***STUDENT LEARNING ASSESSMENT PROGRAM SUMMARY FORM AY 2017-2018***

Please complete a separate worksheet for each academic program (major, minor) at each level (undergraduate, graduate) in your department. Worksheets are due to CASA this year by **June 15, 2018**. Worksheets should be sent electronically to [kjsanders@eiu.edu](mailto:kjsanders@eiu.edu) and should also be submitted to your college dean. For information about assessment or help with your assessment plans, visit the Assessment webpage at  [http://www.eiu.edu/~assess/](http://www.eiu.edu/%7Eassess/) or contact Karla Sanders in CASA at 581-6056.

**Degree and Program Name:**

M.S. in Chemistry

**Submitted By:**

Rebecca Peebles, Chair

# PART ONE

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| What are the learning objectives? | How, where, and when are they assessed? | What are the expectations? | What are the results? | Committee/ person responsible? How are results shared? |
| 1.Students will learn fundamental principles at an advanced level in selected areas in chemistry | a) Set of placement exams in four sub-disciplines: Analytical, Inorganic, Organic, and Physical Chemistry; b) Department of Chemistry Evaluation of Student Performance on the M.S. Comprehensive Exam;  c) literature seminar given in CHM 5001. | a) 100% of incoming students eligible to enroll in chemistry graduate core courses: Bio- Analytical, Inorganic, Organic, and Physical; b) 100% of students with scores ≥ 3 (competent, 4 point scale) on knowledge item; c) 100% of students with average rating for chemistry content items on evaluation instrument ≥ 2 (3 point scale). | a) (of 4 students FY18), Bioanal: 100%, Inorg: 75%, Org: 50%, Phys: 75%; b) 100%; c) (of 3 students FA17) 67% | 1. Graduate Committee; 2. Student’s thesis committee, research advisor and Graduate Coordinator; c) course instructors, department faculty.   Department Chair and Graduate Committee discuss results. |
| 2. Students will be able to conduct original research | a) Department of Chemistry Evaluation of Student Performance on the M.S. Comprehensive Exam; b) Department of Chemistry Evaluation of Student Performance on the M.S. Thesis | a) 100% of students with scores ≥ 3 (competent) on independent research item; b) 100% of students with scores  ≥ 3 (competent) on independent research item. | 1. 100%; 2. 100% | a) Student’s research advisor and thesis committee; b) student’s thesis committee.  Department Chair and Graduate Committee discuss results |
| 3. Students will be able to communicate technical material effectively in speaking and writing | a) CHM 5001: seminar evaluation; b) Department of Chemistry Evaluation of Student Performance on the M.S. Comprehensive Exam; c) | 1. 100% of students with an average rating ≥ 2 (3 point scale) for presentation items; 2. 100% of students with scores ≥ 3 (competent) on | a) (of 3 students FA17) 83%; b) 100%; c) 100%; d) 50% | a) Course instructors, department faculty; b) department faculty; c) Student’s thesis committee, research |

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|  | Department of Chemistry Evaluation of Student Performance on the M.S. Thesis;  d) student research presentations at conferences. | communication item; c) 100% of students with scores ≥ 3 (competent) on communication item; d) 75% or more of students give a conference presentation by graduation. |  | advisor and Graduate Coordinator; d) student’s thesis advisor, Graduate Coordinator.  Department Chair and Graduate Committee discuss results. |
| 4. Students will be able to properly utilize chemical information sources | a) CHM 5001: seminar evaluation; b) Department of Chemistry Evaluation of Student Performance on the M.S. Thesis;  c) assignment in CHM 5002 (use of electronic databases to find relevant chemical information). | a) 100% of students with scores ≥ 2 (3 point scale) on literature item; b) 100% of students with scores ≥ 3 (4 point scale) on chemical information item; c) 100% of students successfully complete assignment. | a) (of 3 students FA17) 67%; b) 100%; c) 100% | a) Course instructors, department faculty; b) Student’s research advisor and thesis committee; c) course instructors.  Department Chair and Graduate Committee discuss results |
| 5. Students will be able to critically analyze a breadth of chemical problems & experimental results. | a) Department of Chemistry Evaluation of Student Performance on the M.S. Comprehensive Exam; b) Department of Chemistry Evaluation of Student Performance on the M.S. Thesis;  c) CHM 5003: written critique of a published paper; d) CHM 5180: open ended lab assignment in which students develop two analytical methods for quantifying a chemical substance and compare these methods; e)  CHM 5420: ‘chalk-talk’ based on a topic in a current organic chemistry journal article; f) CHM 5360: presentation of research paper on supramolecular chemistry; g) CHM 5210: completed homework assignments, research paper, or presentation of research paper. | a) 100% of students with scores ≥ 3 (competent) on critically analyze item; b) 100% of students with scores ≥ 3 (competent) on critically analyze item; c) 100% of students successfully complete this activity; d-f) 50% of students earn a grade of 90% or higher on selected activity;  g) 50% of students earn a cumulative grade of 90% or higher on all graded HW assignments. | 1. 100%; 2. 100%; c) 100%; d) ~30% (depending which lab experiment is used for evaluation) e) CHM5420 was not offered in FY18 – next data available from FA18; f) CHM5360 was not offered in FY18 – next data available from SP19; g) CHM 5300 was offered in place of 5210 in FA17 – 100% of students met the required standard. | a) Student’s thesis committee, research advisor, and Graduate Coordinator; b) Student’s research advisor and thesis committee; c) –g) course instructors.  Department Chair and Graduate Committee discuss results |

# PART TWO

Describe what your program’s assessment accomplishments since your last report was submitted. Discuss ways in which you have responded to the CASA Director’s comments on last year’s report or simply describe what assessment work was initiated, continued, or completed.

**For 17-18 there were four students entering our program (3 FA, 1 SP + 1 FA who dropped out)**

The majority of quantitative measures based on grades or examinations continue to meet our expected standards, with the exception of graduate student entrance exams. Although we have not implemented a post-test to follow up from these exams (this is difficult, logistically, and students already juggle a significant load at the time they are completing their degree), 100% of students who have taken remedial undergraduate coursework as a result of these entrance exams have done well in those courses. This is an indication that the desired learning outcomes from remedial work are being achieved, and we may be able to formalize this assessment in the future.

We were able to assemble data from the Evaluation of Student Performance on the M.S. Comprehensive Exam and Evaluation of Student Performance on the M.S. Thesis, this year; however, the return rate of these surveys is still low. We feel that online surveys would have even lower return rate – in the current format, the survey is handed to each committee member at the time of the defense, so it is as easy as it can get. The graduate coordinator and chair will work on emphasizing to faculty the importance of returning these surveys.

Performance on Graduate Seminar assessment items was markedly worse than last year – one of the students in this year’s pool (of three total) was quite weak, leading to lower than idea averages.

A final concern is the variability in the assessment data based on the faculty who are teaching the courses used for assessment. Not only are different assignments used from year to year, but some faculty have significantly varying standards. This might suggest that using data averaged over several years would lead to more reliable year to year comparisons, in addition to giving larger and more statistically viable data sets.

# PART THREE

Summarize changes and improvements in **curriculum, instruction, and learning** that have resulted from the implementation of your assessment program. How have you used the data? What have you learned? In light of what you have learned through your assessment efforts this year and in past years, what are your plans for the future?

The Graduate Committee is still working on development of an exit survey (and alumni surveys) for graduate students. With the recent implementation of online exit and alumni surveys for our undergraduate programs, we expect to be able to adapt these for the graduate program.

As a result of the Vitalization process, we implemented an Accelerated MS program in Chemistry that is effective for FY19, and we are continuing to make changes to our graduate options this year. One clear result of our recent assessment, that has been highlighted for several years now, is that several courses are no longer taught in the format that was used when our assessment plan was created. In addition, it is impractical to teach some of the courses in the previous format. With other upcoming changes and/or additions to our MS program, we will undergo a full revision of our graduate assessment plan sometime in the near future.