

Program: \_\_\_Biochemistry, M.S.\_\_\_\_\_

Date: \_\_\_June 1, 2018\_\_\_\_\_

Completed by: \_\_\_Richard Farrer\_\_\_\_\_

Assessment contributors (other faculty involved in this program’s assessment): \_\_\_none\_\_\_\_\_

**I. Program student learning outcomes (SLOs) assessed in this cycle, processes, results, and recommendations.**

A. Which of the program SLOs were assessed during this cycle? <b>Please include the outcome(s) verbatim from the assessment plan.</b>	B. When was this SLO last assessed? <b>Please indicate the semester and year.</b>	C. What method was used for assessing the SLO? <b>Please include a copy of any rubrics used in the assessment process.</b>	D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved.	E. What is the expected achievement level and how many or what proportion of students should be at it?	F. What were the results of the assessment?	G. What were the department’s conclusions about student performance?	H. What changes/improvements to the <u>program</u> are planned based on this assessment?
1: Chemistry MS students will be able to evaluate the scientific literature and to use it in their courses and research.	Spring 2017 by Richard Farrer.	This SLO is assessed through both performance in coursework and performance during thesis committee meetings. I believe that all 500 level	CHEM510(1 students), CHEM511(1 student), CHEM513(1 student), CHEM531(1 student), CHEM589(0 students), CHEM592(0 students),	All students should receive a grade of A or B in all graded courses. All students should have positive reviews from	Two active students in the Biochem MS program at this time.	Students satisfactorily progressing toward graduation.	None.

		<p>courses involve some evaluation of literature; however all MS students begin their coursework in CHEM510, where students are expected to develop a thesis plan. Additionally, in CHEM593 (seminar) and CHEM589 (thesis defense), students are required to demonstrate significant knowledge of scientific literature. For students who take the internship option, CHEM588 is the internship defense. Also, students are</p>	<p>CHEM593(0 students), and CHEM599(2 students). There are two students active in the biochemistry MS program, both held thesis committee meetings this year.</p>	<p>committee meetings – which shows that the student is making the necessary progress toward graduation. All students should receive an A in the thesis defense – showing mastery of their area of study and research. Realistically, some student perform poorly in classwork – many students not prepared for depth, breadth, and scope of courses and/or</p>			
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		evaluated during research credits, CHEM599 and CHEM592.		research. Students must maintain a 3.0 GPA to remain in good standing in the program.			
2: Chemistry MS students will be able to effectively communicate scientific research, both their own and information from the research literature, in written and oral fashions.	Spring 2017 by Richard Farrer.	See SLO 1. Coursework, research, and committee meetings are used to guide and direct the student toward mastery in this area, and also for purposed of evaluating the students' growth and abilities in these areas. Additionally, individual research group meetings often require students to discuss their research with	CHEM510(1 students), CHEM511(1 student), CHEM513(1 student), CHEM531(1 student), CHEM589(0 students), CHEM592(0 students), CHEM593(0 students), and CHEM599(2 students). There are two students active in the biochemistry MS program, both held thesis	Formal evaluations occur during courses, committee meetings and thesis defenses. Non-formal evaluations occur in regular group meetings, meetings with advisors, and in everyday laboratory interactions.	Satisfactory progress.	Students satisfactorily progressing toward graduation.	None.

		<p>the faculty mentor and other group members – such discussions often lead to analysis of data via the scientific method and through critical thinking. Thus, some of the best areas for growth of the students occurs in non-formal, non-graded settings. Honestly, these are the important times the student needs to succeed – since employment will be more similar to these occasions than courses.</p>	<p>committee meetings this year.</p>				
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<p>3: Chemistry MS students will develop and master the scientific problem solving skills required to define and solve basic or applied original scientific questions using the scientific method</p>	<p>Spring 2017 by Richard Farrer.</p>	<p>See SLO 2.</p>	<p>CHEM510(1 students), CHEM511(1 student), CHEM513(1 student), CHEM531(1 student), CHEM589(0 students), CHEM592(0 students), CHEM593(0 students), and CHEM599(2 students). There are two students active in the biochemistry MS program, both held thesis committee meetings this year.</p>	<p>Again, all students should complete each course with an A or B, and students should have positive reviews after each committee meeting. However, the committee meetings are also to assist misdirected students back to a path toward graduation. At the time the students choose to defend their thesis/inters hip, the student must be at or very near</p>	<p>Satisfactory progress</p>	<p>Students satisfactorily progressing toward graduation.</p>	<p>None.</p>
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				mastery of their material, and have a firm grasp on the scientific method and how to apply it to experimental design, data analysis, and production of results.			
4: Chemistry MS students will actively engage in collaborative research or internships and discourse with the faculty in the Chemistry Department and other STEM disciplines as appropriate	Spring 2017 by Richard Farrer.	CHEM592 and CHEM599 – research, CHEM598 – internship. Final assessment at thesis defense (CHEM589) or internship defense (CHEM588).	CHEM592(0 students), CHEM599(2 students), CHEM589(0 students).	Students graded on CHEM599 – thesis research and CHEM588/589 defenses. All other internship/research is pass/fail. All students should be receiving either an A or B in thesis research, and all	No theses defenses during the year.	Faculty await the next defense...	None.

				students should be receiving satisfactory grades in S/U coursework. Students should receive A's for defenses.			
5: Chemistry MS students and faculty will disseminate the products of the Chemistry MS program within the CSU-Pueblo community and communities outside the university in activities using their professional expertise	Spring 2017 by Richard Farrer.	CHEM588, CHEM589, CHEM593, CSU-Pueblo symposia, and regional and national scientific meetings. Also, publication of material in scientific journals.	CHEM589(0 students) and CHEM593 (0 students). Graduate students presented their research at the University Student Symposium that was held Spring 2018 – one student presented research as this symposium. Also, one	Students are expected to receive A's in their defenses. For symposia, students are expected to know the material and confidently discuss their experiments and results. This is typically the case, since faculty ensure that the material is prepared	Presentations at both the university level and national level.	Satisfactory progress.	None.

			student presented at the American Chemical Society National Conference in New Orleans.	well, and the student is also prepared. Faculty spend many hours working with students in preparation of presentations.			
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During the 2017-2018 academic year, one student completed his MS degree (corrected thesis to be turned in prior to June 15<sup>th</sup>).

**II. Follow-up (closing the loop) on results and activities from previous assessment cycles. In this section, please describe actions taken during this cycle that were based on, or implemented to address, the results of assessment from previous cycles.**

A. What SLO(s) did you address? Please include the outcome(s) verbatim from the assessment plan.	B. When was this SLO last assessed? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment?	D. Were the recommendations for change acted upon? If not, why?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?

There are currently two students active in the biochemistry program. It should be noted that both the Biochemistry MS and Chemistry MS are housed in the Chemistry Department, and only one faculty member, Dr. Sandra Bonetti, is a biochemist. Therefore all students who are

interested in biochemistry will have Dr. Bonetti as a research advisor. Since the program has only two active students, the assessment provides very limited information. However, the program is critical to both the Chemistry Department and the University as it retains graduate students that are involved in research, outreach, and often teach undergraduate laboratories.

Please find the assessment for for thesis committee meetings attached.