

Assurance of Student Learning Reflection 2024-2025

Ogden	Chemistry and Biochemistry
Chemistry, Master of Science (059)	
Lawrence Hill (lawrence.hill@wku.edu)	
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	Communicate effectively in written form.
Evaluation	Rubric analysis of literature reviews written by the students in CHEM 516 (Chemical Literature Review) One draft literature review and one final version of the literature review were submitted by each student. These review papers were based on content related to each student's research interests. This outcome is still relevant. Written communication is a key skill for scientists.
Measurement Instruments	The instrument was assessed in a fashion consistent with the Written Communication VALUE Rubric from AAC&U. Basic parameters for <i>Context, Content, Conventions, Sources, and Syntax</i> were rated on the 1 to 4 scale.
Criteria & Targets	There should be an increase in rubric scores from the first paper drafts to the final paper. Students should score an average of 2.6 out of 4 on the final report.
Results & Conclusion	<u>Results:</u> Students are meeting the target and we see no benefit to student outcomes to change the target at this time. <u>Conclusions:</u> Students are improving their writing in CHEM 516 by working with their research advisors on their papers and being guided by the instructor of the course.

<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	This SLO seems to be working well. We will continue to monitor student outcomes going forward.
--	--

Program Student Learning Outcome 2	
Program Student Learning Outcome	Communicate effectively in oral form
Evaluation	Students deliver two oral presentations as a program requirement. One presentation is on literature, which is usually based on the literature review that students write for CHEM 516 in the previous semester. The second presentation is on their research, which is delivered in a semester after the literature seminar. We expect students' presentations to improve as they move through the program. Students met with the course instructor after each seminar to discuss feedback from the faculty who attended the seminar and completed the rubric. This outcome is still relevant. Oral communication is a key skill for scientists.
Measurement Instruments	Rubric analysis of oral presentations in CHEM 598 (Graduate seminar) Students taking CHEM 598 will be scored using an Oral Communication Rubric. The instrument was assessed in a fashion consistent with the Oral Communication VALUE Rubric from AAC&U. Basic parameters for <i>Organization, Language, Deliverys, Supporting Material, and Central Message</i> were rated on the 1 to 4 scale. The instructor and audience faculty scored these students.
Criteria & Targets	There should be an increase in rubric scores from the literature review presentation compared to the research presentation. Students should score an average of 2.6 out of 4 on the research presentation.
Results & Conclusion	Results: Students are meeting the target and we see no benefit to student outcomes to change the target at this time. Conclusions: Overall, the scores showed improvement after the first presentation. The quality of the presentations generally improved, and the target was achieved. We will continue to assess students' oral presentation quality in the upcoming year.
<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	We will have a new instructor for this course in fall 2025 who is considering including more instruction on presentation skills and having students write short summaries after their presentations. We will continue to monitor student outcomes going forward and we may include additional items at a later date.

Program Student Learning Outcome 3	
Program Student Learning Outcome	Design and propose effective experiments.
Evaluation	Rubric analysis of research proposals in CHEM 588 (Research Proposal) CHEM 588 is an online course where each student submits a research proposal on a topic related to their active research using the guidelines

	for the WKU Graduate Student Research Grants program. Students were given due dates for each secondary proposal piece (title, SciFinder search, statement of the research problem, plan of procedure, budget and justification) and they receive feedback on each of these submissions before compiling a final proposal for the course. Students are encouraged to meet with the instructor to discuss feedback on each proposal piece as it is graded, and students with low scores are permitted to resubmit each assignment once after discussing the feedback. The course is very formative in nature with the intention of helping students grow their proposal writing skills. This outcome is still relevant. Designing and proposing experiments is a key skill for scientists. The main area for improvement in CHEM 588 is to clarify proposal writing expectations for students and possibly update the rubric based on these expectations. These changes will occur in summer 2025.
Measurement Instruments	The instrument was assessed in a fashion consistent with the Written Communication VALUE Rubric from AAC&U. Basic parameters for <i>Context, Content, Conventions, Sources, and Syntax</i> were rated on the 1 to 4 scale.
Criteria & Targets	Students should score an average of 3.0 out of 4 on the final proposal.
Results & Conclusion	<u>Results:</u> Students are meeting the target and we see no benefit to student outcomes to change the target at this time. <u>Conclusions:</u> Students are learning to design and propose experiments in CHEM 588 by working with their research advisors on their papers and being guided by the instructor of the course.
<u>**IMPORTANT - Plans for Next Assessment Cycle:</u>	The course instructions will be updated before fall 2025 to and we will continue to monitor student outcomes using the current rubric, possibly with modifications to the rubric based on the changes to the course.

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