going forward you will use the following prompts to discuss the success of your most recent SLOA plan and address your assessment activities since your last SLOA report (typically the past two years or since your last program review).

Learning outcomes feedback from last review:

Feedback will be provided once you have completed a full or mid-cycle review.

Discuss your SLOA findings, changes you are making and what you hope to see as a result:

The Biology and Wildlife Department's Teaching Advisory Committee [REDACTED] and the department chair [REDACTED] discussed the SLOA outcomes. We agreed that the students are doing very well and meeting our expectations, and focused our discussion on how to better assess the program by making the SLOA plan more evidence-based. The previous plan, written in 2021, contains several criteria that depend solely on reporting numbers of attempts and successes (e.g. of the comprehensive exam). Criteria such as this are difficult to assess and do not incorporate direct assessments of quality by department faculty. As a result of our discussions, we redesigned the SLOA plan.

Discuss the curricular changes made based on assessing your SLO. If you haven't made any curricular changes, please explain why not and address what you did notice in the review, including strengths of your curriculum through the assessment of your outcomes:

We did not see a need for changes to the curriculum, but did see a need to focus the SLOA plan better on key outcomes that we can quantify with data. We also tried to do a better job of clarifying benchmark expectations. Successful publication of thesis work captures the student's ability to think critically and creatively, integrate past knowledge with novel findings, and communicate effectively to a broad audience of scientists. We chose not to quantify submissions, but instead to continue our previous practice of counting successful publications, identified using journal indexing tools. To account for the lag created by journal review, response to reviews, and the publication process, we will continue to quantify publications for each of the past 4 years of graduates. We expect graduates to publish at least 0.5 articles based on the thesis within 4 years. Oral communication is assessed in two ways in the new SLOA plan. First, the department will continue to survey students annually on presentations delivered, and supplement this information with annual
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report data from the graduate school. Our expectation is that at least 30% of M.S. students will present their work per year. Second, we established a new criterion for assessing the quality of oral communication in the dissertation defense (draft rubric attached).
With regard to employment, we made no changes except to set a benchmark of 80% employment in a field relevant to the student's education within 2 years.

Are communication outcomes embedded in the SLOA Plan?

As of 2017 all Baccalaureate programs were required to embed the communication outcomes within their SLOA Plans, this is optional for non-Baccalaureate programs.

Embedded

Student Success

To access the Student Success Dashboard please sign into a UA computer with VPN connection (if not on campus). You will need your UA credentials and it is best accessed with the most updated version of Chrome, Edge, Firefox or Safari browsers; Internet Explorer is not supported. You will need to filter the data to see your programs. If you need assistance in finding the data for your programs, please contact your data liaison or Julia Manfredini in the PAIR office.

Data Liaisons

Each school or college has a team of Data Liaisons to help you analyze the data provided in the portal and may be able to help you see your data in multiple contexts. You can find a list of data liaisons on the resources page for Program Review.

The college or school level committee will also have access to this data with the goal that by providing these visualizations data availability will be increased.

Data supplied within the dashboard linked below is intended for Academic Program Review and not for any other purpose.

[Student Success Data Dashboard](#)

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

Student Success Data Trends: (please indicate the trends that apply to your program)

No change in majors, No change in SCH, Increase in degrees awarded, Equity gaps

If equity gaps were found in any of your disaggregated student success data, please explain how you plan to address those gaps. Please contact your data liaison or make an appointment with Julia Manfredini to learn more about analyzing your data.

Problems - [redacted] constitute only around 7% of students and that has been fairly constant over time; in contrast, [redacted] representation in the BS program is twice that. There appears to be no other minority ethnic representation in the M.S. program.
On the other hand, [redacted] are well represented within majors and degrees [redacted] representation has increased over time from 4% in 2019 to 13% in 2023. [redacted] representation has increased steadily from 0% in 2019 to >17% in 2023.
To address the gaps, the faculty will discuss outreach and advertising, and how to create more of a pipeline for [redacted] students to move from the undergraduate to graduate programs.

Optional Data Explanation

Feel free to share more of your thoughts on the data provided.

High Impact Practices

According to the AAC&U, High-Impact Educational Practices “have been widely tested and have been shown to be beneficial to college students from many backgrounds.” UAF is particularly interested in Undergraduate Research and/or Scholarly Activity because it is one of our mission fulfillment indicators, but all of these researched High-Impact Educational Practices should be reflected in your program’s student learning outcomes and curriculum.

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

High-Impact Practices Used in this Program

Please use the following fields to discuss how your program is using the high-impact practices, successes and known issues and solutions, or ways you are considering incorporating them in the future. If you are not using any of the high-impact practices listed, please use the “Other or None of These,” field to share what your program is doing to help students be successful.

High Impact Practices that currently apply to your program:

Capstone Courses and Projects, Undergraduate Research, Writing-Intensive Courses, Collaborative Assignments and Projects, First-Year Seminars and Experiences

Collaborative Assignments & Projects

We utilize collaborative assignments and extensive peer review in courses: BIOL 602 Research Design and BIOL 604 Scientific Writing.

Undergraduate Research

Undergraduate research is not relevant, but graduate research is central to the program.

Diversity/Global Learning

This is not something we have prioritized in the program.

ePortfolios

This is not something we have prioritized in the program.

First-Year Seminars & Experiences

Most M.S. students take BIOL 602 Research Design in their first semester, which helps them get started and form bonds with other new students.

Writing-Intensive Courses

Most students take BIOL 604 Scientific Writing.

Service-Learning and/or Community-based Learning

This is not something we have prioritized in the program.

Internships

This is not something we have prioritized in the program.

Capstone Courses & Projects

There is no "capstone" per se, but the research project is central to the program.

Other or None of these (explain)**Submission****Submitter & Collaborator Names**

Andrea Bersamin
Able Bult-Ito
Anja Kade
Denise Kind
Diane Wagner

Submitter Email

dwagner10@alaska.edu

College or School Review Committee

The college or school committees set the tone for helping each program feel seen during this process. We have provided you with strength-based feedback tags to attach to this program review. Please select as many as applicable.

Overall Recommendations

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Explanation of Recommendations

The review panel acknowledges the effort that went into revising the Biological Sciences MS SLOA and are supportive of the First-Year Seminars and Experiences HIP.

Learning Outcomes Feedback

Requires Minor Revision

Student Learning Outcomes Assessment Feedback (tags)

Missing a direct measure,Missing active verbs

Student Learning Outcomes Assessment Feedback (narrative)

The program provided 3 SLOs for the Biological Sciences MS SLOA plan. The review panel offers the following recommendations to improve upon the program's SLOAs:

- The revised intended objectives/outcomes are clear and concise. SLO #s1-2 are appropriate as measures of student learning.

- SLO # 3 is a program outcome and not tied to student learning.

- The recommendation from the review panel is to eliminate the existing 3rd SLO and add 1-2 additional SLOs that directly assess student learning from the degree program. The program might consider revising the outcomes to include more "action" words. It is difficult to assess things like "understand" or "recognize." "Identify", "explain", or "analyze" are clearer outcomes to assess. <https://tips.uark.edu/blooms-taxonomy-verb-chart/>.

- With regard to the existing SLO #3, the program is encouraged to retain this measure of outcome assessment for their own internal tracking purposes (just not use it as part of program review). Post-graduation activities, such as graduate school/job placement and article publication, are not considered an assessment of student learning and are instead program outcomes.

- Per guidance from the NWCCU for accreditation purposes, they recommend that degree programs have between 3-5 SLOs per program.

The review panel also appreciates discussion of the revised assessment tools for oral communication. Outcomes assessment is intended to be a collaborative learning experience for the program or department. This is an opportunity to share results and discuss how to enhance the students' experiences and make curricular decisions based on the results of assessments.

Following NWCCU guidance, SLOA plans must emphasize "closing the loop" and continuous improvement, ensuring each SLO within the plan is assessed individually to verify alignment with program objectives. If a SLO fails to produce the expected assessment outcome, adjustments to SLO language, substantial changes to the SLO, or revisions to data collection rubrics are necessary to ensure alignment and facilitate program improvement.

Student Success & Equity Feedback

The program noted that women are well represented within majors and degrees, and there has been an increase in [REDACTED] students, as well as [REDACTED] students. They identified a low proportion of [REDACTED] students, which has been consistent overtime, as well as a lack of ethnic minorities (besides [REDACTED])

To address the gaps, the program faculty will discuss outreach and advertising. They will look into developing a pipeline for [REDACTED] students to move from the undergraduate to graduate programs.

High-Impact Practices Feedback

The program identified capstone courses/projects, UG research, writing-intensive courses, collaborative assignments and projects, FY seminars and experiences as HIPs. A narrative was provided for each HIP (but could be more strongly developed), but it was not clear where these HIPs fit into the program or if all students are required to complete them to meet graduation requirements. The review panel recommends including examples to demonstrate/highlight each HIP. For example, under the Capstone Courses and Projects HIP expand upon what the research project is and how it fosters student success in the program.

The review panel supports first-year MS students enrolling in BIOL 602 Research Design, which is a First-Year Seminars and Experiences HIP.

What percentage of students participate in each HIP for those that are optional?

The review panel recognizes that the HIPs employed by the Biological Sciences program are all positive and meaningful in preparing students to enter the workforce.

UNIVERSITY OF ALASKA FAIRBANKS
Student Learning Outcomes Assessment Plan
Biological Sciences M.S.
 College of Natural Science and Mathematics
 10 November 2023

MISSION STATEMENT: The Biology and Wildlife Department educates students from diverse backgrounds worldwide about living systems with an emphasis on the circumpolar North by fostering intellectual inquiry, problem solving, and creativity through coursework and research.

GOAL STATEMENT: The Biology and Wildlife Department aims to provide its students a strong foundation in biological knowledge; to empower them through course experiences, research, and inquiry to think creatively, flexibly, and critically; and to prepare them to achieve their future educational and professional goals.

Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
1. Graduates of the M.S. program will demonstrate mastery of biological knowledge in subject areas related to their thesis research and will contribute biological knowledge through research. 2. Graduates will have strong oral and written communication skills 3. Graduates will obtain employment broadly relevant to their field of study.	1. At least half of M.S. graduates will publish a thesis-related article in a peer-reviewed journal within four years of graduation. 2a. M.S. students will present and defend their thesis effectively in a public setting 2b. At least 30% of M.S. students will present their work to audiences outside of committee meetings each year. 2c. Graduates will publish their research in peer-reviewed journals 3. At least 80% of M.S. graduates from the program will hold employment in a field relevant to their education within two years following graduation.	1. The Biology and Wildlife Department will monitor publications by former M.S. students using indexed journal databases to quantify the average frequency of publication of dissertation research in peer-reviewed journals. 2a. Members of the student's graduate advisory committee will complete an evaluation of the quality of the student's communication in the public presentation portion of the thesis defense. 2b. The Biology and Wildlife Department will track presentations by students in the program using an annual online self-reporting tool. 2c. See 1. 3. The department will track the professional activities of students for at least four years post-graduation, in order to assess both initial and longer term patterns of employment.

**Evaluation of Oral Communication
Public Thesis/Dissertation Defense**

Student's name:

Degree sought:

Reviewer's name:

Rate the following aspects of the student's presentation from 1 (poor) to 5 (excellent).

Criterion	1	2	3	4	5
Conceptual context and background	☐	☐	☐	☐	☐
Goals and objectives of research	☐	☐	☐	☐	☐
Clarity of ideas and explanations	☐	☐	☐	☐	☐
Graphics and other visual aids	☐	☐	☐	☐	☐
Delivery	☐	☐	☐	☐	☐
Timing	☐	☐	☐	☐	☐

Comments: