

Assessment Activities:

PLO 1 and 2

Students will be tested at various points in their college years to measure their acquisition of essential knowledge and understanding of certain areas of chemistry. Nationally normalized standardized exams prepared by the American Chemical Society will be used for this purpose. They will be administrated according to the following schedule:

End of General Chemistry Sequence	General Chemistry ACS Exam
End of Organic Chemistry Sequence	Organic Chemistry ACS Exam
End of Analytical Chemistry	Analytical Chemistry ACS Exam
End of Physical Chemistry I	Thermodynamics ACS Exam

- 1) Students took the ACS General Chemistry exam at the end of the General Chemistry sequence in the spring of 2011.
Criteria for success: The average score for the Chemistry majors will be higher than the 50%tile.
Results: The average score for the 3 Chemistry majors was 32.7/70.0 (44%tile) (**Criteria Not Met** but too few students in the class for the data to be statistically significant).
- 2) Students took the ACS Thermodynamics at the end of Physical Chemistry I in the fall of 2010.
Criteria for success: The average score for the Chemistry majors will be higher than the 50%tile.
Results: The average score for the 3 Chemistry majors was 39.0/50.0 (96%tile) (**Criteria Met** but too few students in the class for the data to be statistically significant).
- 3) Students took the ACS Organic Chemistry exam at the end of the Organic Chemistry sequence in the spring of 2011.
Criteria for success: The average score for the Chemistry majors will be higher than the 50%tile.
Results: The average score for the 10 Chemistry majors was 48.0/70.0 (74%tile) (**Criteria Met** but too few students in the class for the data to be statistically significant).

PLO 3

1) All students will use the following instruments or devices in their educational experience. They will be required to operate each instrument and interpret the information acquired. Some students will gain sufficient experience on certain instruments to be certified as an expert user. This can be accomplished either by serving formally as an instructor for other students or by extensive experience (logging 40 hours or more) with an instrument during a research project.

First Year	electronic balances burets and pipets pH meters computer spreadsheet (Excel)
Second Year	instruments used in the first year plus infrared spectrophotometer (IR) nuclear magnetic resonance spectrometer (NMR) absorption spectrophotometer (UV-Vis) gas chromatograph (GC)
Third/Fourth Years	instruments used in the first two years plus Gas Chromatograph/Mass Spectrometer (GC-MS) High Pressure Liquid Chromatograph (HPLC) Atomic Absorption Spectrophotometer (AA)

Criteria for success: At least 75% of the department's graduates will achieve expert user status on at least one instrument. Hands on instrument use occurs in the laboratory component of required courses and proficiency will be verified by a faculty at the end of each academic year.
Results: PLO not assessed 2010-11

2) Students will participate in the undergraduate research program

Criteria for success: At least 50% of the chemistry major graduates will have worked on an undergraduate research project. Their progress in this endeavor will be evaluated by their supervising faculty members, and the presentation of their work to the scientific community.
Results: PLO not assessed 2010-11

PLO 4

1) Students will participate in the life of the Chemistry Department as TA's, tutors, or graders.

Criteria for success: 80% of the department's graduates will work as lab assistants or tutors during their sophomore, junior, or senior years. In this context, they will formally and informally explain various concepts of chemistry to other undergraduate students. Teaching assistant evaluations will be conducted at the end of each term and supervising faculty members will also evaluate their performance.

Results: PLO not assessed 2010-11

PLO 5

- 1) In addition to normal advising and counseling, graduates will interact with department alumni and attend selected professional meetings to gain exposure to the broader world of chemistry.

Criteria for success: In the Junior and Senior years, 75% of the chemistry majors will attend the annual meeting of the Research Associates alumni support group. In addition, 75% of the students will attend at least one regional or national professional meeting and 50% will make presentations at such meetings.

Results: PLO not assessed 2010-11

Summary of Data Collected and Use of Results:

Only PLO's 1 and 2 were assessed this year. These data will be discussed at departmental meetings in the fall. Given the small sample size of these data, we do not currently plan to make any further changes in the program.

Some chemistry courses will however undergo a significant change next year. After surveying the programs of twenty other comparator schools we decided to bring our offerings more in line with the majority of those schools by consolidating the organic chemistry experience into the sophomore year and slightly expand the amount of analytical chemistry we require. This results in a corresponding reduction in the elective units within the major. We will track ACS exam scores into the future to see if this change strengthened the major.

PLO 3-5: Data will be collected and analyzed on these in the future.