

**STUDENT LEARNING ASSESSMENT PROGRAM
SUMMARY FORM AY 2004-2005**

Degree and
Program Name:

BS in Chemistry

Submitted By: Doug Klarup, Chair

Please complete a separate worksheet for each academic program (major, minor) at each level (undergraduate, graduate) in your department. Worksheets are due to CASA annually by July 1. For departments undergoing the IBHE program review, this worksheet should be submitted in fulfillment of the requirements for the learning assessment portion of the statewide review. For information about assessment, visit the Assessment webpage at <http://www.eiu.edu/~assess/>.

PART ONE:

What are the learning objectives?	How, where and when are they assessed? Committee/person responsible?	What are the expectations?	What are the results?	How will/have the results be/been used? Committee/ person responsible?
1. Students will learn fundamental principles and applications in each of the major subdisciplines in chemistry.	a) ETS Major Field Test administered to graduating seniors; b) item on exit survey for graduating seniors; c) item on alumni survey sent each year to 3-year and 8-year alumni	a) For each subtest, most examinees scoring at or > 50 th percentile; b),c) average response = or > 3 on 5-point scale where 5=strongly agree, 1=strongly disagree	a) % meeting expectations for 2004: Physical – 40%, Organic – 60%, Inorganic – 40%, Analytical – 60%; b),c) new surveys being developed for use in AY04-05	a) CHM 2310, a core course in inorganic chemistry, was revised and increased in credits from 2 to 3 sh; CHM 3920, Physical Chemistry II, was added to the requirements for the Biochem Concentration; b),c) courses and/or program requirements will be revised as appropriate
	a)-c) Assessment Committee			a)-c) Curriculum Committee, course instructors
2. Students will be able to critically analyze a breadth of chemical problems & experimental results.	a) Critical thinking component of Major Field Test; b) assignments in CHM 2730 (project), 4860 (paper), and 4770 (laboratory report); c) item on exit survey for graduating seniors; d) item on alumni survey sent each year to 3-year and 8-year alumni	a) Mean % correct for each year = or > national mean (35.6); b) rubric and performance expectation to be developed for AY04-05; c),d) average response = or > 3 on 5-point scale where 5=strongly agree, 1=strongly disagree	a) Mean % correct was 40.2% b) data collection will begin in AY05-06; c),d) new surveys being developed for use in AY05-06	a)-d) Courses and/or program requirements will be revised as appropriate
	a), c), d) Assessment Committee;			a)-d) Curriculum Com-

	b) Assessment Committee, course instructors			mittee, course instructors
3. Students will be able to execute chemical experiments utilizing modern methods & equipment	a) Assignments in CHM 2845 (IR spectrometer), 3455 (UV/-VIS spectrophotometer), 3780 (chromatography), 3915 (NMR spectrometer), 4770 (lasers), 4905 (inert atmosphere techniques); b) student research participation; c) item on exit interview of graduating seniors regarding ability to apply instrumental methods; d) item on exit survey for graduating seniors; e) item on alumni survey sent each year to 3-year and 8-year alumni	a) 100% of students successfully complete each assignment; b) 50% or more of graduating seniors complete a research project; c) 75% or more "yes" responses; d),e) average response = or > 3 on a 5-point scale where 5=strongly agree, 1=strongly disagree	a) 04-05: CHM 2845, 3455, 3780, 3915, 4770, 4905-100% of students met expectations b) 57% of majors graduating in 04-05 completed research projects; c) 100% of respondents responded "yes"; d),e) new surveys being developed for use in AY05-06	a),c),d),e) Courses and/or program requirements will be revised as appropriate; we are revising curriculum to allow an upper division inorganic/organic lab class for the Spring semester; this will increase quality lab experience and spread the curricular load b) student research opportunities will be enhanced as needed
	a) Course instructors, Assessment Committee; b)-e) Assessment Committee			a),c),d),e) Course instructors, Curriculum Committee; b) Undergraduate Research & Curriculum Committees
4. Students will be familiar with computer applications in chemistry.	a) Assignments in CHM 2845, (NMR data handling), 3915 (binary phase diagram expt, modeling expt); b) item on exit survey for graduating seniors; c) item on alumni survey sent each year to 3-year and 8-year alumni	a) 100% of students successfully complete each assignment; b), c) average response = or > 3 on 5-point scale where 5=strongly agree, 1=strongly disagree	a) 100% of 04-05 students met expectation in CHM 2845; 100% of 3915 students met expectations; b),c) new surveys being developed for use in AY05-06	a)-c) Courses and/or program requirements will be revised as appropriate
	a) Course instructors, Assessment Committee; b),c) Assessment Committee			a)-c)Course instructors, Curriculum Committee
5. Students will be able to properly utilize chemical information sources	a) Assignments in CHM 3500 (electronic search, reference material search); b) student seminars in CHM 3001 & 4001; c) item on exit survey for graduating seniors; d) item on alumni survey sent each year to 3-year	a) 100% of students successfully complete each assignment; b) CHM 3001: 100% of students with scores = or > 2 on literature item; CHM 4001: same as for CHM 3001; c), d) average response = or > 3 on	a) 100% of 04-05 students completing course met expectations; b) 93% of 04-05 CHM 3001/4001 = or > 2; c),d) new surveys being developed for use in AY05-06	a)-d) Course and/or program requirements will be revised as appropriate

	and 8-year alumni	5-point scale where 5=strongly agree, 1=strongly disagree		
	a) Course instructors, Assessment Committee; b) department faculty, course instructors, Assessment Committee; c),d) Assessment Committee			a)-d) Curriculum Committee, course instructors
6. Students will be able to apply the scientific method of investigation.	a) Student research activity; b) ACS review of sample research reports submitted as part of 5-year review of major; c) item on exit survey for graduating seniors; d) item on alumni survey sent each year to 3-year and 8-year alumni	a) 50% or more of graduating majors complete a research project; b) positive review of reports by ACS; c), d) average response = or > 3 on 5-point scale where 5=strongly agree, 1=strongly disagree	a) 57% of majors graduating in 04-05 completed research projects b) concerns expressed in most recent review; c), d) new surveys being developed for use in AY05-06	a)-d) Student research opportunities will be enhanced and/or performance standards for research will be modified as appropriate. Comments from ACS review have led to changes in report writing guidance and collection
	a) Assessment & Undergraduate Research Committees; b) department chair			a)-d) Undergraduate Research & Curriculum Committees
7. Students will be able to communicate technical material effectively in speaking & writing	a) Student seminars in CHM 3001, 4001; b) speaking assignment in CHM 4860; c) writing assignments in CHM 3780 (final report) and 3915 (binary phase experiment report); d) item on exit survey for graduating seniors; e) item on alumni survey sent each year to 3-year and 8-year alumni	a) CHM 3001: 90% of students receive passing score on first attempt; CHM 4001: same as for CHM 3001; b) all students earn score = or > 80%; c) 90% of students have scores = or > 70% on first attempt; d),e) average response = or > 3 on a 5-point scale where 5=strongly agree, 1=strongly disagree	a) 3001 and 4001: 100% of students met expectation b) 25% of students met expectation c) AY04-05: 80% in CHM 3780; 63% in CHM 3915 d),e) new surveys being developed for use in AY05-06	a) CHM 3001, 4001 will be modified as appropriate; b)-e) course and/or program requirements will be revised as appropriate
	a) Assessment Committee, course instructors, department faculty; b),c) Assessment Committee, course instructors; d),e) Assessment Committee			a) Curriculum Committee, course instructors, department faculty; b)-e) Curriculum Committee, course instructors

PART TWO: Summarize changes and improvements in curriculum, instruction, and learning that have resulted from the implementation of your assessment program. While this section should focus on the current academic year, some departments may find it useful to discuss trends in longitudinal data.

1. Based in part on results from early administrations of the Major Field Test, CHM 2310, a core course in inorganic chemistry which is required of all majors, was revised with an accompanying increase from 2 to 3 semester hours. In addition, CHM 3920, Physical Chemistry II, was added as a requirement to the Biochemistry Concentration.
2. An application for recertification for our ACS concentration and certification for our biochemistry concentration was submitted SP03. Clarifying information, requested in SP05 by the ACS, will be submitted in Summer, 2005.
3. Guidelines and expectations for student presentations in CHM 3001 and 4001 have been clarified and the evaluation instrument has been revised.
4. An experiment that requires use of inert atmosphere techniques was added to CHM 4905 in 2002-03.
5. Based upon exist surveys and a desire to improve laboratory training, we are revising our curriculum to allow upper division organic laboratory experiences. We will place this course in the Spring semester, as exit surveys (and interviews) have indicated that the fall semester course load is too heavy.
6. Based upon concerns in the American Chemical Society response to our recertification request (submitted SP03), we are developing a more thorough and uniform approach to student research report requirements and collection
7. The department's assessment continues to be refined to include more specific measurements and expectation levels and we anticipate that this, along with sufficient data accumulation, will help in tracking student learning.
8. The assessment plan will be reviewed by the CHM curriculum committee and department to devise potential curriculum and program modifications.