



College of Science (CSCI)  
North Science 135  
25800 Carlos Bee Boulevard, Hayward CA 94542

**2016-2017 CSCI EETF**

## **D. Summary of Assessment Results**

### **CHEM 6820 Seminar**

**Graduate PLO-4:** present complex chemical information via oral and written reports.

**Assessment Tool:** Rubric.

Each faculty member coordinating the Seminar course evaluated each student seminar with respect to the organization of scientific content, oral presentation, proper use of visual-aids, and





of experimental results, with proper display of data in the form of tables or graphs where appropriate. Students will be asked to share the elution profiles from their column chromatography experiments with the class as a whole. These presentations will form the basis for class discussions of proper methods for data documentation and analysis. Students will be encouraged to provide more detailed evidence for the conclusions listed in their lab notebooks.

Meets expectation on question #20 if 3 out of 4 parts or more answered correctly  
 Meets expectation on question #21 if 2 out of 3 parts or more answered correctly

Question #20		Question #21	
Meets expectation	Does not meet expectation	Meets expectation	Does not meet expectation
2/11 students	9/11 students	3/11 students	8/11 students

**Analysis:** Close to 100% of the students were able to meet the expectation for SLO#4, so SLO #4 appears to have been mastered adequately by the vast majority of the students. About 50% of the students were able to meet the expectation for SLO#2. SLO#2 builds on principles that were expected to have been learned in previous undergraduate courses that are prerequisites to this graduate class. Approximately 20% of the students met expectations for SLO#5.

**Plans:** In the future, more time will be devoted to a short review of these principles behind SLO #2 in order to bring students up to speed and enable them to learn the more advanced material. Unfortunately only about 20% of the students were able to meet the expectation for SLO#5. In the future, more practice problems will be provided on these concepts and more time will be devoted on how to develop strategies to solve these kinds of problems.

### Methods of Instrumental Analysis CHEM 4240 Winter 2017

**Chemistry PLO #1:** demonstrate knowledge in the various areas of chemistry, including inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, and biochemistry.

**Graduate PLO #2:** work effectively and safely in a laboratory environment using modern chemical/biochemical instrumentation and methods to test hypotheses or design solutions to problems.

**Assessment Tool:** Embedded questions in the lab reports and on the final exam

**Student Learning Outcomes** 578.7 26.4 reW nBTF1 12 Tf1 0 0 1 410.9 247.834m0 G(i)7(no)21

6. Understand the principles of chromatography and its application for analysis on a mixture of organic compounds.
7. Acquire the hands-on knowledge regarding how an optical spectrometer works.

**Embedded Questions in the lab reports and the final exam (accumulated)**

Embedded Question	SLO #	% of undergraduate students	# of students with correct answer	% with correct answer*
Midterm Q4	1	7	7	100
Midterm Q3	1	7	5	71
Midterm Q2	2			

**Conclusion:** In 2017, the MS degree students did much better than undergraduate students. A majority of the students have accomplished most of SLO except for SLO #3, which was FT-IR lab along with its theoretical understanding. Last year, only two graduate students took this course, so it is a little hard to compare this with the result of the last year. But, compared to 2015 (8 graduate students), the students this year showed better performance in almost all SLO except for SLO #2 which is about the same (75% for the 2015 class). The graduate students this year were a lot more active in asking questions and studying together and their better performance was not surprising at all.

#### **E. Suggestions and Recommendations for the CSCI EETF in the Future**

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