Colorado State University – Pueblo Academic Program Assessment Report for AY 2013-2014 **Due: June 2, 2014**

Program:____Chemistry, M.S._____ **Date:** __June 25, 2014_____

Completed by:__Richard Farrer_____

Assessment contributors (other faculty involved in this program's assessment): __All chemistry faculty supplied the data from the appropriate ACS exams and seminar evaluations._Compilation and the report was completed by Dr. Lehmpuhl_____

Please complete this form for each undergraduate, minor, certificate, and graduate program (e.g., B.A., B.S., M.S.) in your department. Please copy any addenda (e.g., rubrics) and paste them in this document, and submit it to the dean of your college/school as per the deadline established. The dean will forward it to me as an email attachment before June 2, 2014. You'll also find the form at the assessment website at http://www.colostate-pueblo.edu/Assessment/ResultsAndReports/Pages/default.aspx.

Please describe the 2013-2014 assessment activities for the program in Part I. Use Column H to describe improvements planned for 2014-2015 based on the assessment process. In Part II, please describe activities engaged in during 2013-2014 designed to close-the-loop (improve the program) based on assessment activities and the information gathered in 2012-2013. Thank you.

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? **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 method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process.**	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 program are planned based on this assessment?
1: Chemistry MS students will be able to	It appears that the last	This SLO is assessed through both	CHEM510(3 students), CHEM592(1	All students should receive a	All students successfully moving	MS program faculty are impressed with the	See comments in Part II of this assessment. This is the first year that I have

evaluate the scientific literature and to use it in their courses and research.	assessment was completed by Mel Druelinger in June 2013.	performance in coursework and performance during thesis committee meetings. I believe that all 500 level 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	student), CHEM593(4 students), CHEM589(3 students – none have defended to this date), CHEM599(5 students). Also, all students have had at least one committee meeting this past year.	grade of A or B in all graded courses. All students should have positive reviews from 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	toward graduation. All, but one, students maintaining a 3.0 or above GPA.	core group of students that are currently in the MS program. Although a few students have extended their stays, most are making progress toward their degree.	been director of the Chemistry MS Program, and I have not had time to reevaluate the assessment program that is in place. In the coming year, I will address issues that we find. However, it appears that students are successful once they graduate and find either a PhD program or employment.

		literature. For students who take the intership option, CHEM588 is the intership defense. Also, students are evaluated during research credits, CHEM599 and CHEM592.		classwork – many students not prepared for depth, breadthe, and scope of courses and/or 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.	It appears that the last assessment was completed by Mel Druelinger in June 2013.	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	CHEM510(3 students), CHEM592(1 student), CHEM593(4 students), CHEM589(3 students – none have defended to this date), CHEM599(5 students). Also, all students	Formal evaluations occur during courses, committee meetings and thesis defenses. Non-formal evaluations occur in regular group meetings, meetings	All students have shown adequate growth and are satisfactorily progressing towards graduation. One student currently below the 3.0 mark.	MS program faculty are impressed with the core group of students that are currently in the MS program. Although a few students have extended their stays, most are making progress toward their degree.	See comments in Part II of this assessment. This is the first year that I have been director of the Chemistry MS Program, and I have not had time to reevaluate the assessment program that is in place. In the coming year, I will address issues that we find. However, it appears that students are successful once they graduate and find either a PhD program or

		these areas. Additionally individual research group meetings often require students to discuss their research with 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	have had at least one committee meeting this past year.	with advisors, and in everyday laboratory interactions.			employment.

		student needs to succeed – since employment will be more similar to these occasions than courses.					
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	It appears that the last assessment was completed by Mel Druelinger in June 2013.	See SLO 2.	CHEM510(3 students), CHEM592(1 student), CHEM593(4 students), CHEM589(3 students – none have defended to this date), CHEM599(5 students). Also, all students have had at least one committee meeting this past year.	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	All students showing progress towards mastery of this material.	Faculty happy with student progress, for the most part. While no real concern is evident, some faculty would like to see some students become proficient at this at a faster rate. However, this material seems to be some of the most difficult for students to grasp – honestly, some doctoral students still struggle with development of a strong experimental method based on the scientific method.	See comments in Part II of this assessment. This is the first year that I have been director of the Chemistry MS Program, and I have not had time to reevaluate the assessment program that is in place. In the coming year, I will address issues that we find. However, it appears that students are successful once they graduate and find either a PhD program or employment.

				the students choose to defend their thesis/internship, the student must be at or very near 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	It appears that the last assessment was completed by Mel Druelinger in June 2013.	CHEM592 and CHEM599 – research, CHEM598 – intership. Final assessment at thesis defense (CHEM589) or intership defense	CHEM592(1 student), CHEM599(5 students), CHEM589(3 students) – no defenses at this time – all incompletes.	Students graded on CHEM599 – thesis research and CHEM588/589 defenses. All other internship/research is	No defenses from students enrolled in CHEM589 – all incompletes – several students nearing	MS program faculty are impressed with the core group of students that are currently in the MS program. Although a few students have extended their stays, most	See comments in Part II of this assessment. This is the first year that I have been director of the Chemistry MS Program, and I have not had time to reevaluate the assessment program that is in place. In the coming year, I will address issues

Department and other STEM disciplines as appropriate		(CHEM588).		pass/fail. All students should be receiving either an A or B in thesis research, and all students should be receiving satisfactory grades in S/U coursework. Students should receive A's for defenses.	completion. All students satisfactorily completed research coursework.	are making progress toward their degree.	that we find. However, it appears that students are successful once they graduate and find either a PhD program or employment.
5: Chemistry MS students and faculty will disseminate the prodcts of the Chemistry MS program within the CSU-Pueblo community and communities outside the university in activities using	It appears that the last assessme nt was complete d by Mel Druelinger in June 2013.	CHEM588, CHEM589, CHEM593, CSU-Pueblo symposia, and regional and national scientific meetings. Also, publication of material in scientific journals.	None of the students enrolled in CHEM589 have defended. We had one student, Matthew Dunbar, complete his defense this year. Graduate	Students are expected to receive A's in their defenses. For symposia, students are expected to know the material and confidently discuss their experiments	The symposium presentation s were excellent – students were well prepared and able to provide insights into their research and results.	Faculty were impressed with symposium presentations; Matthew Dunbar's defense was OK.	See comments in Part II of this assessment. This is the first year that I have been director of the Chemistry MS Program, and I have not had time to reevaluate the assessment program that is in place. In the coming year, I will address issues that we find. However, it appears that students are successful once they graduate and find either a

their professional expertise			students presented their research at the RAGE Graduate Student Symposium that was held Spring 2014 – four students presented research as this symposium.	and results. This is typically the case, since faculty ensure that the material is prepared well, and the student is also prepared. Faculty spend many hourse working with students in preparation of presentations.	Matthew Dunbar's defense was OK – he received a B+ for the defense – clearly we would like to have seen him perform a little better.		PhD program or employment.

During the 2013-2014 academic year, only one student (Matthew Dunbar) graduated from the Chemistry MS program. While this may imply that the population of students in the program is low, that is not the case. While the number of students entering the program is a concern, the population of students that are currently enrolled in the program is relatively strong. However, students are not completing their degrees in the time typically allotted for an MS degree. The program provides that a student that is enrolled full-time should be able to complete the degree in two years (full years not academic years). However, many of the students that are currently enrolled in either the Chemistry or Biochemistry MS programs are employed full-time, and therefore are enrolled as graduate students on a part-time basis.

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?

Comments: This past year was my first as director of the Chemistry and Biochemistry MS programs. While ensuring that the students in these programs receive a quality and relevant education, my primary concern during this first year (and into the current year) is the challenges associated with enrollment in the two MS programs. My goal at this time is to ensure that we are able to populate the programs with quality students that are serious about graduate work in chemistry and biochemistry. All faculty associated with the chemistry and biochemistry MS programs feel strongly that the programs remain focused on scientific inquiry and are not bastardized into some/with some profession program. However, I do understand the necessity of assessment, and I will coordinate a meeting with Erin Frew, so that I may build upon the assessment protocol that has been developed previously for the Chemistry and Biochemistry MS programs.