

Academic Program Assessment Report

Academic Year(s) Assessed: 2024-2025

College: College of Agriculture and College of Engineering

Department: Agricultural Economics & Economics and Mechanical and Industrial Engineering

Department Head: Dr. Eric Belasco and Dr. Dilpreet Bajwa

Submitted by: Dr. Carly Urban

Program(s) Assessed

List all majors (including each option), minors, and certificates that are included in this assessment – add or subtract rows as needed – please use official titles:

Majors	Minors, Options, etc.
Financial Engineering (BS)	Financial Engineering (Minor)

Section 1. Past Assessment Summary.

Response: Last year, PLO E (Recognize professional and ethical responsibilities in the conduct of their work and make informed judgements that consider cultural, societal, and environmental impacts) was assessed using data from a random sample of EIND 300 and EFIN 301 assignments. We supplemented the data with job placement and exit interview data. This feedback informed this year's cycle, but it did not change our assessment plan.

Section 2. Institutional Assessment Data Request.

Based on the rationale on the Instructions page, please review your program learning outcomes (PLOs) and identify whether you have PLOs that address the Core Qualities. **There are no right or wrong answers.**

Identify 1-2 major-required courses that might have student assignments designed to meet these objectives at least at a surface level. If you cannot identify a course in your program that aligns with this request, please check the appropriate box. At this juncture, this is for information gathering as we plan future institutional assessment endeavors.

Core Quality LOs are Institutional Learning Outcome (ILO)	PLO overlaps with MSU Core Quality Mark X if program has at least one PLO that overlaps with an ILO	Beginning Level e.g. CORE Courses (US, W, Q, IN, CS, IA, IH, IS, D)	Developing Level e.g. list one 200- or 300-level course	Proficient Level e.g. list one 300- or 400-level courses, Capstone, Research (R) Core courses	Not Applicable (N/A) No course exists in our program that addresses this Core Quality / ILO
Thinkers & Problem Solvers	X	Core classes are designed to address an introductory, foundational level of Core Qualities. Some may overlap into the developing level, but most intermediate-to-developing or proficient/mastery level courses will exist within the majors.	EFIN 301	EFIN 499R, EFIN 401	
Effective Communicators	X		EFIN 301	EFIN 499R	
Local & Global Citizen	X		ECNS 251IS	EFIN 499R	

Section 3. Actionable Research Question for Your Assessment.

Response: This cycle's assessment focuses on whether students can apply knowledge of mathematics, economics, engineering, and computing to identify, formulate, design and assess solutions.

- Can students answer exam questions to demonstrate applied math, economics, engineering, and computing knowledge?
- Are student job placements reflecting this knowledge?

Section 4. Assessment Plan, Schedule, and Data Sources.

- Did you change the previously established Assessment Plan Schedule. If yes, how was it changed?

No

- Please provide a multi-year assessment schedule that will show when all program learning outcomes will be assessed, and by what criteria (data). List your PLOs in full for reference. Add rows as necessary.

PROGRAM LEARNING OUTCOME (Student Outcomes)	2023- 2024	2024- 2025	2025- 2026	2026- 2027	<i>Data Source*</i>
A. Apply knowledge of mathematics, economics, engineering, and computing to identify, formulate, design and assess solutions		X			EFIN 401 Exam
B. Analyze data, interpret results, and draw appropriate conclusions			X		EFIN 301 Final Project
C. Communicate effectively with a range of audiences				X	EFIN 499 Final Project
D. Function effectively on inter-professional teams				X	EFIN 499 Final Project
E. Recognize professional and ethical responsibilities in the conduct of their work and make informed judgements that consider cultural, societal, and environmental impacts	X				EIND 300 Assignment

- c) What are the threshold values for which your program demonstrates student achievement? Provide a rationale for your threshold values.
- A benchmark of 75% of sampled students earning a passing grade was established as a reasonable and evidence-based indicator of program effectiveness and student learning. This threshold reflects the expectation that a strong majority of students who have engaged with the curriculum and instructional support should be able to demonstrate competency in the program's learning outcomes.

Threshold Values		
PROGRAM LEARNING OUTCOME	Threshold Value	Data Source
EXAMPLE		
Apply knowledge of mathematics, economics, engineering, and computing to identify, formulate, design, and assess solutions.	The threshold value for this outcome is for 75% of assessed students to score above 2 on a 1-4 scoring rubric.	A random sample of 3 out of 14 students in EFIN 401 from Exam 2, Q1.

Section 5. What Was Done?

- a) Self-reporting Metric (required answer): Was the completed assessment consistent with the program's assessment plan? If not, please explain the adjustments that were made.

☒

Yes

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No

- b) How was the data collected and analyzed and by whom? Please include method of collection and sample size.

For PLO A, which assesses the ability to apply knowledge of mathematics, economics, engineering, and computing to identify, formulate, design, and assess solutions, the data were collected from Exam 2 Question 1 from EFIN 401 (Fall 2024). Eric Belasco evaluated 3 randomly selected exams from all students taking the test (N=14).

Data Collected	Exam 2
Course and Semester	EFIN 401, Fall 2024
Assessment Method	Faculty Evaluation using rubric
Sample	Random Sample of 3 Exams (out of 14)
Threshold	75% of students with scores above 2 on a 1-4 scoring rubric
Results	100% scored above a 2 (average score of 3.7)
Comparison to Benchmark	Exceeds

c) Please provide a rubric that demonstrates how your data was evaluated.

Indicators	Beginning - 1	Developing- 2	Competent- 3	Accomplished- 4
Application of mathematics, economics, engineering, and computing	Does not demonstrate a basic understanding of mathematics, economics, engineering, and computing	Demonstrates only a basic understanding of mathematics, economics, engineering, and computing	Demonstrates a solid level of understanding of mathematics, economics, engineering, and computing	Demonstrate a high-level of understanding of mathematics, economics, engineering, and computing
Identifies, formulates, designs, and assesses solutions	Solutions do not reflect a basic understanding of application	Solutions reflect only a basic understanding of application	Solutions reflect a solid level of understanding of application	Solutions reflect a high-level level of understanding of application

Definition of Levels of Attainment:

- 4) Accomplished = Student demonstrates greater knowledge, skill or ability than is expected of a graduating senior engineering student.
- 3) Competent = Student demonstrates sufficient knowledge, skill or ability expected of a graduating senior engineering student.
- 2) Developing = Student demonstrates less knowledge, skill or ability than is expected of a graduating senior engineering student.
- 1) Beginning = Student does not demonstrate adequate knowledge, skill or ability for a graduating senior engineering student.

Exit Interview Data

We collected data from graduates in an exit interview. The following is a summary of the key points taken from the EFIN students Capstone Exit Interviews regarding the EFIN 499 course as well as the overall program.

Capstone

What worked well:

1. Students thoroughly enjoyed the real-world aspect of the course: working with real clients, with real data, and for real, high-stakes impact. Students believed these partnerships offered authentic challenges, meaningful impact, and professional growth.
2. Students believed their projects were relevant and well suited and provided the ability to utilize their core financial engineering skills, including econometrics, risk management, operations research, and software engineering.
3. Guest lectures were considered VERY beneficial by most of the students. Some mentioned they appreciated the technical lectures later in the semester. Certain students voiced that they preferred lectures around roles and industry structure over generic career advice or project management content. They appreciated David Brower and Dr. Faraz for guidance, material, and mentorship.
4. Students appreciated having the dedicated EFIN focused course, rather than being folded into the broader EIND program. A substantial number of students mentioned the benefits of having an EFIN focused course, including more relevant and better-aligned

guest lectures, stronger connections to EFIN principles, more independence versus being just another offshoot of the IMSE program.

Summarized Student Recommendations:

The Curriculum & Capstone

- Consider starting Capstone to a two-semester model with fall prep and spring execution.
- Consider EFIN 200-level course to build early identity and cohesion.
- Replace EIND 373 with a finance/accounting course.
- Review the EFIN curriculum for overlapping content across departments.

Industry & Career Alignment

- Expand sponsor industries beyond insurance (students found this was mostly true for Capstone sponsors).
- Promote the program externally to employers and alumni (many students feel like the program and student skillsets are not well understood but highly needed).

Student Support & Engagement

- With advising: help with career preparedness, such as helping translate skills to specific roles in industry, career mapping, mentorship, and networking opportunities.
- Help EFIN majors “sell themselves” to future employers
- Encourage pursuing internships

Job Placement Data

We collected job placement data from program graduates. 89% of the Financial Engineering graduates whose job placement information is available (85 out of 100 students) from 2016–2025 are employed. 79% of all graduates (both employed and those whose job placement status is known) are in relevant roles, as 88% of employed graduates are working in occupations related to their degree.

- For 2024, 71% of the 7 graduates with known job placement status are employed, and 100% of them are in relevant roles.
- For 2025, 100% of the 10 graduates with known job placement status are employed, and 90% of them are in relevant roles.

Given that 89% of all graduates for whom we have job placement information from 2016-2025 are employed, and 88% of their positions are in a related field, we can conclude that 79% of our graduates have found relevant jobs. This is above the 75% threshold, indicating that the program prepares students well for the job market

For 2023, 80% of our graduates are in relevant roles, with some gravitating toward consulting and technical fields (e.g., software engineering and data analytics). This shift likely stems from the high demand for transferable skills in these areas.

In 2024, 100% of employed graduates are in relevant fields, but the overall employment rate dropped to 71%, signaling challenges in job placement rather than field misalignment. The move toward other fields is driven by broader skill applicability and market demand.

In 2025, the program demonstrated a significant rebound with a 100% employment rate among graduates with known outcomes. A high proportion, 90%, of these roles were in relevant fields. This cohort also marked a strong return to the program's core strengths, with 80% of employed graduates taking finance-related positions, indicating renewed demand in the primary job sector.

Section 6. What Was Learned.

- a) Based on the analysis of the data, and compared to the threshold values established, what was learned from the assessment?

Students are learning relevant skills across all disciplines within this program (mathematics, economics, engineering, and computing). They are then showing their ability to apply the skills by getting jobs in their fields at high rates.

- b) What areas of strength in the program were identified from this assessment process?

The program pairs the interdisciplinary nature and rigorous curriculum with strong post-graduation outcomes.

- c) What areas were identified that either need improvement or could be improved in a different way from this assessment process?

Students would like even more industry-specific integration in the late phase of their academics to even better their link to future jobs. We will ask this specifically in future exit surveys.

Section 7. How We Responded.

- a) Describe how “What Was Learned” was communicated to the department, or program faculty. How did faculty discussions re-imagine new ways program assessment might contribute to program growth/improvement/innovation beyond the bare minimum of achieving program learning objectives through assessment activities conducted at the course level?

Program faculty met to discuss the findings. In particular, EFIN 499R and EFIN 301 faculty members talked to figure out how to better incorporate industry into the coursework.

- b) How are the results of this assessment informing changes to enhance student learning in the program?

More discussion of industry opportunities will begin with EFIN 101. EFIN 201 will begin in the 2026-27 AY, which will allow for even more discussion of industry connection and application of the mathematics, economics, engineering, and computing knowledge in PLO A.

- c) If information outside of this assessment is informing programmatic changes, please describe that.
NA.

Evaluation Schedule, AY 2022-23 – AY 2028-29

		Academic Year						
Data		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
1	Job Placement	X	X	X	X	X	X	X
2	EAB Review	X	X	X	X	X	X	X
3	Internship Interviews	X	X	X	X	X	X	X
4	Alumni Survey	X					X	
5	Curriculum Review	X		X		X		X
6	Senior Exit Interviews	X	X	X	X	X	X	X
7	Course Reviews ¹	ECNS 460 ECNS 309 ECNS 301	EIND 364 EIND 300 EIND 457	EFIN 101 EFIN 401 EFIN 405	EIND 468 EFIN 301 EFIN 305	ECNS 461 ECNS 313 EFIN 499	EIND 354 EIND 464	EIND 373 EGEN 325 ECNS 345
8	Embedded Outcomes Assessment (EOA)	c, d	e	a	b	c, d	e	a
	EOA Data Source	EFIN 499	EIND 300	EFIN 401	EFIN 301	EFIN 499	EIND 300	EFIN 401
9	Assessment and Outcomes Committee Feedback	X	X	X	X	X	X	X

- d) What support and resources (e.g., workshops, training, etc.) might you need to make these adjustments?

Additional meetings of the EFIN steering committee will facilitate coordination across courses to ensure we increase industry discussion in several courses. We will also use more university career services to facilitate coordination of industry and coursework.

Section 8. Closing the Loop(s).

Reflect on the program learning outcomes, how they were assessed in the previous cycle (refer to #1 of the report), and what was learned in this cycle about any actions stemming from the previous cycle.

- a) Self-Reporting Metric (required answer): Based on the findings and/or faculty input, will there be any changes made (such as plans for measurable improvements, realignment of learning outcomes, curricular changes, etc.) in preparation for upcoming assessments?

Yes ☐

No ☒

- b) In reviewing the last report that assessed the PLO(s) in this assessment cycle, what changes proposed were implemented and will be measured in future assessment reports? What action will be taken to improve student learning objectives going forward?

None at this time. We revised our assessment schedule during 2022-23 to ensure it aligns with program feasibility while still covering all aspects of the curriculum. As highlighted in section 7c, this new schedule better reflects the time and resources available for comprehensive assessment across all PLOs, ensuring continuous evaluation of student outcomes.

- c) Have you seen a change in student learning based on other program adjustments made in the past? Please describe the adjustments made and subsequent changes in student learning.

Yes, curriculum adjustments, particularly in course sequencing, have led to improved alignment with industry expectations. These changes, driven by senior exit interviews, alumni surveys, and discussions within the Financial Engineering Steering Committee, have resulted in better-prepared students, particularly in the integration of technical and professional skills. These improvements will continue to be assessed and refined in future cycles.

- d) If the program sees anything emerging from this assessment cycle that it anticipates would be a factor or an item of discussion in its 7-year program review cycle, please use this space to document that for future reference.

An evaluation of PLO A in EFN 401 suggests that students are learning to apply knowledge of mathematics, economics, engineering, and computing to identify, formulate, design and assess solutions in coursework. Job placement in the field of Financial Engineering further verifies this.

Submit report to programassessment@montana.edu
Update Department program assessment report website.
Update PLO language in CIM if needed ([Map PLOs to Course LOs](#))