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 provides high quality instruction and mentorship to bachelor chemistry students while developing faculty's research and scholarly capabilities. Students should have working knowledge of the main areas of chemistry: organic, inorganic, analytical and physical chemistry.

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 418 Undergraduate Research: Each qualified faculty will assign students projects to solve real scientific problems.

Chem 497 Research Techniques and Design: Each qualified faculty will provide training to students on various techniques and instrumentation so they can carry out experiments, associated with various foundational and in-depth chemistry knowledge, in an accurate and reproducible way to move the assigned project forward. Students are to explain the experimental results to their peers effectively in an informal setting. Students should be able to propose and modify research plan with detailed techniques required for scientific problems. A report demonstrating the skills and knowledge learned is required at the end of the course.

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: ___ BA/BS ________
Banner/CIP Code: ____40050100_______

STUDENT LEARNING OUTCOME # 1

1. STUDENT LEARNING OUTCOME (SLO): Students should have working knowledge of the main areas of chemistry: organic, inorganic, analytical and physical.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem 212 Organic Chem II, Chem 351 Physical Chem I, Chem 441 Instrumental Analysis and Chem 415 Inorganic Chem. 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 at the end of semester using ACS standard exams. Faculty will meet each semester to analyze and make recommendations based on student progress and achievements.

4. CRITERIA FOR SUCCESS: MEASURES & TARGETS. The passing grade of the ACS exam is a grade that is better than the 80% of the national average on the exam. Students are to pass all four ACS exams of courses mentioned above. 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 Laurence Angel
Department Chair: Ben Jang
Dean

May 11, 2012
Please complete this page for each Student Learning Outcome (minimum of 3) for each of your degree programs.

Degree Program Title: ___Chemistry _______________ Degree Type: ____ BA/BS ________
Banner/CIP Code: _____40050100_________

STUDENT LEARNING OUTCOME # __ 2

1. STUDENT LEARNING OUTCOME (SLO): Students should be able to perform and understand innovative research.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem 418 Undergraduate Research: Chem 401 Chemical Science and Profession: Chem 497 Research Techniques and Design: Each faculty in the department mentors undergraduate students in his own innovative research group. Students are guided by the faculty member to perform and solve a particular scientific problem. Students present their research by writing scientific reports and with oral presentations at group meetings and departmental seminars. Faculty will meet each semester to analyze and make recommendations 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 418, Chem 497) and departmental seminars (Chem 401). The faculty will also assess students by their ability to develop quality research reports (Chem 418, Chem 497).

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 laboratory research. Participation and success rate target is 80%.

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 Laurence Angel
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: ____ BA/BS ________
Banner/CIP Code: _____40050100_________

STUDENT LEARNING OUTCOME # 3

1. STUDENT LEARNING OUTCOME (SLO): Students should be able to communicate the results of their experiments and research to chemists and non-chemists.

2. LINKS TO CURRICULUM & PROGRAM FACULTY. Courses that support this SLO are Chem 418 Undergraduate Research and Chem 401 Chemical Science and Profession: Each faculty in the department mentors undergraduate students in his own innovative research group for Chem 418. Faculty, on the other hand, rotates to instruct Chem 401 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. 90% of students should deliver poster or oral presentations in group meetings or on campus meetings. 80% of students should successfully present their project results in off campus conferences.

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 __________ Laurence Angel _______________________
Department Chair: __________ Ben Jang ________________________________
Dean ________________________________