Assurance of Student Learning 2018-2019	
Ogden College of Science and Engineering	Departments of Biology and Chemistry
Biochemistry BS (519)	

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	**Evaluation of protein paper in Biochemistry Laboratory**		
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.			
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.			
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	**Protein paper from BIOL/CHEM 447 (Biochemistry lab)** Students in biochemistry lab in the fall 2018 semester (2 sections) were required to submit a paper analyzing the structure/function relationship of a protein. The writing quality of this paper was assessed for the biochemistry majors. 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 2.5 or higher on the 4-level scale of the rubric. Overall scores ranged from 2.0 to 2.8 with an average and median of 2.3.			
Program Success Target for this Measurement	75%	**Percent of Program Achieving Target**	25%	
Methods	Only the biochemistry majors were assessed via the rubric. This led to a very small sample size.			
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. In the future, multiple writing assessments will be utilized in order to compensate for the relatively small number of students assessed. We will choose multiple assignments for future assessments, and before the semester begins we will convey guidelines for the writing expectations.				
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 biochemistry majors).			
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.				