

Geological 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):

No feedback was included prior to this submission, most likely due to the transition to the new SLOA reporting system.

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:

GE faculty collect student work each time a class is offered, and archive it electronically. The collected data includes instructor evaluation of student work (e.g., homework, laboratory exercises, quizzes and exams, written reports, oral presentation slides, and evaluations of students when the presentations were delivered), and pre- and post-course surveys. Each instructor evaluates the materials from his or her class each semester based on the set of performance indicators related to the student outcomes assigned to that class using a 4.0 scale. Anything less than 3.0 triggers action. The faculty typically meet twice a year to evaluate the results of this assessment; minutes of these meetings are stored in a shared Google Drive. The GE program faculty also use indirect assessment methods such as student participation in the national AEG meeting, informal interviews with students following internships, exit interviews with graduating seniors, and results of alumni surveys.

Over the review period, GE261 received a score below 3.0, triggering action. The specific student outcome deals with frozen ground engineering, which is the last topic covered in the course. In 2022, students did not complete the last homework assignment, resulting in poor scores on this topic. The instructor will stress the importance of this topic and completing homework assignments in future course offerings. Additionally, we conducted a review of students who previously triggered action in 2018/19. In subsequent senior-level classes, these students demonstrated exemplary performance, indicating that the student outcome was achieved during their academic 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:

The GE program went through substantial curriculum changes in 2020 due to restructuring requested by the Board of Regents. The current seniors experienced many of the curriculum changes, and the GE faculty will review the exit interview with those students in May to see what issues are raised with the curriculum. As to GE261 triggering a review, the instructor will work on emphasizing the importance of the last topic of the semester and completing homework assignments. We are submitting an updated SLOA, as our Program Educational Objectives and distributions of courses evaluated for each student outcome have changed since the last SLOA submission.

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, Decline in SCH, No change in persistence, No change in pass rates, 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 BS students in Geological Engineering typically are about 40%-60% [REDACTED] to [REDACTED], although in 2022, the majority of the students is [REDACTED]. This ratio is nearly twice that of CEM's, and is positive for the GE program. The program also averages about 30% [REDACTED] students, and tends to be [REDACTED] than traditional college students. Race and ethnicity in the GE program follow trends similar to those of the CEM overall, and reflect the overall demographics of the State of Alaska according to the 2010 census. No persistent equity gaps were identified in the student success data. We will continue to provide a welcoming environment to all students interested in Geological Engineering. In AY20/21, the GE program faculty worked with current students to develop "student testimonial" videos that were added to our webpage. This allows prospective students to see representatives of our student body, and envision themselves here. We will continue to work on outreach efforts, utilizing different venues.

Optional Data Explanation

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

In general, the number of GE majors has been decreasing over the last five years. This trend accompanies multiple years of budget cuts to the university, as well as the proposed cut and subsequent restructuring of the GE program. Negative press has definitely hurt our enrollment. During this five year period, the number of degrees awarded has, on average, been consistent. This is attributed to some students taking longer than four years to graduate. According to the PAIR data, the GE program has a graduation-informed persistence rate of 80% to 90%, which is good, and also reflects that some students take additional time to finish their degrees. The GE graduating class of 2023 will be a large one, which will take an additional toll to the overall enrollment in the program. Despite the overall small number of majors, the GE program faculty saw an uptick in students entering the program in the fall of 2022. This suggests that the period of negative press is ending and that an increase in student enrollment may be on the horizon.

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, Capstone Courses and Projects

Other or None of these (explain)

Submission

Submitter & Collaborator Names

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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)

Thank you, the committee does appreciate your updated SLOA plan. Very Strong - Your report shows strong alignment between the plan, the results, and the analysis done by the program. The committee is interested to know how you assess student work in alignment with the SLO. If you use a series of rubrics, this could be good information to share in your upcoming full program review.

Profile Feedback

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Financial Feedback

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Student Success & Equity Feedback

The committee recognizes the conscious effort made to attract [REDACTED] students, and to provide a welcoming environment for all students. The program has also provided a reflective discussion of why they do not identify equity gaps in the Geological Engineering programs and CEM overall. The uptick in admissions for GE is a positive trend to monitor.

High-Impact Practices Feedback

The program supports some positive high impact practices. Overall, university field internships are widely viewed as a high impact practice. Such practices tend to be high predictors of student learning and engagement. So, even though not a program requirement, the committee recognizes the effort made to have your students participate with internships as well as undergraduate research and working with faculty on current research projects.
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UNIVERSITY OF ALASKA FAIRBANKS
Student Learning Outcomes Assessment Plan
Bachelor of Science in Geological Engineering
 College of Engineering and Mines
 October 31, 2022

Expanded Statement of Institutional Purpose	Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
MISSION STATEMENT: To advance and disseminate knowledge related to geologic hazard assessment; engineering site selection; construction and construction material production; groundwater and geo-environmental engineering; and mineral and energy exploration, evaluation, development and production, through creative teaching, research and public service with an emphasis on Alaska, the North and its diverse peoples. STATEMENT OF EDUCATIONAL OBJECTIVES OF THE GEOLOGICAL ENGINEERING BS PROGRAM: 1) Our graduates use their broad education to serve as the foundation of successful careers in geological engineering and/or related fields in the public or private sectors, and/or graduate education. 2) Our graduates possess technical knowledge required to meet the unique challenges of geological engineering problems, especially those germane to cold regions including Alaska. 3) Our graduates demonstrate professionalism through clear communication, actively serving the	(1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	DIRECT (embedded assignments): GE261, GE326, GE405 INDIRECT: graduating senior exit survey	Every offering by pertinent course instructor Every year, coordinated by GE480 instructor
	(2) An ability to apply engineering design to produce solutions that meet specific needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	DIRECT (embedded assignments): GE381/382, GE480, GE376, GE440 INDIRECT: graduating senior exit survey	Every offering by pertinent course instructor Every year, coordinated by GE480 instructor
	(3) An ability to communicate effectively with a range of audiences	DIRECT (embedded assignments): GE101, GE375, GE381/382, GE480, <u>including written reports and oral presentations</u> INDIRECT: graduating senior exit survey	Every offering by pertinent course instructor Every year, coordinated by GE480 instructor
	(4) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	DIRECT (embedded assignments): GE101, GE420, GE480 INDIRECT: graduating senior exit survey	Every offering by pertinent course instructor Every year, coordinated by GE480 instructor
	(5) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	DIRECT (embedded assignments): GE326, GE405 INDIRECT: graduating senior exit survey	Every offering by pertinent course instructor Every year, coordinated by GE480 instructor
	(6) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to	DIRECT (embedded assignments): GE326, GE405, GE420 INDIRECT: graduating	Every offering by pertinent course instructor Every year, coordinated by

Submitted by: Margaret Darrow

community, teamwork, commitment to ethical standards, and life-long learning.	draw conclusions	senior exit survey	GE480 instructor
	(7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	DIRECT (embedded assignments): GE375, GE420, GE480, GE376, GE441	Every offering by pertinent course instructor
		INDIRECT: graduating senior exit survey	Every year, coordinated by GE480 instructor
	(8) A knowledge of engineering applications as related to geological resources and geohazards in Alaska and an ability to practice engineering in Arctic-related projects	DIRECT (embedded assignments): GE261, GE375, GE381/382, GE376, GE441	Every offering by pertinent course instructor
		INDIRECT: graduating senior exit survey	Every year, coordinated by GE480 instructor