Academic year 2024-2025

BS in Chemistry - BS-CHMS Learning Outcomes

Oral Communication Skills

Undergraduate Chemistry students will demonstrate competency in oral communication skills.

MEASURES	RESULTS	ACTIONS
Oral Communication Assessment Undergraduate students will make a formal presentation at the end of a senior level course. A committee of reviewers will evaluate the presentations using the following assessment rubric developed by the chemistry faculty members. This was chosen because these are skills in which our undergraduates must exhibit competency as working chemists. An indirect assessment will also be performed as a survey after the completion of the senior level course. *Chemical Communication: CHEM 4381* **Target** 80% of students will score an average of 3.3/4.0 on the rubric. Oral Communication Assessment Rubric.pdf	MET **Analysis** 84 % of the students scored an average of 3.3/4.0 or above on the rubric. The average score was 3.4/4.0. The oral presentation skills of chemistry undergraduate students were assessed during a formal presentation at the end of a senior level course and assessed by a review committee. More students were assessed this year when compared with the previous year. According to this year's results from the rubric, preparedness was the weakest component. We will mainly focus on improving preparedness next year. The survey results after completing their research project/final class/capstone indicated that about 63% of the students feel ready to give an oral presentation.	**Additional Training** **Not Started** Since the weakest component was preparedness, we plan to emphasize the importance of practicing in advance and as much as they can. We plan to offer more opportunities for students to practice giving oral presentations as course or research project assignments. Recommended Due Date: 06/01/2026

Scientific Writing Skills

Undergraduate Chemistry students will demonstrate expertise in standard scientific writing and the use of English in preparing reports.

MEASURES	RESULTS	ACTIONS

Scientific Writing Assessment In CHEM 4×71 Introduction to Research, and CHEM 4381 Chemical Communications, Scientific writing skills of undergraduate students will be evaluated by a committee of reviewers using an assessment rubric developed by the chemistry faculty members. An indirect assessment will also be performed as a survey after the completion of the senior level course. Students will score an average of 2.75 on the rubric. *Chemical Communication: CHEM 4381* **Target** 80% of students will score an average of 3.3 on the rubric. Written Communication Assessment Rubric.pdf	MET **Analysis** 79% of students scored an average of 3.3/4.0 or above on the rubric. The average score was 3.7/4.0, which is well above our expectations for students being proficient in this area. Undergraduate Chemistry students scientific writing skills were assessed by a review committee as part of a CHEM 4×71 Introduction to Research, and CHEM 4381 Chemical Communications course. The topics of assignments to evaluate writing skills were more focused on broad chemistry topics this year when compared with previous years. The survey results after completing their research project/final class/capstone indicated that half of the students feel confident to write reports of any kind.	**Maintain Assessment Strategy** The action plan is to continue to have more broad topics in chemistry to offer students more opportunities to write on topics more related to their expected field of interests. We anticipate that this will impact the average score and the percentage of students who score 3.3/4.0 and above will increase. According to this year's results from the rubric, we will mainly focus on improving the quality of information presented during the written assignments.

Chemical Research Performance

Our students will be able to effectively perform chemical research at an introductory level.

MEASURES	RESULTS	ACTIONS
Chemical Research Performance Assessment Chemistry majors in CHEM 4×71 (Introduction to Research courses where x = 2, 3, 4 credit hours) are trained to function as professional chemists. A review committee will evaluate a representative section of final research presentations using the following assessment rubric developed by the chemistry faculty members. This was chosen because these are skills in which our undergraduates must exhibit competency as working chemists. An indirect assessment will also be performed as a survey after the completion of the senior level research course. Students will score an average of 3.0/4.0 on the rubric. *Introduction to Research: CHEM 4471* **Target** 80% of students will score an average of 3.3/4.0 on the rubric. Research Perfomance Assessment Rubric.pdf	NOT MET **Analysis** 74% of students scored an average of 3.3/4.0 or above on the rubric. Average score was 3.6/4.0. A committee evaluated the students' research results using a rubric developed by the chemistry faculty members. Committee were external and internal qualified chemists. The survey results after completing their research project/final class/capstone indicated that 35% of the students feel confident to develop a methodology and analyze data to perform chemical research.	**Additional Training** **Not Started** We plan to increase the benchmark expectations in the next year, as only a limited number of students were surveyed. According to this year's results from the rubric the quality of data analysis was the weakest component. We will therefore mainly focus on improving the quality of data analysis next year. Students will focus on performing more hands-on experiments, they will aim to gain experience on analyzing the data. Recommended Due Date: 06/01/2026