SLO01: Students Demonstrate Knowledge of Advanced Concepts in Chemistry

Students will understand advanced concepts in the four major sub-disciplines of chemistry and be able to apply this knowledge through reading and interpreting the current chemical literature. (SLM11 Student Literature Seminar Presentation) The department offers 4 advanced marker courses in chemistry, one for each of the major sub-disciplines. MS Chemistry students are required to take all of these courses as a means to obtain advanced knowledge in chemistry. Demonstration of this knowledge and the ability to apply it is achieved in two ways: 1) Students give a literature-based seminar on a topic they choose. The seminar is evaluated by faculty in the department on the basis of how well they can explain the background information, explain the scientific principles at work, and interpret the results of multiple studies to present a coherent scientific model. 2) Students are then subjected to oral examination by faculty members in the audience, to evaluate the underlying understanding of concepts and ideas presented during the talk. The seminar and ability to answer questions are evaluated by faculty, and both must be satisfactorily completed in order to meet this program requirement.

SLO12: Presentation of a Research Proposal

Students will be able to organize related ideas concerning advanced chemical systems creating a unifying and fully consistent model that advances the state of knowledge in a particular area of science. (SLM12 Research Proposal Presentation) Students must present a research proposal describing their proposed thesis research, complete with establishment of importance, technical details regarding the experiments to be carried out and expected outcomes based on preliminary data. The student’s committee and advisor will evaluate the student based on these criteria, and successful completion of this requirement indicates each ability is successfully mastered. MS students present a research proposal to their thesis committee of three faculty. The faculty rate the proposal based on the student's presentation of background information, preliminary data, and quality of the scientific validity of the proposed research that will be part of the student's thesis.

SLO13: Students Complete A Thesis Research Project

Students will be able to synthesize new ideas in chemistry by performing independent research and placing their results into the context of the current knowledge in the field (SLM13 Thesis Research) The MS program in Chemistry is a research masters and requires a sufficient level of original research to generate a thesis. Research in Chemistry is a continual cycle of experimentation, evaluation of data, interpretation, synthesis or modification of a hypothesis, and the design of new experiments to further evaluate the hypothesis. This process is closely monitored by the individual faculty research advisor, and the student’s progress in this area is reported in annual reports by the faculty member to the students. Here deficiencies in any of these areas are communicated to the student and addressed by the advisor and or thesis committee. Both completion of the research and generation of the thesis are measures we use to assess achievement of this learning goal. Successful completion of original research will be rated as satisfactory or unsatisfactory by the student’s thesis committee.

SLO14: Students Are Successful In Professional Pursuits After Graduation

Students learn research skills and knowledge that make them marketable in industry or for further graduate study (SLM14 Success of MS Biochemistry Graduates) Longitudinal studies involving placement of our MS Chemistry graduates will be used to assess the success in this area. Longitudinal studies involving placement of our MS Biochemistry graduates will be used to assess the
success in this area. Email contact lists for all former students are available and a periodic survey of former MS students will provide an accurate measure of this goal. It is expected that 100% of graduates from our program will be prepared for a career in science industry or further graduate study at the PhD level. 

Filter Criteria
Prepared by: William Jones
Start Date: 7-1-2012
End Date: 6-30-2013
Filter Options: N/A