

Engineering - 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):

No official recommendations were given.

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 assessment data collected on the graduating PhD students for the reporting period are targeted at the three outcomes from the PhD Program Plan and include:
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a. Pass rates and dates of the oral and written comprehensive exams
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All the students who took the written and/or oral comprehensive exams in this reporting period successfully passed it.

b. An assessment of students' abilities in four categories

The assessment is done by sending a survey to all advisory committee members for each student. We had three graduates in this reporting period (FY22). The graduating student's committees were asked to assess (on a scale from 1 to 5) the student's ability to:

- Apply knowledge of math, science, and engineering

- Communicate effectively

- Effectively use engineering techniques, skills, and tools

- Perform independent research
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The average score in each category was above 4. Individually, each student scored at or above 3.5. Based on these results, we concluded that our current graduates are performing at very good to excellent levels.
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c. The initial employment placement of graduates

We have the initial employment placement for two out of three graduates. One of them has taken a position with the US National Renewable Energy Laboratory, while the other one has taken an

industrial position with Petro China. We do not have the employment information for the third graduate.

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:

Due to the diversified nature of this program (8 distinct concentration areas, with many sub-disciplines within those areas) and the small number of students, there is no curriculum that is common to a majority of students in this program. There are also no courses within CEM that are specifically offered to only doctoral students, except for the necessity of offering individual study courses as needed to provide the training in specific areas required by each student on a case-by-case basis. No curricular changes were made by the PhD program based on the conclusions drawn above. However, individual departments, housing different PhD concentrations, are going through their SLOA evaluations and making the appropriate curricular changes.

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:

Decline in majors, No change in degrees awarded

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 PhD Admissions Committee analyzed the available data and have not noticed any obvious equity gaps. Looking for gender gaps in a small program is difficult, but we did have one [REDACTED] and two [REDACTED] graduates this year, just like we did last year. Looking at the race and the enrollment numbers, we have a mixture of [REDACTED], [REDACTED], [REDACTED], and [REDACTED] students, that somewhat varies from year to year, based on just a few students joining and leaving the program. All of our students are [REDACTED], which is not a surprise.

Optional Data Explanation

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

Our enrollment went slightly down in the previous AY (21 PhD students last year, 16 now), which could have probably been expected based on the overall College and UAF numbers. However, the number of degrees awarded remained the same (3). The lower enrollment was somewhat offset by an increase in Average Student Credit hours, but the total student credit hours still went down.

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:

None of these

Other or None of these (explain)

Submission

Submitter & Collaborator Names

Dejan Raskovic, Chair, Electrical and Computer Engineering Obadare Awoleke, Petroleum Engineering Sampurna Arya, Mining Engineering Shishay Kidanu, Geological Engineering Rorik Peterson, Mechanical Engineering Yuri Shur, Civil Engineering

Submitter Email

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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

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Student Learning Outcomes Assessment Feedback (tags)

Strong alignment with SLOA plan

Student Learning Outcomes Assessment Feedback (narrative)

The program identifies three target outcomes and how to assess them. Also the program discussed no curricular changes due to the diversified nature of the program and the small number of students. One small change that the committee recommends is the assessment of learning outcome b. SLOA should be described how that will be measured in a way that you mentioned in the discussion, such as the assessment of students' abilities in 4 categories is done by the graduate student's committees on a scale from 1 to 5.

Profile Feedback

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Financial Feedback

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Student Success & Equity Feedback

The committee appreciates that the program addresses the gender gaps in degree completion and the race gaps in enrollment numbers even though they have a small number of students available.

High-Impact Practices Feedback

It is a great discussion on applicable HIPs to graduate students: a way to build the cohort through participation in the 3-minute thesis contest and strengthening the cohort cohesion and improving the degree awards through MOA between the Anchorage-based students and their Fairbanks-based mentors and collaborators and through consultations.
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UNIVERSITY OF ALASKA FAIRBANKS
Student Learning Outcomes Assessment Plan
Engineering Ph.D. Program
College of Engineering and Mines
May 2021

Expanded Statement of Institutional Purpose	Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
MISSION STATEMENT: The College of Engineering and Mines (CEM) advances and disseminates technical and scientific knowledge through innovative teaching, research and public service with an emphasis on Alaska and other high-latitude regions. The College promotes students' self motivation to excel and guides them towards professional careers and entrepreneurship in an environment of life-long learning. GOAL STATEMENT: The CEM Engineering Ph.D. program trains doctoral students to perform independent research in one or more of the following concentration areas: Arctic, Civil, Computer, Electrical, Engineering Management, Environmental, Geological, Mechanical, Mining, and Petroleum.	a. Engineering PhD students demonstrate the technical ability and knowledge to function as professionals in their engineering concentration area(s).	Students must pass written and oral comprehensive exams that are developed and administered by their graduate advisory committee.	CEM Engineering PhD Assessment Committee sends the SLOA PhD Assessment Form to student's Graduate Advisory Committee to collect these pass dates.
	b. Engineering PhD students demonstrate the ability to perform independent research in areas associated with their engineering concentration area(s).	Students must pass a thesis defense of their dissertation which demonstrates ability to perform independent research.	CEM Engineering PhD Assessment Committee sends out The SLOA PhD Assessment Form (to be filled out after the student's defense) which surveys the student's graduate advisory committee and asks the committee members to rank the student's abilities in four areas: application of science, communication skill, use of tools and techniques, and ability to perform independent research.
	c. The majority of graduates should enter professional careers in areas associated with their engineering concentration area(s).	Longitudinal tracking information is collected from each graduate of the Engineering PhD program to determine his or her initial placement following graduation.	The SLOA PhD Assessment Form collects the student's initial placement. If student is not employed upon graduation, The CEM Engineering PhD Assessment committee will poll the student and/or primary advisor within 1 year after graduation to determine initial placement.