

Department/Unit Chemistry and Biochemistry College/School CNSM

Environmental Chemistry Ph.D. program

NOTE: This is a new document for the Academic year 2010-11. Please contact Bill Simpson or the Provost's office for prior years.

Table 4.1 Outcomes Assessment Implementation Summary

Complete a separate table for each degree and certificate program

	Academic Year		
	2010-11	2011-12	Fall 2012-Spring 2014
Assessment information	<p><i>Graduate program assessment forms were compiled in May/June 2011 and results were analyzed by considering whether students were deficient (below the expected level for their year in program), at expectation, or exceeding expectations. The percent of students exceeding the expectation minus the percent of deficient students is tabulated below:</i></p> <ol style="list-style-type: none"> 1. Specific knowledge of literature 13% 2. Ability to critically analyze literature 0% 3. Technical abilities 50% 4. Quantitative abilities 13% 5. General knowledge of field 25% 6. Presentation skills 50% 7. Writing Skills 0% 	<p><i>Graduate program assessment forms were compiled in May/June 2012 and results were analyzed by considering whether students were deficient (below the expected level for their year in program), at expectation, or exceeding expectations. The percent of students exceeding the expectation minus the percent of deficient students is tabulated below:</i></p> <ol style="list-style-type: none"> 1. Specific knowledge of literature -17% 2. Ability to critically analyze literature 0% 3. Technical abilities 33% 4. Quantitative abilities 33% 5. General knowledge of field 0% 6. Presentation skills 17% 7. Writing Skills 17% 	<p><i>Graduate program assessment forms were compiled in May 2014 and results were analyzed by considering whether students were deficient (below the expected level for their year in program), at expectation, or exceeding expectations. The percent of students exceeding the expectation minus the percent of deficient students is tabulated below:</i></p> <ol style="list-style-type: none"> 1. Specific knowledge of literature 13% 2. Ability to critically analyze literature 6% 3. Technical abilities 13% 4. Quantitative abilities -13% 5. General knowledge of field 6% 6. Presentation skills 13% 7. Writing Skills 0%

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	<p>8. Ability to formulate hypotheses and articulate methods for testing hypotheses (Ph.D.) 0%</p> <p>9. Ability to act as an independent researcher (Ph.D.) 25%</p> <p><i>These primary data are used to address our first three learning objectives.</i></p> <p><i>All graduating students met or exceeded all assessment criteria.</i></p> <p><i>Publication data was collected and are in departmental records.</i></p> <p><i>Employment: There were 2 Ph.D. graduates. Both Ph.D. students are employed in field.</i></p>	<p>8. Ability to formulate hypotheses and articulate methods for testing hypotheses (Ph.D.) -17%</p> <p>9. Ability to act as an independent researcher (Ph.D.) 33%</p> <p><i>These primary data are used to address our first three learning objectives.</i></p> <p><i>For most criteria the students met or exceeded the expectations. In two categories we observe deficiencies.</i></p> <p><i>Publication data was collected and are in departmental records.</i></p> <p><i>Employment: No Ph.D.'s were graduated in this AY period.</i></p>	<p>8. Ability to formulate hypotheses and articulate methods for testing hypotheses (Ph.D.) -6%</p> <p>9. Ability to act as an independent researcher (Ph.D.) 0%</p> <p><i>These primary data are used to address our first three learning objectives.</i></p> <p><i>Most students met or exceeded the expectations. There are two areas that were found to have minor deficiencies on average.</i></p> <p><i>Publication data was collected and are in departmental records.</i></p> <p><i>Employment: There were three Ph.D. graduates. All Ph.D. students are employed in field.</i></p>
<p>Conclusions drawn from the information collected above and how are faculty collectively involved in drawing conclusions</p>	<p>1) <u>Technical abilities and presentation skills</u>: Students scored very well or well on points 3 (Technical), 6 (Oral Presentations), and 5 (Knowledge of field) of the assessment survey. Annual progress reports also indicated students were making progress.</p> <p>2) <u>PhD will demonstrate</u></p>	<p>1) <u>Technical abilities and presentation skills</u>: Students scored very well on points 3 (Technical), and 6 (Oral Presentations), and are met expectations on point 5 (General Knowledge of field) of the assessment survey. Annual progress reports also indicated good progress / performance in</p>	<p>1) <u>Technical abilities and presentation skills</u>: Students scored very well on points 3 (Technical), 6 (Oral Presentations), and point 5 (General Knowledge of field) of the assessment survey. Annual progress reports also indicated good progress / performance in these areas.</p>

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	<p><u>independence and novel contributions:</u> All graduating and advancing students met all criteria. Note that the critical thinking aspects, points 2 (Critical Literature) and 8 (PhD hypothesis development), of the survey were neutral to positive, but less positive than other areas.</p> <p>3) <u>Communications:</u> Students performed very well in oral (point 6) communication but only neutral in written (point 7) communications.</p> <p>4) <u>Employment:</u> Employment of students remains very strong.</p>	<p>these areas.</p> <p>2) <u>PhD will demonstrate independence and novel contributions:</u> The students were at or below expectations in the areas of points 1 (Specific Knowledge of literature), 2 (Ability to Critically analyze literature) and point 8 (Ability to formulate hypothesis). Taken together these results indicate that the students are not spending adequate effort reading literature and generating hypothesis specific to their projects.</p> <p>3) <u>Communications:</u> Students performed very well in oral (point 6) and written (point 7) communications.</p> <p>4) <u>Employment:</u> Employment of previous students remains very strong.</p>	<p>2) <u>PhD will demonstrate independence and novel contributions:</u> The students were at or above expectations in the areas of points 1 (Specific Knowledge of literature) and 2 (Ability to Critically analyze literature). Students on average were slightly below expectations in area 8 (Ability to formulate hypothesis).</p> <p>3) <u>Communications:</u> Students were at or above expectations in oral (point 6) and written (point 7) communications.</p> <p>4) <u>Employment:</u> Employment of previous students remains very strong.</p>
Curricular changes resulting from conclusions drawn above	<p>1) No changes.</p> <p>2) We are considering ways in which we can stress critical thinking and hypothesis</p>	<p>1) No changes.</p> <p>2) We are implementing a new requirement for a written research proposal to accompany the oral</p>	<p>1) No changes.</p> <p>2) We are early on in the use of the written research proposal as part of the Ph.D. comprehensive</p>

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	<p><i>development. We will make one oral comprehensive exam a written research proposal. That will also help with writing skills.</i></p> <p>3) <i>No changes.</i></p> <p>4) <i>No changes.</i></p>	<p><i>comprehensive exam. This change should encourage students to spend more time critically reviewing literature specific to their projects and provide a forum for getting feedback on their project hypothesis early on in their graduate career.</i></p> <p>3) <i>No changes.</i></p> <p>4) <i>No changes.</i></p>	<p><i>exam. We anticipate that this will improve the students ability to formulate research questions and hypothesis.</i></p> <p>3) <i>No changes.</i></p>