

Academic year 2024-2025

## MS in Chemistry - MS-MCHM Learning Outcomes

## Oral Communication Skills

Graduate Chemistry students will demonstrate competency in oral communication skills.

MEASURES	RESULTS	ACTIONS
<p><b>Oral Communication Assessment</b></p> <p>The oral presentation skills of chemistry graduate students will be assessed during a presentation of their research project/final class/capstone and assessed by a review committee. The assessment rubric was developed by the chemistry faculty members. This was chosen because these are skills in which our graduate students must exhibit competency as working chemists. An indirect assessment will also be performed as a survey after the completion of the research project/final class/capstone.</p> <p>Students will score an average of 3.0/4.0 on the rubric.</p> <p><i>Thesis: CHEM 5390</i></p> <p><b>Target</b></p> <p>80% of students will score an average of 3.4/4.0 on the rubric</p> <p><a href="#">Oral Communication Assessment Rubric.pdf</a></p>	<p><b>MET</b></p> <p><b>Analysis</b></p> <p>79% of the students scored an average of 3.4/4.0 or above on the rubric. The average score was 3.2/4.0, which is above our proficiency expectations.</p> <p>The oral presentation skills of chemistry graduate students were assessed during a presentation of their research project/final class/capstone and assessed by a review committee. We plan to increase the benchmark expectations in the next year, as the number of students assessed was limited. According to this year's results from the rubric, preparedness was the weakest component. We will mainly focus on improving delivery next year. The survey results after completing their research project/final class/capstone indicated that the students themselves feel ready to give an oral presentation.</p>	<p><b>Additional Training</b></p> <p>Not Started</p> <p>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.</p> <p>Recommended Due Date: 06/01/2026</p>

## Scientific Writing Skills

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

MEASURES	RESULTS	ACTIONS
<p><b>Scientific Writing Assessment</b></p> <p>Graduate Chemistry students scientific writing skills will be assessed by a review committee as part of a research or scientific communication course. The written material will be evaluated using a rubric developed by the chemistry faculty members. This was chosen because these are skills in which our graduate students must exhibit competency as working chemists. An indirect assessment will also be performed as a survey after the completion of the research project/final class/capstone.</p> <p>Students will score an average of 2.5/4.0 on the rubric.</p> <p><i>Thesis: CHEM 5390</i></p>	<p><b>NOT MET</b></p> <p><b>Analysis</b></p> <p>70% of students scored an average of 3.3/4.0 or above on the rubric. The average score was 3.1/4.0, which is above our proficiency expectations.</p> <p>Graduate Chemistry students scientific writing skills were assessed by a review committee as part of a research or scientific communication 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</p>	<p><b>Maintain Assessment Strategy</b></p> <p>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.</p>

<b>Target</b>  80% of students will score an average of 3.3/4.0 on the rubric. <a href="#">Written Communication Assessment Rubric.pdf</a>	indicated that the students themselves feel confident to write reports of any kind.	
---	---	--

## Chemical Research Performance

Graduate Chemistry students will demonstrate the ability to effectively perform chemical research.

MEASURES	RESULTS	ACTIONS
<b>Chemical Research Performance Assessment</b>  Chemistry masters students are trained to function as professional chemists. A committee will evaluate the students' research results using a rubric developed by the chemistry faculty members. This was chosen because these are skills in which our graduate students must exhibit competency as working chemists. An indirect assessment will also be performed as a survey after the completion of the research project/final class/capstone.  Students will score an average of 3.0/4.0 on the rubric.  <i>Thesis: CHEM 5390</i> <b>Target</b>  80% of students will score an average of 3.4/4.0 on the rubric. <a href="#">Research Performance Assessment Rubric.pdf</a>	<b>MET</b>  <b>Analysis</b>  80% of students scored an average of 3.4/4.0 or above on the rubric. The 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 the students themselves feel confident to develop a methodology and analyze data to perform chemical research.	<b>Additional Training</b> 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