

**Assurance of Student Learning
2018-2019**

Ogden College of Science and Engineering

Chemistry Department

Chemistry BS (623)

Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.

Student Learning Outcome 1: Our graduates will have the ability to communicate effectively in written form.

Instrument 1 Laboratory reports from CHEM 412/451 (Physical Chemistry Lab)

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.

Met

Not Met

Student Learning Outcome 2: Our graduates will have the ability to read and interpret data about chemical systems.

Instrument 1 American Chemical Society Exam in Analytical Chemistry

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.

Met

Not Met

Student Learning Outcome 3: Our graduates will have an understanding of structure-property-function relationships for a variety of molecules.

Instrument 1 American Chemical Society Exam in Organic Chemistry

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.

Met

Not Met

Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)

Student Learning Outcome 1

Student Learning Outcome	Our graduates will have the ability to communicate effectively in written form.		
Measurement Instrument 1	Laboratory reports from CHEM 412/451 (Physical Chemistry Lab) The lab report for the Crystal Violet Kinetics Lab was chosen, as it requires students to collect and analyze data and report on the results of the experiment in a clear fashion. Students are expected to analyze the data and arrive at accurate (reasonable) conclusions from this data. They are further required to communicate these results in a clear and effective way in scientific writing. The instrument was assessed in a fashion consistent with the Written Communication VALUE Rubric from AAC&U. Basic parameters for Context, Content, Conventions, Sources, and Syntax were rated on the 1 to 4 scale.		
Criteria for Student Success	Students should score at average numerical ranking of 2.6 or higher on the 4-level scale of the rubric. Overall scores ranged from 1.6 to 4 with an average and median of 3.0.		
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	78%
Methods	All 23 students in CHEM 412 course in 2018-2019 were scored on this lab report. The reports were all assess/rated by the instructor of record of the course		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.			Met
Not Met			
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
The range of student abilities was very broad and highlights the need for a clearer set of guidelines and expectations for report writing. A training session for students was recommended to the instructors of this course whereby students would be given two sample reports. Report 1 would be a Low Score example and Report 2 would be a Hi Score example. Students would be engaged in determining the errors made in Report 1 and discussing them in a lab meeting in the first 25% of the semester.			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
The rubric will be evaluated and refined for appropriateness for scientific writing and additional faculty will be involved in future rounds of scoring these reports.			

Student Learning Outcome 2

Student Learning Outcome	Our graduates will have the ability to read and interpret data about chemical systems.		
Measurement Instrument 1	American Chemical Society Exam in Analytical Chemistry This is a nationally-normed 50-question multiple choice exam given at the conclusion of the CHEM 330 (Quantitative Analysis) course (required of all majors and minors).		
Criteria for Student Success	50%-tile ranking or higher		
Program Success Target for this Measurement	50% of students taking the exam	Percent of Program Achieving Target	45%
Methods	This exam was not taken by all students in the course. Those who were already at a grade criteria above an A were allowed to opt out of the exam.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.			Met
Not Met			
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
Course content is being evaluated in the context of exam topics. This exam is made available in an updated version approximately every two years. This update cycle allows the exam to reflect the current topical content recommended by the exam committee. Question level analysis will be completed on future classes (beginning with Spring 2020)			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Students will be provided with a content review opportunity near the end of the semester. Choice of content will be guided by topics identified from both the question-level analysis of prior terms' exam results and from student requests.			

Student Learning Outcome 3

Student Learning Outcome	Our graduates will have an understanding of structure-property-function relationships for a variety of molecules.		
Measurement Instrument 1	American Chemical Society Exam in Organic Chemistry . This is a nationally-normed 50-question multiple choice exam given at the conclusion of the CHEM 342 (Organic Chemistry 2) course.		
Criteria for Student Success	50%-tile ranking or higher		
Program Success Target for this Measurement	50% of students taking the exam	Percent of Program Achieving Target	38%
Methods	This exam was taken by all students in the course.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.			Met Not Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
Course content is being evaluated in the context of exam topics. This exam is made available in an updated version approximately every two years. This update cycle allows the exam to reflect the current topical content recommended by the exam committee. Question level analysis will be completed on future classes (beginning with Spring 2020)			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
Students will be provided with a content review opportunity near the end of the semester. Choice of content will be guided by topics identified from both the question-level analysis of prior terms' exam results and from student requests.			