

Chemistry

Annual Program Report Template

Year:	2022-2023
Program:	BA/BS in Chemistry & Forensic Chemistry
Contact Person (include email & phone#)	Ozge Gunaydin osen@lamar.edu 409-880-8275

Summary of Continuous Improvement Efforts since Last Report

Provide a brief description of how assessment results have been used for program improvement. Point to a specific example of how an assessment provided the program with data it could use for improvement and what that improvement was, if possible, also show evidence of the improvement. You may look at data from the two previous academic years to support this case.

Respond here:

Our main goal is to provide students with skills required for them to succeed as working chemists. The learning outcomes involve demonstrating competency in oral communication skills, expertise in scientific writing and ability to effectively perform chemical research. Our assessments for each category have been used for program improvement all described in table 1. One specific example on how an assessment provided evidence for improvement is in research in which the data is above the benchmark expectations. It is important to note that there is a small number of students for research, and we will continue evaluating chemical research performance as well as oral communication skills and scientific writing.

Program Highlights Since Last Report

Identify and briefly discuss any programmatic curriculum changes made since the last report (e.g. new courses, course changes, SLO changes, course deletions).

NA

Respond here:

Table 1. Assessment Results and Analyses for Current Cycle.

STAGE 1: PLAN				STAGE 2: DO		STAGE 3: STUDY
Departmental Student Learning Goal	Program Student Learning Outcome	Assessment	Assessment Method/Location	Benchmark Expectations	Data Results	Actions/Goals Based on Data Results* What do the data tell you? How will you use this data? How were data from the last cycle used to make changes during this cycle, and What were the results of those changes?
The goal is to provide students with the skills required for them to succeed as working chemists.	Undergraduate Chemistry students will demonstrate competency in oral communication skills.	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.	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.	80% of students will score an average of 3.3/4.0 on the rubric.	<p>2021-2022</p> <p>100% of students scored an average of 3.3/4.0 or above.</p> <p>2022-2023</p> <p>100% of students scored an average of 3.3/4.0 or above. The average score was 3.75/4.0</p>	Comparing with the previous evaluation year there is no change however we plan to increase the benchmark expectations in the next year. According to this year's results from the rubric, comprehension was the weakest component. We will mainly focus on improving understanding/comprehension next year.

<p>The goal is to provide students with the skills required for them to succeed as working chemists.</p>	<p>Undergraduate Chemistry students will demonstrate expertise in standard scientific writing and the use of English in preparing reports.</p>	<p>In CHEM 4x71 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.</p>	<p>In CHEM 4x71 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.</p>	<p>80% of students will score an average of 3.3 on the rubric.</p>	<p>2021-2022 70% of the students scored an average of 3.3 or above.</p> <p>2022-2023 67% of the students scored an average of 3.3 or above.</p>	<p>The assignments to evaluate writing skills were more focused on biochemistry topics this year. The action plan is to have two tracks of topics to be covered, one with more focus on chemistry and the other one on biochemistry. We anticipate that this will impact the average score and the percentage of students who score 3.3 and above will increase.</p> <p>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> <p>Although the target was still not met, there was no significant change in student scores from 2021-2022 to the current 22-23 AY</p>
<p>The goal is to provide students with the skills required for them to succeed as working chemists.</p>	<p>Our students will be able to effectively perform chemical research at an introductory level.</p>	<p>Chemistry majors in CHEM 4x71 (Introduction to Research courses where x = 2, 3, 4 credit hours) are trained to function as professional chemists. A review committee will</p>	<p>Chemistry majors in CHEM 4x71 (Introduction to Research courses where x = 2, 3, 4 credit hours) are trained to function as professional chemists. A review committee will</p>	<p>80% of students will score an average of 3.3/4.0 on the rubric.</p>	<p>2021-2022 100% of students scored an average of 3.3/4.0 on the rubric.</p> <p>2022-2023 100% of students scored an average of 3.3/4.0 on the rubric. In 22-23 the average</p>	<p>Comparing with the previous evaluation year, our students continued their excellent performance, therefore we plan to increase the benchmark expectations in the next year. According to this year's results from the rubric the quality of data analysis was the weakest component. We will mainly focus on improving the quality of data analysis next year.</p>

		<p>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.</p>	<p>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.</p> <p>Analysis was done using the methodology described above by evaluating their research skills in their presentation via quality of their data collection/analysis and how it was concluded. A rubric was utilized to get the findings.</p>		<p>score was 3.8/4.0</p>	
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Table 2. Continuous Improvement Results Since Last Report

Stage 4: ACT		
Actions/Goals Based on Data Results <i>*Copy last cycle's actions/goals and report on progress toward continuous improvement on those here.</i>	Status <i>C=Complete P=Progressing N=No Action Taken</i>	Discussion of Status <i>If C, describe efforts that led to accomplishment of actions/goals. If P, provide update on progress made toward accomplishing actions/goals and what tasks remain If N, discuss why action toward accomplishing actions/goals has been delayed and what work will be initiated toward accomplishment.</i>
The goal is to provide students with the skills required for them to succeed as working chemists.		
Outcomes include demonstrating competency in oral communication skills, expertise in standard scientific writing and use of English in preparing reports and effectively perform research at an introductory level.	P	<p>We will continue our actions to evaluate oral communication skills (described in table 1). Comparing with the previous evaluation year there is no change however we plan to increase the benchmark expectations in the next year. According to this year's results from the rubric, comprehension was the weakest component of those evaluated. We will mainly focus on improving understanding/comprehension next year.</p> <p>We will continue our actions to evaluate writing skills (described in table 1). The assignments to evaluate writing skills were more focused on biochemistry topics this year. The action plan is to have two tracks of topics to be covered, one with more focus on chemistry and the other one on biochemistry. We anticipate that this will impact the average score and the percentage of students who score 3.3 and above will increase. According to this year's results from the rubric, we will mainly focus on improving the quality of information presented in writing this year. Although the target was still not met, there was no</p>

		<p>significant change in student scores from 2021-2022 to the current 22-23 AY.</p> <p>We will continue our actions to evaluate chemical research performance (described in table 1). Comparing with the previous evaluation year, our students continued their excellent performance, therefore we plan to increase the benchmark expectations next year. According to this year's results from the rubric, the quality of data analysis was the weakest component. We will mainly focus on improving the quality of data analysis next year.</p> <p>In addition, we plan to add tasks to evaluate some of the upper-level classes for scientific writing and oral communication skills in the future.</p>