STUDENT LEARNING ASSESSMENT PROGRAM SUMMARY FORM AY 2019 – 2020

Degree and Program Name: M.S. in Chemistry

Submitted By: Radu F. Semeniuc, Graduate Coordinator

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 17, 2020**. Worksheets should be sent electronically to 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/ or contact Karla Sanders in CASA at 581-6056.

Please use size 10 font or larger.

PART ONE

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 entrance 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)** Six students took the entrance exams; Bioanal: 100%, Inorg: 100%, Org: 33%, Phys: 100%; **b)** (of 3 students in AY 19-20) 100%; **c)** (of 3 students AY 19-20) 100%, overall average = 2.3	**a)** Graduate Committee; sub-discipline faculty **b)** Student's thesis committee, research advisor and Graduate Coordinator; **c)** course instructors, department faculty. Department Chair and Graduate Committee discuss results, then share with CHM Faculty.
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, 4 point scale) on independent research item; **b)** 100% of students with scores ≥ 3 (competent) on independent research item.	**a)** (of 3 students graduated in AY 19-20) 100% **b)** (of 3 students graduated in AY 19-20); 100%	**a)** Student's thesis committee, research advisor and Graduate Coordinator; **b)** student's thesis committee. Department Chair and Graduate Committee discuss results, then share with CHM Faculty.
3. Students will be able to communicate scientific 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;	**a)** 100% of students with an average rating ≥ 2 (3 point scale) for presentation items; **b)** 100% of students with scores ≥ 3 (competent, 4 point scale) on communication	**a)** (of 3 students AY 19-20) 100%, overall average = 2.4; **b)** (of 3 students graduated in AY 19-20); 100%;	**a)** Course instructors, department faculty; **b)** department faculty;

3. contd.	**c)** Department of Chemistry Evaluation of Student Performance on the M.S. Thesis; **d)** student research presentations at conferences.	item; **c)** 100% of students with scores ≥ 3 (competent, 4 point scale) on communication item; **d)** 75% or more of students give a conference presentation by graduation.	**c)** (of 3 students graduated in AY 19-20) 100% **d)** (of 3 students graduated in AY 19-20) 100%	**c)** Student's thesis committee, research advisor and Graduate Coordinator; **d)** student's thesis/research advisor, Graduate Coordinator. Department Chair and Graduate Committee discuss results, then share with CHM Faculty.
4. Students will be able to properly utilize chemical information and database 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 AY 19-20) 100%, overall average = 2.3; **b)** (of 3 students graduated in AY 19-20) 100%; **c)** (of 6 students in AY 19-20) 100%.	**a)** Course instructors, department faculty; **b)** Student's research advisor, thesis committee, and Graduate Coordinator; **c)** course instructors. Department Chair and Graduate Committee discuss results, then share with CHM Faculty.
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, 4 point scale) on critically analyze item; **b)** 100% of students with scores ≥ 3 (competent, 4 point scale) 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.	**a)** (of 3 students graduated in AY 19-20); 100%; **b)** (of 3 students graduated in AY 19-20); 100%; **c)** 100%; **d)** (of 11 students in AY 19-20) 82 %. **e)** (of the 5 students in AY 19-20) 0%; however, 4 students out of 5 – 80 % scored 75 % or above; **f)** CHM 5360 was not offered in AY 19-20 – next data will be available in SP 21 from the same course; **g)** due to faculty turnover *CHM 5210* was last offered in FA 17; next data will be available in FA 20 from the same course.	**a)** Student's thesis committee, research advisor, and Graduate Coordinator; **b)** Student's research advisor, thesis committee and Graduate Coordinator; **c-g)** course instructors. Department Chair and Graduate Committee discuss results, then share with CHM Faculty.

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 AY 19-20, seven new MS students started the program, and three MS students successfully defended their thesis; there was one continuing student. As such, having a full complement of new students, the data presented here is more representative than last year's data. However, due to a change in in the graduate coordinator, as well as with the former graduate coordinator working completely remotely since March 2020, some data is still missing.

The majority of quantitative measures based on grades or examinations continue to meet our expected standards, with the exception of a few graduate student entrance exams and CHM 5420. However, the exams used in (1-a) speak more about the student's background rather than about their progress in our graduate program. More meaningful information for assessment would be to measure the effectiveness of the curriculum at the end of the program. One possibility would be to have the students to retake the exams before leaving the program, so that the degree of improvement could be monitored. We will also review and discuss the learning activity of our students with the graduate faculty to find ways to improve their performance in our program.

Another difficulty we face continues to be the collection of the completed evaluation forms from the thesis committee members. This is an area that needs committee and administrative (Chairperson) level discussion. The graduate committee will discuss whether having the research advisor be responsible for sharing the forms with the student would possibly solve this problem, as well as discuss other options to remedy the low return of forms. The graduate committee will discuss this (and other possible solutions to this problem) and put in place a plan of actions to solve this issue.

Due to a faculty retirement and another taking a leave of absence, we were left with no active physical chemistry faculty in FA 19, therefore CHM 5210 could not be offered. However, with 3 new hires in the past two years, we now have a complete contingent of active faculty in all subdisciplines so now the curriculum can be delivered according to the regular rotation schedule.

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?

From notes on previous report and from previous graduate committee meetings, it is clear that developing an exit survey for graduating MS was discussed and decided to be a good idea. Our intention is to pursue this plan of action. The Graduate Committee will draw a draft of the survey and discuss it with the graduate faculty in our Department. After that, the survey will be given to our students.

We have just developed our non-thesis MS option, and we also have our first students in our new accelerated BS/MS program entering in the MS stage in AY 20-21. We also plan to increase the involvement of our graduate faculty in the course-specific assessment items, as they could provide a good feedback about our program and provide suggestions on how to increase its quality. This would benefit not only our students but also our faculty, especially the three new faculty members that joined our Department recently.

Student Learning Assessment Program
Response to Summary Form
Graduate Program 2020
November 6, 2020

Department: Chemistry

Degree and Program Name: M.S. in Chemistry

Reviewer: Dr. Nikki Hillier, Graduate Assessment Coordinator, Graduate School

Category	Comments
Learning Objectives	The objectives for the program encompass all the graduate learning goals established by EIU's Council on Graduate Studies.
How, Where, and When Assessed	The assessment plan is clear. Students are assessed when they begin the program and then toward the end of the program through comprehensive exams and a thesis evaluation. Throughout the program students are formatively assessed using a literature seminar and a variety of assignments including: lab assignments, a chalk-talk, article critiques, and oral presentation of research papers. This assessment plan seems helpful in ensuring students are prepared for the program, and supporting student learning until completing the program.
Expectations	Expectations are appropriate for graduate learning and are clearly defined.
Results	The program is meeting or exceeding almost all assessment goals. The exceptions were that one assessment was not completed as the class was not offered during the assessment period, and the chalk-talk (no students score 90% or better). That students are passing entrance exams shows the caliber of students you are recruiting. That they continue to excel throughout the curriculum and at completion highlights the solid work you are doing to engage students effectively in the curriculum. That all the students had the opportunity to give conference presentations shows your department's commitment to research and highlight the quality of work your department does.
How Results Will be Used	The assessment committee collects assessment data, and discusses with Chair, then department as whole. This is appropriate.
Recommendations	The program has a strong assessment plan, and the report reflects how capable your students are and how committed to student learning the faculty are. One recommendation is to conduct exit interviews (mentioned in Part 3) in order to allow students to assess their learning. It might also be helpful to set expectations in terms of where you expect graduates to progress to in terms of career or doctoral programs, and assess that through LinkedIn or follow-up survey. The difficulty in collecting thesis evaluations may be remedied through the use of web-based assessment tools, like Qualtrics. We recommend continuing to use the strong assessments currently in use, and fully support the idea suggested in Part 2 regarding

	post testing; and the ideas in Part 3 regarding including (new) graduate faculty in the assessment design.

The Council on Graduate Studies is evaluating assessment, learning goals, and future reporting schedules during the fall semester 2020.