Physics - Doctor of Philosophy - Mid-Cycle Review & SLOA Year

Current Compliance Year: 2022-2023
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):

The graduation rates should not be looked at in isolation for the three different graduate programs, as they overlap substantially. In particular, the Physics PhD and the Space Physics PhD are very similar degrees. They differ by one topic on the Comprehensive Exam, namely Quantum Mechanics vs Space Physics. The reason the two degrees exist is that historically students have expressed an interest in either. Since the overhead in terms of courses is very small (one course in Quantum Mechanics), it makes sense to keep the two programs to give students options.
Curricular revisions are nearly impossible. A Physics PhD degree that is meaningful in any way must include graduate level classes in Mathematical Physics, Classical Physics, Electromagnetism, and Quantum Mechanics. This is in accordance with any graduate program in Physics across the nation and internationally. In fact, we really ought to offer Statistical Mechanics as well, which we had to cancel regularly due to instructor shortage and low enrollment.

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:

We collect data through a series of questionnaires that are filled out and aggregated through Google Forms. This include an "Annual progress assessment form" that is filled out at every student's committee meeting and at thesis defenses, and that addresses categories ranging from general knowledge to awareness of the publication process. An "Attachment to annual report" is filled out by each graduate student and provides a list of accomplishments, such as published papers and conference participation. A "Thesis evaluation form" is filled out by committee members and the Department Chair upon completion of the thesis. It is anonymous and not intended for grading, but as a tool to assess the general quality of a student's writing. A "Teaching/communication evaluation form" is part of most student's first year training and teaching activities. Finally, an "Exit survey form" is completed upon completion of the degree, and an "Alumni survey form" is send out to all alumni that we can reach

(generally 5 years past graduation). These forms are based on the American Institute of Physics template and are intended to assess whether our graduates are prepared for the workforce.
The responses to the form are evaluated by the Graduate Programs Committee who is looking for persistent trends and is tasked with bringing forward any changes to the program or the curriculum that should be considered based on these results. A particular focus is whether alumni identify any serious omissions in the education and preparation of the graduate students.

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:

At this stage we are not proposing any curricular changes. Generally, the program appears to be doing well in all assessment categories. This assessment does suffer from low number statistics, however. These responses should therefore also be evaluated in the longer term, now that assessment plans and strategies for data collection are in place and being applied consistently.

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.

Not 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:

Something else (use data explanation field to describe)

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.

The ratio of [redacted] students in the graduate programs is around 20%, which is very close to the national average. So, in some sense, this is a problem that is larger than just UAF. We do not have specific suggestions how to improve this balance. However, we would like to note that role models do matter, and the recent loss of a young[redacted] faculty member who was not replaced does not help.

Optional Data Explanation

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

None of the trends in the PAIR data are significant given the low numbers in the program. We also analyzed them aggregated over all three graduate programs, but find no significant trends.

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," filed to share what your program is doing to help students be successful.

High Impact Practices that currently apply to your program:

None of these

Other or None of these (explain)

Submission

Submitter & Collaborator Names

Submitter Email

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

Increase enrollment,Increase graduates,Consider curricular revisions,Improve time to degree

Explanation of Recommendations

Student Learning Outcomes Assessment Feedback (tags)

"Clear, concise presentation of findings"

Student Learning Outcomes Assessment Feedback (narrative)

The program provides various forms to assess the outcomes: an “Annual progress assessment form” by advisory committee members, a “Thesis evaluation form” by committee members, a “Teaching/communication evaluation form”, and an “Exit survey form” by graduates or alumni. The program addresses that they have not made any curricular changes based on the evaluation outcomes but they will continue to monitor that they have assessment plans and strategies in place. Some changes that the committee recommends are their mission statement and a thesis evaluation form. This SLOAs is for the Physics MS program so the word “Space Physics PhD” should be removed from the mission statement. The committee encourages them to use “thesis evaluation form” as a rubric to assess the general quality of a student’s writing and other skills but also as a rubric for the program assessment such as the “Physics_SLOA_TA_Presentation form” instead of the “anonymous” form.

Profile Feedback

Financial Feedback

Student Success & Equity Feedback

The program addressed that the numbers in the program are too small to see any significant trends. The program recognizes that the ratio of [redacted] students is low and to improve this balance it is essential to have role models.

High-Impact Practices Feedback

The program does not mention any of HIPs. The committee recommends them to describe what is special about this program and to use “Demonstrate modern teaching skills and the ability to communicate to a broad audience” as a HIP if it was assessed appropriately and the act of student teaching was understood as being HIP.

UNIVERSITY OF ALASKA FAIRBANKS
Student Learning Outcomes Assessment for Physics PhD program
Department of Physics
Adopted May 12, 2016

Expanded Statement of Institutional Purpose	Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
MISSION STATEMENT: The Space Physics PhD Program will provide scientists and professionals with the training, insight, and problem solving skills to understand and explore the physical world, from elementary particles to the structure and origin of the universe. **GOAL STATEMENT:** We will maintain a program of high quality, international reputation and produce scientists and professionals capable of solving current problems and anticipating future challenges in Physics and other related disciplines.	Upon completion of the program, graduates can function effectively in their area of expertise.	Physics will maintain a strong international reputation for producing well-trained PhD graduates.	Graduates and alumni will be surveyed each year in May to identify program strengths and weaknesses using online exit surveys. PhD candidates are required to pass the department's comprehensive physics exam, given in August.
	Students will be capable of independently analyzing a problem, identifying the critical aspects, and devising appropriate methods to resolve the questions that arise.	Students will demonstrate their abilities and progress through conference presentations, manuscripts, and/or annual reports.	Advisory committee members will be surveyed after each meeting using form "Physics_SLOA_Graduate_Assessment_Form". Physics faculty in attendance will be surveyed after thesis defense using the same form.
	Graduates will be successful in obtaining work, or progressing in their field.	80% who desire employment will be employed one year after graduation.	Graduates and alumni will be surveyed each year in May using online exit surveys.
	Demonstrated ability to make original contributions to that research field.	A successfully defended thesis. At least one first authored peer-reviewed publication or at least one conference abstract. Graduates will make significant contributions to the peer-reviewed literature.	PhD level students will give a professional presentation with an abstract. Student research outcome data will be collected and analyzed each year using an online form. Thesis quality will be evaluated using form "Physics_SLOA_Thesis_Evaluation".
	Demonstrate modern teaching skills and the ability to communicate to a broad audience.	A series of evaluations (using the TA teaching evaluation form) will be made (generally in the first year) both as the students are TA's and as they go through the mandatory teaching seminar courses.	Student teaching/presentation evaluations (form Physics_SLOA_TA_Presentation") will be tabulated and analyzed to ensure we are appropriately training them in modern teaching/communication techniques and pedagogical methods.