



Academic Program Review

Program Name: Biological Sciences - Master of Science

Academic Year 2025/2026

Recent Recommendations

Using your most recent review, please respond to all feedback and recommendations. Response:

SLOA Feedback - Feedback on the mid-cycle program review for the MS included:

- Remove the information related to employment outcomes (current SLO #3 of 3) from the SLOA plan but retain it as an internal departmental assessment tool
- Use more "action" words
- Have 3-5 SLOs per program.

We accepted these suggestions and have revised the SLOs for the program (see below).

Student Success & Equity Feedback - Reviewers suggested addressing gaps in [REDACTED] students by outreach and advertising, and developing a pipeline for [REDACTED] students to move from the undergraduate to graduate programs. We have not successfully developed a pipeline for [REDACTED] students to the MS in Biological Sciences. However, the recent creation of the BA in Wildlife Ecology and Society in our department may prove an attractive pathway for more students from underrepresented groups to study biology.

High Impact Practices Feedback - The reviewers commented that HIPs in Biological Sciences are positive and meaningful. Reviewers requested more information and examples of HIPs and how they foster student success, which we have attempted to do in this document.

Student Learning Outcomes

Describe the assessment of your student learning outcomes (SLOs). Discuss your findings, changes you are making, and what you hope to see as a result.

Response:

The SLOs that applied during the period of this review (from the 2023 mid-cycle review) focused on three outcomes: 1. mastery of and contribution to biological knowledge, 2. oral and written communication skills, and 3. ability to obtain employment relevant to the student's field of study.

1. Mastery of biological knowledge in subject areas related to thesis research and contribution of biological knowledge through research

The primary means by which a developing scientist demonstrates both a command of the state of knowledge in one's field and the ability to contribute to that body of knowledge is through publication, particularly in peer-reviewed journal articles. The publication process takes time, particularly for MS graduates who ideally spend 2 years in the program (median during the period of review was 3.0 years) and are not expected to publish before graduation. Also notable is the fact that the majority of our MS students tend to take professional positions shortly after graduation (see #3, below), which limits their time, and in some cases motivation, to pursue publication. To account for a time lag, we modified this SLO during mid-cycle review in 2023 by adding a 4-year duration to the criterion: "at least half of MS graduates will publish a thesis-related article in a peer-reviewed journal within four years of graduation".

Criterion 1. At least half of M.S. graduates will publish a thesis-related article in a peer-reviewed journal within four years of graduation

To assess the frequency of publications over time, we calculated the percentage of graduates publishing at least one thesis or other article, and the average number of thesis-related or other publications per graduate. Around October 2025, we assessed the publication activity of students graduating from the Biological Sciences (BIOS) MS program during the period of review, FY22 - FY25, but also those who graduated between FY18 and FY25, who had had a full 4 years in which to publish. We used the following methods to locate publications: Scopus search, Google Scholar search, Reports of Advisory Committee, and annual departmental activity reports by graduate students, and flagged publications identified as either authored or co-authored by the graduate and attributed to UAF.

Because publication of articles during graduate school that are not thesis-related is important to professional development and future employment success, we chose to also quantify non-thesis publications. All articles from the survey were tabulated and categorized as either thesis research (student was first author and title was thesis-related) or other research (the product of side projects or other collaborations while at UAF). Not surprisingly, we found that both the frequency of publication and the average number of publications per student tended to increase over time (Fig. 1). Sample sizes were small, ranging from 4 to 7 graduates per year, limiting our confidence in the characterizations of annual data. While acknowledging this uncertainty, four years following the year of graduation appears to capture the extent of thesis publication (Fig. 1). Of the students who graduated between FY18 - FY21 and thus had a full 4 years to publish, 70% of graduates published their thesis research, an average of 1.0 articles per graduate. This performance exceeded our benchmark of 50%. Summing both non-thesis and thesis publications, 78% of these students published work from UAF, an average 1.4 publications per graduate. Of the students graduating FY22 - FY25, 37% have published thesis research at an average of 0.6 publication per student in the program, and 53% of students have published any UAF research at an average 1.1 publication per student. However this group includes students who have held their degree for less than a year, which would tend to decrease the publication estimate. We conclude that the majority of graduates in the program are demonstrating mastery of the science related to their thesis - as evidenced by their ability to publish in peer-reviewed journals - and contributing original science to the larger scientific community through publication.

2. Strong oral and written communication skills

Three criteria were identified for assessing this SLO: 2a. Effective public presentation of the thesis during the defense; 2b. Frequency of presenting thesis findings to broad audiences: at least 30% of MS students per year; 2c. Publication of research in peer-reviewed journals. Criterion 2a. M.S. students will present and defend their thesis effectively in a public setting - We put this criterion in place during the mid-cycle review in 2023, and did not start accumulating reviews of thesis defense public communication quality until 2024.

Following the public presentation of the student's thesis, graduate advisory committee members are asked to complete a quantitative assessment evaluating six aspects of their communication quality and provide qualitative written feedback. A copy of the rubric is provided here as a pdf (Fig. 2), although the actual assessment is distributed as a Google Form. Faculty compliance was spotty at first, while people adjusted to the new expectation. Three MS students who graduated during FY25 were reviewed by members of the graduate committee across six criteria of communication quality. The overall average score for those students were 4.60, 4.53, and 5.0 out of a possible 5 points. As a group, the MS students tended to score lowest on "answers to questions from audience" (4.3); slightly higher on "context and background" (4.5) "graphics and other visual aids" (4.6), "goals and objectives" (4.7), and "delivery" (4.7); and highest on "clarity and organization" (4.8). As more students undergo this review, the data will be helpful to faculty advisors and graduates alike.

Criterion 2b. At least 30% of MS students will present their work to broad audiences outside committee meetings each year - To assess this criterion, we summed the number of presentations self-reported by each student in the BIOS MS program in Reports of Advisory Committee and annual departmental activity reports. Using these data, we found that on average across the four years of review, 35% of Biological Sciences MS students gave at least one presentation annually, an average of 0.6 presentations annually per student in the program. Presentations were at meetings and conferences, included both oral presentations and posters, and occurred at a range of local, regional, national, and international venues. This level of presentation exceeds our benchmark and indicates that MS students in the program are communicating their research broadly. Presentation activity is important to professional development, as well as building communication skills. We note that internal opportunities to apply for travel funds have become more restricted in recent years, and federal grant funds may become more restricted as well. This may reduce the students' ability to travel to meetings in the future and undermine our capacity to meet SLO #2.

2c. Publication of research in peer-reviewed journals - See assessment of SLO #1.

3. Criterion: Graduates will obtain employment broadly relevant to their field of study - To assess this criterion, we used the following means to survey student employment: direct email contact with student, inquiries to former advisors, and web searches including government lists of employees, NGO websites, Google, LinkedIn, and ResearchGate. Whenever possible, we attempted to verify web sources of employment through direct contact with the student or advisor. We were able to ascertain employment type for all but two (7%) of the 25 students graduating during the period of review. Results of the employment survey are shown in Fig. 3. Of the 93% for whom employment was identified, 7% were enrolled in a PhD program and 85% were employed as professionals. Of the professionals, 74% were employed as biologists or data analysts at the state, federal, or university technician levels, while another 11% were employed in K-12 education or as a writer or editor; we conclude that the majority of graduates from the Biological Sciences M.S. program are obtaining employment broadly relevant to their field of study.

Did you make any curricular changes based on your most recent SLOA? If so, discuss what changes were made. If no changes were made, please discuss the strengths of your curriculum based on the assessment of your outcomes.

Response:

Yes, we made several changes to the SLOA plan.

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

Communication outcomes in the SLOA plan are: **Embedded**

Check the checkbox to certify completion of the following tasks:

☐ Upload supporting documents to the Supporting Documents folder. This includes artifacts, rubrics, and other documents related to your SLOA.

☒ Upload your most recent SLOA to the Supporting Documents folder, even if no changes have been made since the last review.

Have changes been made to your SLOA document since your last review? **Yes**

If so, please summarize what changes were made.

Response:

The new [2025 SLOA plan](#) is different from the [2023 SLOA plan](#) in these ways:

- We shifted the assessment of the student's command of scientific knowledge relevant to their subject area and of the scientific method to an assessment of the quality of the student's research proposal (already a requirement of the degree program), to be completed by the student's graduate advisory committee using a new rubric ([Fig. 4](#)). The rubric is quantitative with space for qualitative written feedback. This evaluation will occur at the end of the student's first year, while there is still time for improvement if needed. We also developed guidelines for an effective written proposal ([Fig. 5](#)), which will be available on our departmental website.
- We separated the written and oral communication assessments, which were previously combined into the same SLO, at the suggestion of reviewers.
- We added a SLO for effective written communication based on the required written research proposal. The proposal rubric ([Fig. 4](#)) embeds a quantitative evaluation of writing quality, with space for qualitative feedback for written communication. This will be assessed at the end of the student's first year in the program, giving students time to improve their science writing skills if warranted.
- We removed an assessment of post-graduate employment from the SLOA, as suggested by reviewers, but will continue to collect the data for internal departmental purposes.
- We established a new SLO (#4) focused on the importance of communicating scientific findings to the broader scientific community. (This SLO was part of SLO #1 in the 2023 SLOA.)

Assessment criteria for the new SLO #4 include publication and oral communication (e.g. at meetings and conferences) of the thesis research findings.

High Impact Practices

Please indicate which high impact practices are currently being implemented in relation to the program's student learning outcomes.

- | | |
|---|---|
| ☐ Capstone Courses & Projects | ☒ Graduate Level Research |
| ☐ Collaborative Assignments & Projects | ☒ Writing-Intensive Courses |
| ☐ Diversity/Global Learning | ☒ Publications |
| ☐ ePortfolios | ☒ Communications |
| ☒ First-Year Seminars and Experiences | ☒ Scholarly Activities |
| ☐ Internships | ☐ Studios |
| ☐ Service or Community-Based Learning | ☐ Practicum |
| ☒ Undergraduate Research | ☐ Other |
| ☐ Labs | ☐ None of these |

Discuss how the HIPs in the program are reflected in the SLOA. If you have identified HIPs that are not included in the SLOA, please consider an update.

Response:

HIPs are reflected in our SLOs as follows:

First-Year Experiences - Most of our Biological Sciences MS students take BIOL F602 Research Design in their first semester, which helps them develop a plan for their thesis research and form bonds with other new students. This is the first time most students have undergone deep critical review of their ideas and their written work, both from graduate faculty and fellow students, making it an important learning experience.

Faculty in the department have discussed putting in place introductory graduate courses in each of the major sub-disciplines on which our students tend to focus: ecology (including wildlife ecology), cell biology and physiology, and evolutionary biology. This would be an opportunity to expose all students to the theory, history of thought, and modern approaches of their subdiscipline at an advanced level. We do not yet have the enrollment to support a regular course in the latter two subject areas, but we now have both the enrollment and the available faculty workload to support a graduate-level course in ecology. That will begin with a trial course in fall 2026. It will serve as a useful first-year course for many of the department's M.S. students.

Graduate Level Research - Graduate research is the basis for the MS student's thesis and an important scholarly activity in the program.

Writing Intensive Courses - Many of our M.S. students take BIOL F604 Scientific Writing, Editing and Revising in the Biological Sciences. In that course, students learn about the practice of science writing and complete a full scientific paper / chapter of their thesis. Perhaps more importantly, graduate advisors and graduate committee members typically provide useful feedback on drafts of the research proposal, grant proposals, and the thesis. This mentorship is critical to the successful development of writing skills in graduate school.

Publication - The minimum requirement for a M.S. thesis in Biological Sciences consists of one chapter "of a quality suitable for publication" (from our website guidelines). Contribution of research findings to the larger scientific community is part of SLO #1 "Graduates of the MS program will demonstrate mastery of biological knowledge in subject areas related to thesis research and will contribute biological knowledge through research". Our expectation is that the majority of graduates will both do publication-quality research and take the next step to publish.

Communications - Communication is directly addressed by SLO #2 "Graduates will have strong oral and written communication skills". Students are expected to communicate both in writing - as addressed above - and in speech. The department encourages students to communicate broadly and well by providing assessment and feedback on the public oral presentation portion of their thesis defense, and by encouraging students to present regularly at meetings and conferences.

Scholarly Activities - Scholarly activity is embedded in SLO #1. Students learn scholarly practices through literature review and interactions with faculty and other graduate students in the course of doing their thesis research. Students demonstrate they are scholars by producing publication-quality research. Students are encouraged to interact with other scientists as scholars by attending meetings and conferences.

Student Success

Please reference the [Resources tab](#) for information on accessing the Student Success Data Dashboard and contacting your designated data liaisons.

Student Success Data Trends

Persistence: **Increase**

Pass Rates: **No Change**

Student Credit Hours: **No Change**

Majors: **Decrease**

Degrees Awarded: **No Change**

Other Trends (if applicable):

Persistence in the MS Biological Sciences degree program increased from 87% in FY22 to 93% in FY 24 and FY25.

Pass rates in graduate courses were high and constant: 94% - 96% during the period of review.

Annual student credit hour loads varied little (10 - 13) over the period of review. Annual SCH load is tied to duration of the degree, because students tend to take fewer courses if the duration of their degree extends beyond their original 2-3 year plan.

Number of Biological Science M.S. majors decreased slightly overall, from 30 in FY22 to 25 in FY25 ([Fig. 6](#)).

Degrees awarded have been consistent at 6 or 7 per year. The ratio of degrees to headcount suggests that, although the department has been trying to decrease the duration of both its M.S. degree programs in recent years, there is more work to be done in this regard.

Achievement Disparities

Discuss any achievement disparities identified in your disaggregated student success data and explain how you plan to address them.

Response:

Gender - The Biological Sciences M.S. program has been majority [REDACTED] since FY00 - as far back as PAIR makes data available in the Factbook - and over the period FY00 to FY25 the representation of [REDACTED] increased linearly from 59% in FY00 to 63% in FY25 ([Fig. 7](#)). The increase in [REDACTED] graduate students in biology appears to be a national trend; for example the National Science Foundation reported an increase in the percentage of [REDACTED] doctoral students in the life sciences from 47% in 2000 to 56% in 2020 (NSF (2021) Doctorate Recipients from U.S. Universities: 2020. Report NSF-300). It is not immediately obvious what the department can do to address this growing disparity, but we will discuss it as a faculty.

Race and Ethnicity - After holding fairly steady at approximately 90% between FY00 and FY23, the percentage of Biological Sciences M.S. students who identified as [REDACTED] dropped in FY24 (83%) and FY25 (63%) ([Fig. 8a](#)). There were small increases in the number of students identifying as [REDACTED] and [REDACTED] between FY22 and FY25, whereas the one student identifying as [REDACTED] graduated in FY25 ([Fig. 8b](#)). Faculty in the department have made efforts toward better outreach to minority communities. For example, Dr. [REDACTED] working with colleagues from UAA and UAS, manned a 3-day virtual information booth to provide information about biology programs across the three UA campuses during the 2021 Society for the Advancement of [REDACTED], [REDACTED] and [REDACTED] in Science (SACNAS) meeting. The department will continue to work to recruit from diverse student populations.

Eligible - In most years, none of our students are [REDACTED] eligible. Virtually all of our M.S. students are funded by a combination of teaching and research assistantships. The department does not accept M.S. students without at least two years of funding (typically a combination of teaching and research assistantships) planned in advance.

[REDACTED] - During the period of review, 17% - 22% of our students were [REDACTED], with no trend across time.

Course Pass Rates - The data for graduate course pass rates are not broken out by program. Overall, graduate course pass rates are consistently high: 93% or higher. Pass rates for [REDACTED] and [REDACTED] students are similar. The same is true for [REDACTED] and [REDACTED] students. Students of all age categories have a pass rate that is consistently above 87% (one exception: age 21-22 was 50%, 2 of 4 courses). Pass rates by race are consistently above 83% for all groups with 2 exceptions: [REDACTED] students in 2025 (50%; 1 of 2 courses) and students who did not report race in 2022 (67%, 2 of 3 courses passed). Given that the instances of low pass rates are likely the result of a single student having a difficult semester, we do not see any programmatic issues. We will address the existing gap by working to inform graduate students of existing support mechanisms and available help and provide support to students experiencing difficulties.

Closing the Loop

Please discuss how your student learning outcomes are reflected in high impact practices and student success data.

Response:

Our SLOs are focused on preparing graduate students for the challenges of being a professional scientist; someone who can use and build on information in the literature, perform original research, and communicate their findings to a broad community both inside and outside the university. Our high impact practices - including graduate level research, writing intensive experiences, publication, communications, and scholarly activities - are all geared toward assisting students to become more independent as practitioners and communicators of science. The employment and publication successes of our graduate students serve as evidence that we have been successful at meeting our goals. Student success data suggest it is worth keeping our eye on numbers of students in the program and program duration.

Academic Program Profile

The following questions help show how your program supports the university's mission, connects with other UA programs, engages with the community, contributes through service courses, and supports student success after graduation. Please use this section to highlight the value your program brings to students, the university, and beyond.

UAF's Mission:

The University of Alaska Fairbanks is a Land, Sea, and Space Grant university and an international center for research, education, and the arts, emphasizing the circumpolar North and its diverse peoples. UAF integrates teaching, research, and public service as it educates students for active citizenship and prepares them for lifelong learning and careers.

In what ways does your program advance UAF's mission?

Response:

The BIOS MS program serves UAF's mission by educating students in biological science, scientific research, and effective communication focussed on the circumpolar North, while providing a global perspective. The individualized research focus of the program is intended to produce graduates who can apply evidence and creativity to problem solving, synthesize ideas, analyze data, and communicate well, thus preparing them for science-based careers and lifelong learning.

How is your program related to others in the UA system?

Response:

There are Biological Sciences MS programs at UAA, UAS, and UAF. As the flagship research campus of the UA system, UAF can provide a high level of support for a research-focused education through collaboration with institutes, excellent research facilities, research-focussed faculty mentors, and peer influence extending from the existence of a BIOS PhD program.

Who are your key community or external partners?

Response:

The Department of Biology and Wildlife maintains a long-standing and productive partnership with the Institute of Arctic Biology (IAB) and the Museum of the North, both of which support faculty and graduate student research and provide access to valuable facilities. These research institutes administer graduate research assistantships to graduate students in the program. IAB has also provided annual competitive summer fellowship opportunities for MS and PhD students for many years.

Partnerships with state and federal agencies provide important sources of support for Biological Sciences graduate students. The department has long partnered with the Alaska Cooperative Fish and Game Research Unit (AKCFGRU), whose members teach biology and wildlife courses at the graduate level and mentor graduate students. Students often work as research assistants on, and build their thesis research around, projects funded by the Alaska Department of Fish and Game, the US Fish and Wildlife Service, and the National Park Service. The National Science Foundation (NSF) and the National Institutes of Health (NIH) fund graduate research through research grants to faculty and graduate student fellowships. The Alaska INBRE (IDeA Network of Biomedical Research Excellence) program provides graduate research assistantships to support biomedical and one-health-related research.

What role do your services courses play, if any?

Response:

We do not have graduate service courses intended as such, although occasionally students from other programs will take our courses. For example, graduate students pursuing degrees in NRE and CFOS have at times taken our Research Design and Scientific Writing courses.

The department's undergraduate service courses play an important role in support the BIOS M.S. and Ph.D. programs by providing opportunities for graduate teaching assistantships.

How do your graduates succeed after leaving the program?

Response:

Our graduate students have excellent employment outcomes, as can be seen in [Fig. 3](#) and is detailed in the assessment of SLO #3 above.

Submitter and Collaborator Names:

Anja Kade, Denise Kind, Knut Kielland, Diane Wagner, Diana Wolf

Submitter Email:

dwagner10@alaska.edu

Committee Review

Program Name: Biological Sciences – Master of Science

Academic Year 2025/2026

Overall Recommendations

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

- | | |
|--|--|
| ☐ Insufficient Narratives | ☐ Report Incomplete |
| ☐ Address Achievement Gap | ☐ Consider Curricular Revisions |
| ☐ Develop Online Offerings/Options | ☒ Improve Time to Degree |
| ☐ Increase Enrollment | ☐ Increase Graduates |
| ☐ Increase Retention/Persistence | ☐ Strengthen Advising Practices |
| ☐ May be asked to share Effective Practices | ☐ Recommendation to University-Wide Committee |

Explanation of Overall Recommendations

Response:

The SLOs are focussed on providing a strong foundation in biological knowledge. They are well defined and responsive to student needs as they empower them through course experiences, research, and inquiry, which is the stated goal of the program.

The SLOs have been effectively revised to directly address the SLOs and provide well-defined and measurable criteria. The program is effective in meeting its goal of graduating scientists doing professional level work with research, publications, and presentations. The evidence that this approach is seen in the employment and publication success of the students closing the loop between their academic and professional careers.

In addition the HIPs are leading to strong graduation, publication, and job placement. The program also has strong and active industry partners. All of this demonstrates that this program is currently highly productive in regards to finances and has a very positive trajectory looking forward. The program report suggests that the department is extremely efficient running a surplus in the past two years. To keep up with enrollment and revenue increases we expect the program will strategically invest in new faculty lines, staff, and other components that will allow for the maintenance and growth of this income generating program.

Some areas of minor improvements suggested by the reviewers include:

Improvement within the HIPs section in regards to the Writing Intensive Courses description that could be more explicitly defined and clarified.

Formalizing and more clearly defining student support mechanisms to further enhance student recruitment and outcome

The program also identified time to degree/program duration as an area for improvement

Student Learning Outcomes Feedback

- ☒ Strong ☐ Developing
☐ Requires Minor Revision ☐ Requires Major Revision

Outcomes are clear and measurable with effectively implemented revisions to SLO since last review. As an example, Criterion 1 for SLO #1 – Mastery of and contribution to biological knowledge, sets a benchmark that 50% of graduates will publish a peer-reviewed paper within 4 years of graduation. This includes both thesis research or collaborative projects. This establishes a realistic and flexible standard. This acknowledges that students often contribute meaningfully and with high impact to publications beyond their primary thesis work and reflects an effective approach to assessing this outcome.

Another example of assessment is described through the criterion of SLO #2 – Strong oral and written communication skills. The three criteria for this SLO include the graduate committee's evaluation of the oral public defense, the expectation of external research presentations, and publication in a journal. These are well defined and tied directly to the program's goals.

Student Learning Outcomes Assessment Feedback

- ☒ Strong Alignment with SLOA Plan ☒ Clear, Concise Presentation of Findings
☒ Compelling Learning Story ☐ Missing a Direct Measure
☐ Missing Active Verbs ☐ Missing Curricular Connection
☐ Missing Collaboration within Department

SLOA Feedback Narrative:

The department should be applauded for the significant improvements made over the 2023 version of the SLOA. Revisions to the SLOs and SLOAs that were made based on the mid-cycle review point to departmental collaboration and informed changes. The revisions have resulted in a clearer framework and SLO assessment tools. The committee appreciates the work that went into revising the SLOs in response to feedback from the mid-cycle review. They are strong and are now clearly defined and supported by detailed, measurable criteria. SLOAs connect to the revised SLOs and present meaningful outcomes and data.

The committee recognizes the thoughtful addition to the SLOAs of a new assessment focused on evaluating a student's command of scientific knowledge. This assessment is conducted through the committee's review of the research proposal using a newly developed rubric. As part of this, the program has developed a document providing guidelines for effective written proposals. This assessment would be completed by the end of the first year, which seems like a reasonable timeline.

We suggest that the program continues to improve on and enhance their SLOs and SLOAs and further refine their rubrics and other assessment tools to match the needs of a growing and successful biological science program.

One minor suggestion for improvement is that the presentation rubrics could be expanded to further clarify and specify reasoning in rankings selected.

Student Success and Equity Feedback

Narrative:

The description of the HIPs is well-organized and data-supported. The thoughtful descriptions and examples indicate the program's strong commitment to student success. The program examined the Student Success Dashboard and identified gender and race equity gaps.

Over the past 25 years the Biological Sciences MS program has remained majority female from 59% in FY00 to 63% in FY25. This is a major success that should not be overlooked as is the recent gains in racial diversity in the program. It is also very noteworthy that faculty have actively supported this progress through targeted outreach, including presenting at the SACNAS meeting and other recruitment activities and collaborations.

The program currently has very strong retention and graduation rates which demonstrates the strong potential of the program to further grow and expand. Graduate course pass rates remain consistently high (93%), with occasional low rates linked to very small cohorts rather than systemic issues. The program's attention to these outlier cases is appropriate, and its efforts to ensure students are informed about available academic and personal support services are commendable and should be continued and advanced.

Moving forward, the program may benefit from formalizing and more clearly defining student support mechanisms to further enhance student recruitment and outcomes. The program also identified time to degree/ program duration as an area for improvement.

High Impact Practices Feedback

Narrative:

The program employs a strong set of HIPs including graduate-level research, writing-intensive coursework, publication, communication, and broader scholarly activities. HIPs are well integrated into the degree program and align directly with the SLOA and support students in building a solid foundation of biological knowledge while advancing their academic and professional goals.

These HIPs contribute to a supportive cohort environment and provide meaningful preparation for entry into the workforce.

One minor area of improvement within the HIPs section is in regards to the Writing Intensive Courses description. This could be more explicitly defined so that it is clear what students in the program will take part in this HIP. Currently this is only loosely defined with statements that "many" students participate and that faculty "typically" provides feedback. It would be good to be more certain in this language so that we can be confident that all students would have the opportunity to participate.

The panel recognizes that the HIPs developed and implemented by the Biological Sciences program are all very positive and meaningful in preparing students to enter the workforce. The program is clearly on a positive trajectory of growth and broader student outcomes and impacts.

Profile Feedback

- | | |
|---|--|
| ☐ Mission-Centric to College and/or UAF | ☐ Unique within UA |
| ☐ Collaborative with other UA Programs | ☒ Provides Job Placement for Graduates |
| ☒ Strong Post-Grad Success for Students | ☐ Strong Service Teaching Component |
| ☒ Strong Ties to Community or Industry | |

Financial Feedback

- | | |
|--|---|
| ☒ High Tuition Revenues | ☒ High Grant Revenues |
| ☒ Operates at Low Cost | ☒ Productive Faculty |
| ☐ Opportunities to Increase Revenue | ☐ Low Enrollment |

Reviewer Names:

Chris Maio, Ellen Candler, Carrie Baker, Russ Hopcroft, and Mark Conde

Dean Review

Program Name: Biological Sciences – Master of Science

Academic Year 2025/2026

Dean Feedback

Overall feedback narrative:

. While not unique to UAF in the UA system the MS in Biological sciences is a very strong program that serves students well. The department responded to past feedback and improved SLOA. This program is well integrated into the research enterprise, especially at IAB and the undergraduate curriculum of one of our strongest Baccalaureate degrees through TAs that support undergraduate teaching.

Recommendation to University-Wide Committee

Vice Provost Review

Program Name: Biological Sciences – Master of Science

Academic Year 2025/2026

Vice Provost Feedback

Overall feedback narrative:

The assessment for the MS and PhD in Biological Sciences is nearly identical given the similarity of the programs. The program followed the guidance from the 2023 mid-cycle review and revised the SLOA and SLOs, which are very strong and appropriately assess graduate knowledge, skills, and abilities. However, for the 2027 mid-cycle review, the program must differentiate the SLOs between the MS and PhD to reflect differences in breadth, depth, and proficiency of skills and knowledge. Four SLOs were provided, each with clear assessment procedures and implementation plans, and the program included artifacts, rubrics, and data used to assess the SLOs. The narrative overview of SLO assessments was excellent and should be commended. The program noted curricular changes but did not elaborate beyond referencing the SLOA revision; future reviews should include details on these changes and their impact. Closing the loop on assessment is essential for NWCCU expectations and should include evidence for each SLO to demonstrate meaningful, evidence-based improvements that enhance program quality and student learning.

The program examined PAIR data thoroughly, reporting trends in persistence, pass rates, SCH, majors, and degrees awarded, and disaggregated data by gender, race/ethnicity, Pell eligibility, first-generation status, and age. Trends were quantified with percentages and multi-year comparisons. The program demonstrates strong support for graduate student success through guaranteed funding packages, faculty mentorship, and research-centered degree design, as well as intentional recruitment practices to g scientific communities. However, growing gender imbalance and declines in participation are noted without actionable plans. Advising structures, early intervention processes, and mechanisms for monitoring academic or personal challenges are not clearly described. Time to degree is identified as an issue, but causes such as advising load, proposal timelines, and funding constraints are not analyzed. Future reviews should include strategies to address these gaps and improve equity and retention. The HIPs identified by the program were aligned with the SLOA and integrated into the curriculum. The review team noted this section was thorough and comprehensive.



Department Profile and Financial Data

Department Name: **Biology and Wildlife**

Last updated: 2025/2026

Department Profile and Financial Data

This section aligns with Board of Regents Policy 10.06 and supports systemwide consistency in academic program review. Responses are maintained across review cycles and may not need to be updated annually. Please review your previous answers and update only if necessary.

When answering the following questions, refer exclusively to the standardized Financial Data Template provided by UAF. Work with your data liaison to interpret the template accurately. Do not include any additional or alternative data — consistency across programs is essential. To maintain integrity and standardization across all of UAF it is very important that you do not provide any additional or alternative data from this template.

Confirmation of Review

Have you reviewed the information in this section and made any necessary updates? **Yes**

Financial Data Spreadsheet

☒ I have reviewed the Financial Template for updates and accuracy.

Cost Effectiveness

Please describe strategies such as instructional efficiency, shared resources, cross-listed courses, or other ways your department uses resources thoughtfully.

Response:

The magnitude of Biology and Wildlife's ratio of SCH:FTE (273-326) suggests that the department is extremely efficient. (Of course we do not know how this compares to other departments.) Annual revenues exceeded expenditures by ██████ in FY23 and ██████ in FY24 and FY25. The following practices contribute to the Biology and Wildlife Department's high efficiency.

First, we rarely hire adjuncts except for sabbatical or leave replacements. The courses we need taught to support our programs and service teaching are on faculty workloads, including GER and foundational courses. Having regular faculty teach courses puts individuals with disciplinary expertise and a strong commitment to the student and departmental success in charge of the instruction, and fosters continual course and program improvement. This encourages student success and well being, which fosters enrollment.

Second, we teach stacked and cross-listed courses whenever it makes sense pedagogically. This can make the difference between a course that is chronically underenrolled and one that is not. Stacking is extra work for instructors but rewarding at many levels. As examples, we cross-list the large class BIOL/CHEM F360 Cell and Molecular Biology with Chemistry and BIOL/NRM/WLF F377 Conservation Biology with both Wildlife and Natural Resources and Environment. Cross-listing promotes efficiency at the college level and helps to break down disciplinary and programmatic silos in the natural sciences.

Third, Biology and Wildlife's small but powerful departmental staff is conscientious about careful spending practices and record keeping. We keep our course fees up to date by comparing expenses with fees annually, and adjusting fees approximately every 3 years based on annual averages.

Fourth, the department is open to curricular redesign in order to meet academic, practical, and financial challenges. We revisit our curricula frequently and alter curricula when warranted. The department's willingness to take on difficult challenges was perhaps best illustrated by our creation of online, asynchronous B.A. and B.S Biological Sciences program options starting in 2020, a labor-intensive undertaking for faculty that continues into the present, but that has resulted in growing enrollments and strong benefits to our department and CNSM as a whole. A more recent example of efficiency through modification of the undergraduate curriculum is a current undertaking to create 1-credit add-on research capstone courses, which will run side by side with traditional 3-4 credit content-based courses. Separating the high-intensity research experience from the regular content-based course will permit larger enrollments in the content-based course than is feasible under our current model, in which the capstone project is a required part of the course for all students, whether they need it for graduation or not.

Associated Programs

Program Name	Degree Type
Biological Sciences	M.S.
Biological Sciences	B.S.
Biological Sciences	B.A.
Biological Sciences	Minor
Wildlife Biology and Conservation	M.S.
Wildlife Biology and Conservation	B.S.
Wildlife Biology and Conservation	Minor
Wildlife Ecology and Society	B.A.
Earth Systems Science, Ecosystems Concentration	M.S.
Earth Systems Science, Ecosystems Concentration	Ph.D.
Climate and Environmental Change	B.S.

Collaborator Name(s):

Anja Kade, Denise Kind, Knut Kiehlund, Kristin O'Brien, Diana Wolf

Collaborator Email(s):

ankade@alaska.edu, dmkind@alaska.edu, kkielland@alaska.edu, kmobrien@alaska.edu, dewolf@alaska.edu



Financial Data

Department Name: **Biology and Wildlife**

Academic Year 2025/2026

	FY2023	FY2024	FY2025	For Data Entry Staff	For Programs and Review Committees
Total Student Credit Hours (SCH)	6450	8101	8687	Provided in SCH tab in the student success data provided by PAIR.	
Service SCH	2832	3646	3911	Sum rows labeled as "In unit, outside department, Service" and "Outside unit, Service" in the SCH tab of the data provided by PAIR.	
Department FTEs	23.63	24.84	31.55	FTE = Full-time equivalent employee. This field will auto-populate from the FTE Worksheet below.	
Total SCH per Department FTE	272.96	326.13	275.34		
Service SCH per Department FTE	119.85	146.78	123.96		

Majors in Programs	629	684	729	Sum for all programs from the Majors Total tab in the data provided by PAIR.	
Department FTE's	23.63	24.84	31.55	This field will auto-populate from the FTE Worksheet below.	
Majors per Department FTE	26.62	27.54	23.11		

Total Unrestricted Expenditures				Total Expenditures made from budgets with an F1 or F7 fund type designation, from provided cycle report data filtered by Data Liaison	
Total Restricted Expenditures				Total Expenditures made from budgets with revenue of the F2 or S2 fund type designation, from provided cycle report data filtered by Data Liaison	
Total Unit/Central Support Allocated to Program(s)				Expenses incurred for direct support of instruction within orgs identified as central or academic support, if applicable	
Total Expenditures					

Tuition Revenue				Receipts to college from tuition generated by the department/program (F1). NOTE: under the current 80/20 percent tuition distribution model generating units receive 80%. PLEASE USE PAIR REPORTED SCH.	Receipts to college from tuition generated by the department/program, based on the campus's active tuition distribution model, which determines how much the unit receives of their generated tuition, and how much the campus keeps (in addition to the out-of-state surcharges) to support central offices/functions. The current distribution model is 80/20, where the unit/college receives 80% of their generated in-state tuition.
State Appropriation Revenue				Appropriations for current funds operation of the university from the general fund of the State of Alaska through the annual budget cycle. This category also includes TVEP and State Mental Health Trust funds, if allocated to the department. (F1)	Appropriations for current funds operation of the university from the general fund of the State of Alaska through the annual budget cycle.
Restricted/Sponsored Project Revenue				Revenue from external sponsors; includes grants, contracts, sponsored projects & restricted (grant) accounts funded by UA Foundation funds (F2/S2)	Revenue from external sponsors; includes grants, contracts, sponsored projects & restricted (grant) accounts funded by UA Foundation funds
Fees				Course Fees (9159)	
Other UA Receipts/Revenue				e.g. Performance and Sales Receipts, Space Rental Revenue, Indirect Cost Recovery (F1/F7); NOTE: COURSE FEES (9159) REPORTED ABOVE	
Total Revenue					

Workload Allocation	FY2023	FY2024	FY2025	
Teaching Units	305.5	316.75	328	Department faculty's workload units assigned to teaching
Service Units	126	136.25	163	Department faculty's workload units assigned to service
Research Units	350.17	310.7	324	Department faculty's workload units assigned to research

Full-Time Equivalent Worksheet*	FY2023	FY2024	FY2025	
Faculty FTEs	10.99	11.07	12.7	Base assumption: 12-month full-time = 1.0 FTE. 9-month = 0.75 FTE. Split appointments are multiplied by the % of effort assigned to this department. Part-time are multiplied by the % of effort assigned. F9 faculty on sabbatical count as 67% of one 9-month 0.75 FTE (or 0.50 FTE).
Adjunct FTEs	1.2	1.15	0.84	Base assumption: 40 units/credits = 1.0 FTE. Total # of credits taught by adjuncts in a year divided by 40 = the FTE of adjuncts in that year.
Staff FTEs	3.15	3.98	5.31	Base assumption: 12-month full-time = 1.0 FTE. 9-month = 0.75 FTE. Split appointments are multiplied by the % of effort assigned to this department. Part-time are multiplied by the % of effort.
Graduate TA/RA FTEs	8.29	8.64	12.7	Base assumption: 40 hours/week for 12 months = 1.0 FTE. 9-month = 0.75 FTE.
Total Department FTEs	23.63	24.84	31.55	Sum of all employee FTEs

*Note: FTE definitions and calculations for the purpose of Academic Program Review are different than for other institutional reporting processes (e.g. OMB or IPEDS reporting)

Information last updated by: Laycie N. Schnckenburger

Date:

9/26/2025