

Assurance of Student Learning Reflection 2024-2025

Ogden College of Science and Engineering	School of Engineering and Applied Sciences
<i>Computer Science 117</i>	
<i>Interim Co-Directors: Mark Cambron, Guangming Xing, Program Coordinator: Guangming Xing</i>	
Is this an online program? ☐ Yes ☒ No	Please make sure the Program Learning Outcomes listed match those in CourseLeaf. Indicate verification here ☒ Yes, they match! (If they don't match, explain on this page under Evaluation)

Instructions: For the 2024-25 assessment, we are asking you to reflect on the last three-year cycle rather than collect data. It's important to take time to look over the results from the last assessment cycle and really focus on a data-informed direction going forward. In collaboration with your assessment team and program faculty, review each submitted template from 2021-2024 and consider the following for each Program Learning Outcome, add your narrative to the template, and submit the draft to your **ASL Rep** by **May 15, 2025**.

Program Student Learning Outcome 1	
Program Student Learning Outcome	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
Evaluation	Using the last three assessment cycles, is this program learning outcome still relevant, or should it be changed? If it has recently changed, please explain. Other things to examine: Is the outcome measurable? Is it double or triple barreled? Does it include measurable verbs following Bloom's Taxonomy? Do you have the appropriate numbers of SLOs to measure regularly? Please consider choosing the most important. This outcome remains highly relevant and central to the field of computer science. No revision is needed at this time. It aligns well with industry expectations and ABET accreditation standards.
Measurement Instruments	Are the measurement instruments actually measuring the outcome? If you change the SLO, is this still the best instrument to use? Is this a direct or indirect measure? Is your artifact appropriate? If not, what other options are there? Will the rise in the use of AI affect the assignment and measurement? If there are rubrics, do they need to be altered to better fit the learning outcome? Does the rubric (if using) work or does it need to be adjusted? The measurement instruments used have included project-based assignments, capstone projects in courses such as CS 339 and CS 496. These instruments effectively measure the outcome through direct assessment. Rubrics were developed and used, but they could benefit from refinement to better differentiate levels of performance, especially in evaluation. AI may impact how implementation is measured, requiring closer scrutiny of individual student contributions.
Criteria & Targets	Does Criteria for Success (level of performance students will have achieved for your program to have been successful--ex., students will have earned 4/5 for documentation and citation on capstone essays) need to be changed? What about targets? If you have successfully made your targets consistently, consider a more challenging target.

	The current criteria of 70% of students achieving at proficient level on relevant rubric components has been consistently met.
Results & Conclusion	<u>Results:</u> Are the results what was expected or not? What stood out in the assessment cycle over the past three years? Explain <u>Conclusions:</u> What worked? What didn't? Why do you think this? For example, maybe the content in one or more courses was modified; changed course sequence (detail modifications); changed admission criteria (detail modifications); changed instructional methodology (detail modifications); changed student advisement process (detail modifications); program suspended; changed textbooks; facility changed (e.g. classroom modifications); introduced new technology (e.g. smart classrooms, computer facilities, etc.); faculty hired to fill a particular content need; faculty instructional training; development of a more refined assessment tool. Student performance has consistently met or exceeded targets. Projects demonstrate the ability to design and implement solutions. Strengths include scaffolding across the curriculum and integration of design projects. Weaknesses include limited structured evaluation practice in early courses. Some students struggle with evaluating alternative solutions, which suggests that this skill may need to be emphasized earlier in the curriculum.
<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	As we work hard to improve our assessment practices and make them more meaningful and effective, it's important each program craft a three-year plan for the following assessment cycle (2025-26, 2026-27, 2027-28) – this process assists in “closing the loop.” For example, you may decide to: • collect a more appropriate artifact • create new program outcomes • adjust targets because they are consistently exceeded or not met • need to reconstruct your curriculum map • sequencing of classes might need to be adjusted, or additional class(es) provided Whatever your plan is, provide a narrative, in future tense, that indicates how you will approach future assessments. You will be expected to implement any needed changes before the next assessment cycle. We will continue to follow the same assessment requirements as required by ABET. We will also explore integrating tools to ensure academic integrity as AI tools become more common.

Program Student Learning Outcome 2

Program Student Learning Outcome	Communicate effectively in a variety of professional contexts.
Evaluation	Using the last three assessment cycles, is this program learning outcome still relevant, or should it be changed? Other things to examine: Is the outcome measurable? Is it double or triple barreled? Does it include measurable verbs following Bloom's Taxonomy? This outcome remains relevant and measurable. It is measurable via written, oral means. It focuses clearly on communication in professional settings. No changes are recommended.
Measurement Instruments	Are the measurement instruments actually measuring the outcome? If you change the SLO, is this still the best instrument to use? Is this a direct or indirect measure? Is your artifact appropriate? If not, what other options are there? Will the rise in the use of AI affect the assignment and measurement? If there are rubrics, do they need to be altered to better fit the learning outcome? Does the rubric (if using) work or does it need to be adjusted? We primarily relied on project work in CS 360 and CS 396, where students implemented software systems or analyzed technical problems. These are direct measure. We used oral presentations in CS 396 and written reports in CS 360 and CS 496. These are direct measures. Rubrics for both oral and written communication exist and function well but could include more explicit references to professional context. AI tools like ChatGPT may affect writing authenticity, so we need to evaluate how best to ensure originality.
Criteria & Targets	Does Criteria for Success (level of performance students will have achieved for your program to have been successful (ex., students will have earned 4/5 for documentation and citation on capstone essays) need to be changed? What about targets? The target has been that 70% of students score 4/5 or higher on oral and written communication rubrics. This target has mostly been met.
Results & Conclusion	<u>Results</u>: Are the results what was expected or not? What stood out in the assessment cycle over the past three years? Explain <u>Conclusions</u>: What worked? What didn't? Why do you think this? For example, maybe the content in one or more courses was modified; changed course sequence (detail modifications); changed admission criteria (detail modifications); changed instructional methodology (detail modifications); changed student advisement process (detail modifications); program suspended; changed textbooks; facility changed (e.g. classroom modifications); introduced new technology (e.g. smart classrooms, computer facilities, etc.); faculty hired to fill a particular content need; faculty instructional training; development of a more refined assessment tool. Presentations in CS 396 showed improvement after instructor feedback was emphasized. The requirement of writing across multiple courses has helped. Increased student use of AI writing tools may have contributed to more polished but less authentic writing.

<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	As we work hard to improve our assessment practices and make them more meaningful and effective, it's important each program craft a three-year plan for the following assessment cycle (2025-26, 2026-27, 2027-28) – this process assists in “closing the loop.” For example, you may decide to: • collect a more appropriate artifact • create new program outcomes • adjust targets because they are consistently exceeded or not met • need to reconstruct your curriculum map • sequencing of classes might need to be adjusted, or additional class(es) provided Whatever your plan is, provide a narrative, in future tense, that indicates how you will approach future assessments. You will be expected to implement any needed changes before the next assessment cycle. We will continue to follow the same assessment requirements as required by ABET. Going forward, we plan to revise writing assignments to require reflections or annotations explaining AI use.

Program Student Learning Outcome 3	
Program Student Learning Outcome	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
Evaluation	Using the last three assessment cycles, is this program learning outcome still relevant, or should it be changed? Other things to examine: Is the outcome measurable? Is it double or triple barreled? Does it include measurable verbs following Bloom's Taxonomy? The outcome is still relevant, measurable, and clearly worded. It reflects a key ABET and industry expectation. No revisions needed.
Measurement Instruments	Are the measurement instruments actually measuring the outcome? If you change the SLO, is this still the best instrument to use? Is this a direct or indirect measure? Is your artifact appropriate? If not, what other options are there? Will the rise in the use of AI affect the assignment and measurement? If there are rubrics, do they need to be altered to better fit the learning outcome? Does the rubric (if using) work or does it need to be adjusted? Instruments have included peer evaluation forms, team project reflections, and instructor assessments in CS 360 and CS 496. These are direct measures and effectively capture team-related behaviors. However, rubrics vary between instructors, and we are working a standardized format. Peer evaluation may also be affected by student bias.
Criteria & Targets	Does Criteria for Success (level of performance students will have achieved for your program to have been successful (ex., students will have earned 4/5 for documentation and citation on capstone essays) need to be changed? What about targets? Target has been that 70% of students meet or exceed expectations in teamwork roles and collaboration. This target has been consistently met.

Results & Conclusion	<u>Results:</u> Are the results what was expected or not? What stood out in the assessment cycle over the past three years? Explain <u>Conclusions:</u> What worked? What didn't? Why do you think this? For example, maybe the content in one or more courses was modified; changed course sequence (detail modifications); changed admission criteria (detail modifications); changed instructional methodology (detail modifications); changed student advisement process (detail modifications); program suspended; changed textbooks; facility changed (e.g. classroom modifications); introduced new technology (e.g. smart classrooms, computer facilities, etc.); faculty hired to fill a particular content need; faculty instructional training; development of a more refined assessment tool. Teams function well when guided, but student reflections indicate difficulty in resolving conflicts or distributing tasks evenly. Conclusions: Instructor-facilitated check-ins and team charters improved results. Projects with more structured roles helped identify leadership skills. Peer evaluations were most useful when anonymous. Discrepancies in expectations between instructors indicate a need for unified assessment practices.
<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	As we work hard to improve our assessment practices and make them more meaningful and effective, it's important each program craft a three-year plan for the following assessment cycle (2025-26, 2026-27, 2027-28) – this process assists in “closing the loop.” For example, you may decide to: • collect a more appropriate artifact • create new program outcomes • adjust targets because they are consistently exceeded or not met • need to reconstruct your curriculum map • sequencing of classes might need to be adjusted, or additional class(es) provided Whatever your plan is, provide a narrative, in future tense, that indicates how you will approach future assessments. You will be expected to implement any needed changes before the next assessment cycle. We will continue to follow the same assessment requirements as required by ABET. We plan to implement a standardized teamwork rubric across all relevant courses and include training for faculty on its use. We will collect additional artifacts to compare self and peer assessments and identify areas for support.

To add more outcomes, if needed, select the table above and copy & paste below.