

Mining Engineering - Bachelor of Science - 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 2021 BS Mining SLOA report was reviewed by the Office of Accreditation and Assessment. No new recommendations were made by the office since the new curriculum came in to effect in AY 21-22. The SLOA plan does not need revision for the new curriculum since the learning outcomes haven't changed. Please refer to the BS SLOA submitted in May, 2021 for details.

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:

BS MIN's ABET outcome assessment cycle is 2 years. However, since the new curriculum came into effect in AY 21-22, complete outcome data were collected for all MIN classes. A total of 7 ABET outcomes (which included communication) were assessed for AY 21-22 period. This period included a change over to a new outcome matrix based on ABET's new outcome assessment template. Please refer to the 2021 BS MIN SLOA for details.

The learning outcomes continue to be met at the program level, and the new classes were received positively by the students. Specifically, students greatly appreciated the introduction of MIN 444 (Accident, Emergency and Safety Management in Mines) and MIN 491 (Automation and Control) as exclusive additions to the curriculum.

The issue of low Faculty strength was resolved with the hiring of a 3rd Tenure track faculty in AY21-22. Now, the total MIN Faculty strength is 3 out of a total sanctioned strength of 4. All 3 Faculty members met several times for curricular review and outcomes assessment.

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:

BS MIN curriculum underwent a complete overhaul during AY21-22. AY 21-22 is the first year featuring the new curriculum. Please refer to 2021 BS MIN SLOA for details of the curriculum change.

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:

No change in majors, Increase in SCH, Decline in degrees awarded, Decline in persistence, Decrease in pass rates
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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.

BS MIN has been plagued by consistent negative public perception issue. However, from a historic low of 12.9% [REDACTED] majors in 2018, the ratio has considerably increased to 20.8% during AY 21-22. The trends are similar to other CEM Majors. The ratio of [REDACTED] students have also increased from 3.23% in 2018 to 16.7% in 2022. MIN Faculty have been in discussion with the Alaska Miners Association (AMA) and Alaska Resource Education (ARE) to significantly increase recruitment and outreach activities targeting High Schools and Middle Schools and try to improve the systemic equity gaps.

Optional Data Explanation

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

No additional information to provide. Please refer to 2021 BS MIN SLOA for further details.

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:

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

Other or None of these (explain)

Submission

Submitter & Collaborator Names

Submitter Email

tghosh@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

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Student Learning Outcomes Assessment Feedback (tags)

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Student Learning Outcomes Assessment Feedback (narrative)

The BS curriculum underwent an extensive revision during AY21-22 and AY 21-22 is the first year assessing the new curriculum so it is too soon to provide much analysis. The ABET compliant SLOA plan shows direct student learning outcomes and a thorough curricular map, but does not state what is used to assess the outcomes consistently for students (such as rubrics). One of the tools is “course assessments” but it is explained how this is done.

Profile Feedback

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Financial Feedback

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Student Success & Equity Feedback

As the report states, the number of majors and degrees has been declining. The department notes that you have a plan for outreach to different organizations such as the Alaska Miners Association (AMA) and Alaska Resource Education (ARE) as well as high schools and middle schools to significantly increase recruitment work to improve systemic equity gaps. The program is correct that the percentage of [REDACTED] students has risen, but this seems to be the result of overall enrollment decline rather than an actual increase in number ([REDACTED] remain at 4). The percentage of [REDACTED] students has increased, with actual numbers going from 2 to 4.

High-Impact Practices Feedback

The program clearly employs high impact practices to engage students. It would be helpful to see some discussion of the tags that you have chosen. While you touch on each of them, it would be helpful to see how you are integrating these practices into the curriculum so that we can guide other programs into greater incorporation of high impact practices.

University of Alaska Fairbanks
Student Learning Outcomes Assessment Plan
Bachelor of Science (Mining Engineering)
 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: As the nation's northernmost accredited Mining Engineering Program, our mission is to advance and disseminate knowledge for exploration, evaluation, development and efficient production of mineral and energy resources with assurance of the health and safety of persons involved, and protection of the environment, through creative teaching, research, and public service with an emphasis on Alaska, the North, and its diverse peoples.	Meet student outcomes as defined by ABET accreditation. See note below & next page. Note: 1. The ABET outcomes changed nationally in Fall 2018. The new Outcome matrix is provided. 2. The communications outcomes defined by ABET meet the requirements of the UAF communication plan. 3. Curriculum change will be in effect from AY 2021-2022. Updated outcome matrix provided.	• Course Assessments • Review of Senior Project by Professionals • Program Review by Faculty • Student Survey • Exit Interview of Graduates	• Course assessment occurs every semester by individual faculty • The senior project is presented to the Alaska Miners Association members. • Program Faculty review the program annually • Students are surveyed for course & program assessment as needed • Exit Interviews are conducted with graduating seniors.
	To graduate competent engineers who: • Apply their engineering skills and knowledge, with consideration to health, safety and the environment • Pursue careers in mineral related industries • Are active among the local and professional mining community • Seek professional advancement of mining engineering technology and practices.	• Placement • Alumni Survey • Employer Survey • Industrial Advisory Board • FE Exam Pass rate	• Department monitors placement • Alumni & employer surveys are done every few years • Program Advisory meets every year*

*New Advisory Board will be constituted once the BOR mandated changes are finalized

B.S. Mining Engineering ABET Outcome Matrix (AY 2018-19, 2019-20, 2020-21)

Outcomes Matrix

Date: 8/23/2018

	MIN 103	MIN 104	MIN 202	MIN 225	MIN 226	MIN 301	MIN 302	MIN 313	MIN 370	MIN 407	MIN 408	MIN 409	MIN 443	MIN 454	MIN 482	MIN 484	MIN 489	MIN 490
1. Apply engg, sci, math				X	X			X	X			X	X	X				
2. Apply engg design						X	X		X			X		X	X	X		X
3. Communicate effectively							X			X	X		X				X	X
4. Ethical/Prof Responsibility		X								X							X	X
5. Team work			X				X		X									X
6. Experiments, data analysis			X				X	X	X									
7. Acquire knowledge, learning strategies	X									X					X	X		X

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering (226,454), science (313), and mathematics (225,370,409,443)
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health (302), safety (301,370,454), and welfare, as well as global (490), cultural(490), social(490), environmental(490), and economic factors (409,482,490)
3. an ability to communicate effectively with a range of audiences (408,489,490)
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global (104,407), economic (407,489,490), environmental (407,489,490), and societal contexts (407,489,490)
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment (202,490), establish goals, plan tasks, and meet objectives (302,370,490)
6. an ability to develop and conduct appropriate experimentation (302,313,370), analyze and interpret data (202,302,313,370), and use engineering judgment to draw conclusions (302,370)
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies (103,407,482,484,490)

B.S. Mining Engineering ABET Outcome Matrix (New Effective AY 2021-22)

Outcomes Matrix - Mining Engineering

Date: 9/30/2020

	MIN 110	MIN 202	MIN 302	MIN 303	MIN 313	MIN 370	MIN 399	MIN 407	MIN 409	MIN 444	MIN 454	MIN 482	MIN 484	MIN 489	MIN 490	MIN 491
1. Apply engg, sci, math	X			X	X	X	X		X	X	X					
2. Apply engg design			X	X		X			X		X	X	X		X	
3. Communicate effectively			X				X	X						X	X	
4. Ethical/Prof Responsibility	X								X		X			X	X	
5. Team work		X	X			X									X	X
6. Experiments, data analysis		X	X		X	X										X
7. Acquire knowledge, learning strategies	X								X		X		X	X	X	X

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering (110,454), science (313,444), and mathematics (303,370,399,409)
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health (302), safety (303,370,454), and welfare, as well as global (490), cultural(490), social(490), environmental(490), and economic factors (409,482,484,490)
3. an ability to communicate effectively with a range of audiences (302,399,407,489,490)
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global (110,407,444), economic (407,489,490), environmental (407,489,490), and societal contexts (407,444,489,490)
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment (202,490), establish goals, plan tasks, and meet objectives (302,370,490,491)
6. an ability to develop and conduct appropriate experimentation (302,313,370,491), analyze and interpret data (202,302,313,370,491), and use engineering judgment to draw conclusions (302,370)
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies (110,407,444,482,484,490,491)