

Academic Program
Plan for Assessment of Student Learning Outcomes
The University of New Mexico

A. College, Department and Date

1. College: *Arts and Sciences: Main Campus*
2. Department: *Chemistry and Chemical Biology*
3. Date: 1/15/09

B. Academic Program of Study

M.S. Chemistry

C. Contact Person(s) for the Assessment Plan

Alisha Ray, Lecturer II, adray@unm.edu

D. Broad Program Goals & Measurable Student Learning Outcomes

Graduate Program Goals and Student Learning Outcomes

Upon graduating from the graduate program, students will:

1. Develop a broad understanding of the major areas of chemistry with an understanding and awareness of the professional, ethical and safe applications of their knowledge.
 - a. Possess broad factual knowledge at an advanced level in multiple areas of chemistry
 - b. Actively participate in the weekly departmental seminars
2. Acquire a significant and deep-rooted knowledge in their chosen sub-discipline in chemistry.
 - a. Learn subject specific content such as synthesis and characterization, reaction mechanisms, thermodynamics, quantum mechanics, kinetics, spectroscopy, equilibrium and quantitative methods
 - b. Attend divisional student seminars in their chosen area of chemistry
3. Report, present and/or publish the results of their research and independently solve research problems.
 - a. Present independently researched topics in their divisional seminar
 - b. Publish their research findings in peer reviewed scientific journals with their research advisor(s)
 - c. Write a coherent masters thesis or written final project covering their specific contributions to the discipline of chemistry
4. Be prepared for entry into academe or industry.
 - a. Be members of at least one professional scientific organization
 - b. Engage in collaborative research with other scientists in their field
 - c. Solve research problems independently or as a small team

Future goal to be developed: Students will have the knowledge, skills and ability to define and study a specific research project and apply appropriate scientific methods to it.

E. Assessment of Student Learning Three-Year Plan

All programs are expected to measure some outcomes annually and to measure all priority program outcomes at least once over two consecutive three-year review cycles. Describe below the plan for the next three years of assessment of program-level student learning outcomes.

1. Student Learning Outcomes

Relationship to UNM Student Learning Goals (insert the program SLOs and check all that apply):

University of New Mexico Student Learning Goals				
Program SLOs	Knowledge	Skills	Responsibility	Program SLO is conceptually different from university goals.
2a. Learn subject specific content such as synthesis and characterization, reaction mechanisms, thermodynamics, kinetics, spectroscopy, equilibrium and quantitative methods.	X			
3b. Publish their research findings in peer reviewed scientific journals with their research advisor(s).	X	X	X	
3c. Write a coherent masters thesis or written final project covering their specific contributions to the discipline of chemistry	X	X	X	

2. How will learning outcomes be assessed?

A. What:

- i. SLO 2a will be measured using one or two questions from the cumulative examinations (written by faculty) given eight times each academic year. M.S. degree students must pass three exams within fourteen attempts.
SLO 3b will be measured by having graduate advisors submit a list of the work published each year involving their graduate students.
Evidence for SLO 3c will be gathered from final project committee members using the Report on Thesis or Dissertation provided by the Office of Graduate Studies (see attachment).
- ii. SLO 2a will be measured ~~using~~ directly and SLOs 3b, and 3c will be measured indirectly.
- iii. The program's performance target for SLO 2a is for one-third of the students required to take the exam to perform acceptably on the chosen cumulative exam question(s). The target for SLO 3b is to have 50% of the students in the program have their research published in a peer reviewed journal each year. The expected target for SLO 3c is that 75% of students giving a final project defense each year pass without needing extensive written revisions.

B. Who: Evidence from each student in the M.S. program will be sampled over a three year cycle.

3. When will learning outcomes be assessed? When and in what forum will the results of the assessment be discussed?

Data collected for SLOs 2a, 3b, and 3c in fall 2008 and spring of 2009 will be included in the program pilot assessment. Interpretation and discussion of the same SLOs will be completed by mid June 2009. Data collected in the summer of 2009, fall 2009 and spring 2010 over the same SLOs will be interpreted and discussed at the fall faculty retreat in August 2010. A similar pattern will follow for the next academic year.

4. What is the unit's process to analyze/interpret assessment data and use results to improve student learning?

1. The chair of the assessment committee will be the faculty member responsible for collecting evidence during the academic year and the committee will include one or two other faculty members to analyze and interpret the assessment data.
2. The implications of the assessment will be discussed at a meeting in April each year.
3. Recommendations will be compiled by the assessment committee chair and communicated in writing to the department Chair by May 15th each year. Copies of the document will be provided and discussed in the annual faculty retreat each August.