

# Mining Engineering - Master 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 MS Mining SLOA report was reviewed by the Office of Accreditation and Assessment. No new recommendations were made by the office. However, the office did ask for clarification regarding "Remedial Courses" for incoming Graduate students.

Mining Faculty assessment at admission stage indicated that some students needed remedial coursework to prepare them for graduate work in mining engineering. For example, there are interdisciplinary students who are admitted into the Mining graduate program. MS Mining also has students who have Engineering degrees in another discipline, for example, Petroleum Engineering. These students need to take several undergraduate and graduate Mining courses, specific to each student's academic circumstance, to graduate as a Mining Engineer with a MS degree. Remedial coursework, therefore, became part of the graduate study plan for these students. Remedial coursework is sometimes in a specialized skill that a student may not have.

## 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:

Assessment at admission stage indicated that some students needed remedial coursework to prepare them for graduate work in mining engineering. Remedial coursework, therefore, became part of the graduate study plan for these students. Remedial coursework is sometimes in a specialized skill that a student may not have. Student learning outcomes continue to be met. All students passed their defense in the first attempt. Students were in the program approximately 2.5 years. Communication skills of non-English speaking students improved markedly during their education. Students also conducted research at the graduate level, with some being able to publish their work in peer reviewed journals. Placement was appropriate to their education in all cases. All of these indicate that the curriculum and advising is helping achieve necessary outcomes including timely graduation. The mining engineering

research endowment is having a significant impact by providing support for new & continuing students, and boosting enrollment.  
Faculty workload and space challenges continue to constrain the program.

**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:**

Remedial coursework will be required of some incoming students who do not have proper academic background for graduate education and research, even if they meet admission standards. Remedial coursework will be specified by the student's graduate committee.  
The changes to the Department and the Program due to BOR action did not have any significant impact on the Graduate program, however, Faculty strength continue to be a limiting factor in the number of graduate courses that are being offered. The new Tenure track faculty has provided some stability to the graduate program. Covid-19 had a severe effect on enrollment. The number of graduate students have significantly increased post Covid-19 crunch. The department plans to increase graduate enrollment in a phased manner.

**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:

Increase in majors, No change in degrees awarded, Increase in SCH, No change in persistence

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.

Majority of MS Mining students are international students. However, post COVID-19 crunch, the MS program enrollment has increased 300% in the AY 21-22. The student cohort is almost exclusively represented by international and minority groups. [REDACTED] majors remain under-represented with only a single student in the program. The program is constrained by the applicant pool, who are mostly international and require a visa, however, in AY 21-22, one [REDACTED] minority major joined the program which was a hugely positive development. As any other engineering profession, [REDACTED] and minority groups remain under-represented. The situation gets exasperated at the Graduate level. The optimum solution is to try and close the equity gap in the undergraduate level to increase the number of minority and under-represented students at the graduate level.

### Optional Data Explanation

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

Please refer to the 2021 MS 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, Writing-Intensive Courses, Internships

### 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

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### Explanation of Recommendations

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### Student Learning Outcomes Assessment Feedback (tags)

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| Missing a direct measure,Missing curricular connection |
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### Student Learning Outcomes Assessment Feedback (narrative)

The current SLOA plan does not show much direct assessment and seems to reflect outcomes that are more directed to the program than to student learning. Rather than describing what the faculty will be teaching, or what the students will receive, a direct learning outcome should describe what knowledge or abilities the student will gain as a result of being in the program, and how that will be measured. While there are things that the program should consider, such as admission requirements or faculty needs, these are program planning decisions, rather than the results of your assessment of student learning. It is unclear how any of the outcomes are actually assessed, outside of routine coursework or thesis writing. The Accreditation and Assessment Office will follow up to see if we can provide any assistance or resources.

The program has discussed their outcomes and made some curricular revisions to improve communication skills.

### Profile Feedback

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### Financial Feedback

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### Student Success & Equity Feedback

Enrollment in the program has increased, which is a great sign. There are some equity gaps, particularly in the representation of female students, though there is now one woman in the program. The department is aware of this, but notes (probably correctly) that equity gaps need to be addressed at the undergraduate level before changes can be seen at the graduate level. Most of the students in the program are international and minority groups are strongly represented.

### High-Impact Practices Feedback

Graduate students are encouraged to publish, which certainly adds to their professional preparation. Some student activities that are listed under SLOA could be also considered high impact practices: Ability to undertake appropriate research using advanced tools and techniques; scholarly or creative endeavors, and contribute to their discipline; ability to teach, often at the collegiate level.

University of Alaska Fairbanks  
Student Learning Outcomes Assessment Plan  
**MS (Mining Engineering)**  
College of Engineering and Mines  
May 2021

| Expanded Statement of Institutional Purpose               | Intended Objective/Outcomes                                                                                                                                                                                                                                                                                                                                                                                  | Assessment Criteria and Procedures                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Implementation (what, when, who)                                                                                                                                                                                                                          |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To provide a high-quality education in mining engineering | <p><b>Mission Statement:</b></p> <p>Communication skills learning outcome</p> <p>Upon completion of the master's degree, a student at the master's level will demonstrate marked improvement in appropriate oral and written communication skills in the technical aspects of mining engineering.</p>                                                                                                        | <p>For this learning outcome, appropriate assessment rubric that can be used are:</p> <ul style="list-style-type: none"> <li>• Performance in MIN class presentations and reports in graduate level courses;</li> <li>• Successful research presentation and defense;</li> <li>• Research presentation(s) at technical meetings;</li> <li>• Technical papers published in journals (for students in previous accreditation cycle)</li> </ul>                                                  | <p>Assessment done by ALL faculty at admission stage to determine English communication skills</p> <p>Research Product Assessment: Graduate advisory committee at the defense</p> <p>Coursework Assessment: By the instructor during assessment cycle</p> |
|                                                           | <p>Acquisition of Advanced Knowledge, Skills and Competencies achieved by the students:</p> <p>Ability to undertake appropriate research using advanced tools and techniques; scholarly or creative endeavors, and contribute to their discipline; ability to teach, often at the collegiate level; and ability to find employment in the professional field, or a related field.</p>                        | <p>For this learning outcome, appropriate assessment rubric that can be used are:</p> <ul style="list-style-type: none"> <li>• Review of graduate coursework</li> <li>• Review of research</li> <li>• Review of responsible assignments such as teaching or research assistantships</li> </ul>                                                                                                                                                                                                | <p>Research Product Assessment: Graduate advisory committee at the defense</p> <p>Coursework Assessment: By the instructor during assessment cycle</p>                                                                                                    |
|                                                           | <p>High Quality Graduate Program:</p> <p>This is indicated by the quality of incoming students, the performance of students and the quality of the programs as reflected in the grades in given graduate courses, the performance of students on qualifying examinations, the number of refereed journal publications, and the career advancement opportunities obtained after leaving graduate studies.</p> | <p>Review of rubrics during assessment</p> <p><u>Rubrics</u></p> <ul style="list-style-type: none"> <li>• Test scores</li> <li>• MS GPA</li> <li>• Availability of student funding</li> <li>• Industry experience before entering program</li> <li>• Performance in comprehensive exam</li> <li>• Peer review publications of MS work (may only be available after accreditation cycle)</li> <li>• Placement after graduation</li> <li>• Graduate coursework offered by Department</li> </ul> | <p>Assessment done by ALL faculty at admission stage to determine technical competence</p> <p>Program Assessment during assessment cycle</p>                                                                                                              |

*Submitted by: Tathagata Ghosh*