Please complete this page for each degree program, graduate and undergraduate.

Student Learning Outcomes Check Sheet

Due 24 Feb 2012

Degree Program Title: Chemistry
Degree Type: MS
Banner/CIP Code: 40050100

Responsible Program Coordinator/Chair completing this form: Ben Jang

A. Program MISSION Statement: What body of knowledge and/or what skills and qualities will graduates from this program possess upon completion of the degree?

Chemistry: Small Scale, Big Impact.

The program prepares master chemistry professionals while enhancing faculty's scholarly capabilities. Students should have mastery understanding of their major area(s) of research with advanced training on instrumentation. Students should communicate literature or research effectively in a public seminar.

B. Does this program have any culminating experience or capstone course that would capture the cumulative knowledge and accomplishments of graduates of your program? If so, please describe the process by which faculty participate in the design and evaluation of the course and its products/experiences.

Chem 518 Thesis: Each tenured or tenure track faculty will assign students projects and students are to complete projects with meaningful contribution in solving real scientific problems.

Chem 597 Advanced Research Techniques and Design I & II: Each tenured or tenure track faculty will provide training to students on various techniques and skills of instrumentation and equipment related to assigned projects. Students are to participate in designing methods and approaches to solve scientific problems after reviewing project literature. Advanced skills to explain research results to their peers effectively are required. Students are to summarize the progress of research project and the skills and knowledge obtained at the end of the course.

Chem 501 Seminar: Students will give a research presentation of either an approved research topic from the literature or on their research they have conducted with a faculty member.

In the attached pages, please provide the learning outcomes the faculty as a whole expects from graduates from the program. While you may choose as many outcomes as you wish, it is often a good strategy to focus on the most important goals for students in the first few years of your Student Assessment Program. For example, two or three of the most critical goals would be a good starting point. Please complete questions 1-6 for each Student Learning Outcome you are assessing or plan to evaluate in the next review period on the attached sheet.
Please complete this page for each Student Learning Outcome (minimum of 3) for each of your degree programs.

Degree Program Title: Chemistry Degree Type: MS
Banner/CIP Code: 40050100

STUDENT LEARNING OUTCOME # 1

1. STUDENT LEARNING OUTCOME (SLO): Students should have an advanced understanding of at least four of the following five areas of chemistry-analytical, biochemistry, inorganic, organic and physical chemistry areas. They should have command knowledge and skills in their major area(s) of research.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem Chem 513 Organic Mechanism and Structure, Chem 514 Biochemistry, Chem 521 Chemical Thermodynamics, Chem 531 Advanced Inorganic Chemistry, and/or Chem 541 Advanced Analytical Chemistry. Normally, different faculty will be teaching each of these courses.

3. ACTION PLAN: STRATEGIES/METHODS FOR OBSERVING STUDENT LEARNING. Each faculty as the instructor of the above courses will evaluate students throughout the semester via quizzes, exams, projects and/or presentations. A faculty committee and the Department Graduate Adviser will meet at the end of the study of each individual student to discuss and make recommendations based on student’s comprehensive exams or thesis defense and thesis quality.

4. CRITERIA FOR SUCCESS: MEASURES & TARGETS. Non-thesis students should pass all four course included in the comprehensive exams. Thesis students will be evaluated based on knowledge in chemistry and research area(s), instrumental & communication skills, and quality of thesis. The target is to have 90% of students to pass in two tries.

These two additional reports for questions 5&6 below will be due in May 11, 2012

5. ACHIEVEMENT SUMMARY: FINDINGS & RESULTS. What are the results of the assessment of this learning objective thus far? Be sure to include the year of the assessment, attach any relevant reports, data tables, etc. Please be specific in your descriptions. Indicating that n% students took a test or passed an oral exam is not an example of assessment findings.

6. PROGRAM ENHANCEMENT. How has assessment data been used? Please give examples over the last 3 years. What are the specific mechanisms for communicating results and changing courses, curriculum, learning activities within a course, etc

Review and Approval Signatures & Date:
Program Coordinator if applicable _______ Stephen Starnes _______________________
Department Chair: _______ Ben Jang ________________________________
Dean ________________________________


Please complete this page for each Student Learning Outcome (minimum of 3) for each of your degree programs.

Degree Program Title: _______Chemistry_________ Degree Type: ______MS___________
Banner/CIP Code: _____40050100_________

STUDENT LEARNING OUTCOME # 2

1. STUDENT LEARNING OUTCOME (SLO): Students should be able to communicate scientific results in writing and as oral presentations at American Chemical Society meetings, conference proceedings and journal publications.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem 597 Research Techniques and Design: Chem 501 Graduate Seminar: Chem 518 Thesis. Each faculty in the department runs his own innovative research group. Students are guided by the faculty member to perform laboratory techniques to solve a particular scientific problem. Students present their methods and results in scientific reports and with presentations at group meetings and departmental seminars. Faculty will analyze and make recommendations each semester based on student progress and achievements.

3. ACTION PLAN: STRATEGIES/METHODS FOR OBSERVING STUDENT LEARNING. Data and outcomes will be recorded and shared in scientific reports, powerpoint presentations and scientific analysis programs. Faculty will observe and monitor student's progress and achievements by assessing their work during research group meetings (Chem 518, Chem 597) and departmental seminars (Chem 501). The faculty will also assess students by their ability to develop research reports (Chem 518, Chem 597). Each year the department attends the regional meeting of the American Chemical Society and students present their research as either a poster or oral presentation.

4. CRITERIA FOR SUCCESS: MEASURES & TARGETS. Each semester faculty will meet to judge the success and achievement of student participation in seminars, report writing and ACS conferences. Participation and success rate target is 90%.

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6. PROGRAM ENHANCEMENT. How has assessment data been used? Please give examples over the last 3 years. What are the specific mechanisms for communicating results and changing courses, curriculum, learning activities within a course, etc

Review and Approval Signatures & Date:
Program Coordinator if applicable ______Stephen Starnes_________________________
Department Chair: _______Ben Jang_____________________________________
Dean ___________________________
Please complete this page for each Student Learning Outcome (minimum of 3) for each of your degree programs.

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Banner/CIP Code: _____40050100_________

STUDENT LEARNING OUTCOME # 3

1. STUDENT LEARNING OUTCOME (SLO): Students should present at least one public seminar to demonstrate the in-depth knowledge in literature and skills in literature search.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem 597 Research Techniques and Design: Chem 501 Graduate Seminar: Chem 518 Thesis. Each faculty in the department mentors graduate students in his/her own innovative research group for Chem 518 and Chem 597. Faculty, on the other hand, rotates to instruct Chem 501 every semester.

3. ACTION PLAN: STRATEGIES/METHODS FOR OBSERVING STUDENT LEARNING. Project results or literature review will be presented in seminars. Project results will be reported in the group meetings, on campus meetings and off campus conferences. Faculty will observe and monitor student’s presentations in the meetings/seminars mentioned above.

4. CRITERIA FOR SUCCESS: MEASURES & TARGETS. Each semester faculty will meet to judge the success and achievement of student participation in seminars. 100% of students should deliver poster or oral presentations in group meetings or on campus meetings. 90% of students should successfully present their project results at off-campus conferences.

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6. PROGRAM ENHANCEMENT. How has assessment data been used? Please give examples over the last 3 years. What are the specific mechanisms for communicating results and changing courses, curriculum, learning activities within a course, etc

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Program Coordinator if applicable ______Stephen Starnes____________________________________
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