

**Mission, Objectives, Outcomes and Assessment**  
**Bachelor of Science Degree Program (B.S.)**  
**Department of Chemistry**

**University Mission:** “Wichita State University is committed to providing comprehensive educational opportunities in an urban setting. Through teaching, scholarship, and public service, the University seeks to equip both students and the larger community with the educational and cultural tools they need to thrive in a complex world, and to achieve both individual responsibility in their own lives and effective citizenship in the local, national, and global community.”

The Department of Chemistry meets this mission by offering an undergraduate curriculum approved by the American Chemical Society for chemistry majors focusing on the discipline. The Department also offers undergraduate degrees for those individuals desiring to enter biologically related fields, business related areas and secondary education. Most undergraduate majors carry out an independent research project which requires them to make oral presentations to their research groups and turn in a written report to the Department based on their research results.

**Department of Chemistry Mission:** The Chemistry Department is committed to provide a high-quality and well-rounded educational program equipping students with the core content and appropriate skills for successfully continuing studies and/or for careers related to the discipline.

**Program Goals and Objectives:** The educational goals and objectives of the undergraduate B.S. program are:

1. to prepare students for professional careers in chemistry, such as in government, industrial or chemical organizations, or in teaching in the high school; and
2. to provide students the tools, skills and competence required to pursue graduate study and research in chemistry and biochemistry.

**Learner Outcomes:** Upon completion of the degree requirements for the B.S. program, students will be able to:

1. plan and execute experiments through the use of the literature;
2. interpret experimental results and draw reasonable conclusions;
3. anticipate, recognize and respond properly to hazards of chemical manipulations;
4. communicate effectively through oral and written reports;
5. work harmoniously with others;
6. perform accurate quantitative measurements;
7. use their expertise to solve problems;
8. continue their education at the graduate level in chemistry.

**Assessment of Learner Outcomes:**

1. **American Chemical Society (ACS) Approval of the B.S. Degree Program:** To assure each B.S. degree graduate receives a certified degree from the American Chemical

Society, the department submits an annual report and undergoes a more in-depth evaluation every five years. Offering the curriculum recommended by the ACS, having professional faculty from the major chemistry subdisciplines, and adequate resources are of particular reporting concern. The number of graduating seniors and their career plans are data required in the report.

2. **ACS Standardized Exams:** Course learning will be assessed and compared to National norms in courses where these exams are available. Currently, they are available for General, Analytical, Biochemistry, Inorganic, Organic and Physical Chemistry courses.
3. **Exit Surveys:** Both written and oral surveys will be conducted. An exit survey is currently on-line and all graduating bachelor degree students are required to participate. The exit survey asks students about their experience at WSU, their response to the program of study, their favorite professor, their career plans, etc. The results are then reviewed by the Chair in an oral question and answer period.
4. **Independent Study Requirement:** Students are required to present a written report based on an original research project. The students are expected to organize the report as follows: Title, abstract, introduction, experimental details, results, discussion, summary and references. Often the results of these reports are presented at professional meetings and are published in refereed journals. Reports, presentations and publications will be used as an assessment tool of the quality of the undergraduate program.

### **Results:**

The assessment plan will be implemented in Spring, 2005.

### **Feedback Loop:**

Assessment data will be collected and stored in spread sheets and files by the Undergraduate Secretary in the Chemistry Department. The data will be collected semester by semester or annually, depending on the assessment information desired.

Annual data include:

- The citations of undergraduate coauthors on presentations at professional meetings and the citations of undergraduate coauthors on publications in refereed journals.

Semester by semester data include:

- Results of American Chemical Standardized Subject Matter Exams in courses where these exams are available. (Currently these include CHEM 103, 111, 112, 523, 524, 532, 546, 548, 615, and 663. An exam for CHEM 531 will be available fall of 2005.)
- Course Syllabi.
- Course enrollment figures after the 20<sup>th</sup> day of classes.
- Written reports from Independent Study (CHEM 669 and 690.)
- Tracking of College of Education majors. (These people will be identified by the Undergraduate Secretary at the beginning of the semester and relayed to the instructor of the appropriate course.)
- The information derived from exit surveys of graduating majors including career choices.

- The number of chemistry majors.
- The number of graduating majors and their respective major.

The accumulated data will be copied, attached to the agenda of a departmental faculty meeting late in the spring semester and discussed at that faculty meeting. The information desired by the LAS Dean's office will then be forwarded to them.