

**COURSE SLO ASSESSMENT REPORT, SCC**Department: Earth, Space, and Physical Science Course: Chem 209Year: 2013 Semester: Fall

1) Outcome to be assessed	SLO A: "Identify the essential parts of a problem and apply known chemical concepts in solving the problem"
2) Means of assessment and criteria of success	As a method of assessment, we used a common final exam as 25 multiple choice questions to give to all four sections assessed. The exam had some concept questions and some calculation based problems. Success is achieved when at least 70% of the students score 60% or higher correct on the common multiple choice questions.
3) Summary of data collected	Number of students assessed: 107 Number of sections: 4 Average correct answers for each section: 16.8(67.1%), 17.6(70.1%), 18.6(75.1), 19.3(77.3%) Average answers for all sections combined: 17.9(71.4%) 77(72.0%) of the students scored at least 60% correct on the assessment.

4) Analysis of data	<p>From the data, these questions had a low correctness (less than 50%).</p> <p>This includes:</p> <ul style="list-style-type: none"> <li>Question #4(Periodic Trend:atomic radii)41.1% correct</li> <li>Question #6(Reaction:Balancing)45.8% correct</li> <li>Question #23(Stoichiometry)33.6% correct</li> <li>Question #24(Bonding:VSEPR)41.4% correct</li> </ul> <p>There were only 3 questions (4, 23 &amp; 24) that had low correct response rates.</p> <p>Question #4 percentage dropped from the previous years percentage of 49.2%.</p> <p>Question #23 is a surprising result. There was an increase in success compared to last year result of 23.1%. This increase may be due to the fact that the students saw the importance of the lab assessment (Expt. #9:Stoichiometry).</p> <p>Question #24 historically gives students difficulty because the student must be proficient in many concepts (Lewis structures, VSEPR, &amp; bond angles) to give the proper response.</p> <p>Perhaps in the future we will be able to efficiently collect and analyze what incorrect responses were made to be able to determine what the students' disconnect was.</p> <p>The assessment was changed from previous years to give instructors more freedom on the final exam and to help reduce the "fatigue" factor on student performance on the assessment. The assessment was reduced to 25 multiple choice questions as opposed to the 50 from previous years. The lowest scoring questions (23 &amp; 24) were again at the end of the assessment. Perhaps in future years these two questions should be moved earlier in the assessment to see if fatigue, not concept mastering, is a factor. But from the data, fatigue should not be a factor because the last question, #25(Stoichiometry) has a high correctness percentage of 83.2%.</p>
5) Plan of action/what to do next	<p><b>The SLO was achieved</b> because 77(72.0%) of the students scored at least 60% correct on the assessment.</p>

## COURSE SLO ASSESSMENT REPORT, SCC

Department: Chemistry Course: Chem 209

Year: 2013 Semester: Fall

1) Outcome to be assessed	“Perform experiments with the given directions, collect valid scientific data, analyze the data and interpret laboratory results”																																								
2) Means of assessment and criteria of success	As a method of assessment, we used laboratory reports as a way to assess both B and C in SLOs. A full laboratory report of Experiment #9 (Stoichiometry) will be used to assess these SLOs. A rubric will be used to standardize grading of the lab report and help identify the features we are looking for in students’ performance. The students are asked to perform the gravimetric analysis experiment over a laboratory period. Directions to perform the experiment are given in the laboratory manual. The students will be evaluated on their ability to follow procedure, collect their data and perform the necessary calculations. Success is achieved when at least 70% of the students score earn a developing or accomplished score on the lab report.																																								
3) Summary of data collected	<p>Number of students assesses: 114 Number of sections: 5</p> <table border="1"><thead><tr><th></th><th><b>Beginning 0</b></th><th><b>Developing 1</b></th><th><b>Accomplished 2</b></th></tr></thead><tbody><tr><td><b>Chemical Eqn.</b></td><td>11(9.7%)</td><td>4(3.5%)</td><td>99(86.8%)</td></tr><tr><td><b>Data</b></td><td>0(0.0%)</td><td>6(5.3%)</td><td>108(94.7%)</td></tr><tr><td><b>Mass NaHCO<sub>3</sub></b></td><td>0(0.0%)</td><td>1(0.1%)</td><td>113(99.1%)</td></tr><tr><td><b>Theoretical Yield of NaCl</b></td><td>2(1.8%)</td><td>5(4.4%)</td><td>107(93.9%)</td></tr><tr><td><b>Actual Yield of NaCl</b></td><td>0(0.0%)</td><td>11(9.6%)</td><td>103(90.4%)</td></tr><tr><td><b>% Yield</b></td><td>0(0.0%)</td><td>4(3.5%)</td><td>110(96.5%)</td></tr><tr><td><b>Answer to Q2</b></td><td>30(26.3%)</td><td>44(38.6%)</td><td>40(35.1%)</td></tr><tr><td><b>Answer to Q3</b></td><td>26(22.8%)</td><td>37(32.5%)</td><td>51(44.7%)</td></tr><tr><td><b>Answer to Q4</b></td><td>11(9.6%)</td><td>24(21.1%)</td><td>80(70.2%)</td></tr></tbody></table> <p>113(99.1%) of the students earned developing or accomplished correct on the assessment.</p>		<b>Beginning 0</b>	<b>Developing 1</b>	<b>Accomplished 2</b>	<b>Chemical Eqn.</b>	11(9.7%)	4(3.5%)	99(86.8%)	<b>Data</b>	0(0.0%)	6(5.3%)	108(94.7%)	<b>Mass NaHCO<sub>3</sub></b>	0(0.0%)	1(0.1%)	113(99.1%)	<b>Theoretical Yield of NaCl</b>	2(1.8%)	5(4.4%)	107(93.9%)	<b>Actual Yield of NaCl</b>	0(0.0%)	11(9.6%)	103(90.4%)	<b>% Yield</b>	0(0.0%)	4(3.5%)	110(96.5%)	<b>Answer to Q2</b>	30(26.3%)	44(38.6%)	40(35.1%)	<b>Answer to Q3</b>	26(22.8%)	37(32.5%)	51(44.7%)	<b>Answer to Q4</b>	11(9.6%)	24(21.1%)	80(70.2%)
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4) Analysis of data	<p>The lowest scoring portion of the assessment are the questions (#2 &amp; #3). Students were quite strong in presenting data and calculations. Students tend to be able to successful if there is a procedure towards solving a problem. But when it comes to open ended questions (#2 &amp; #3), they seem to be less successful. These type of questions require the students to be able predict(“visualize”) what would happen if a change occurs in the procedure.</p> <p>Overall the students preformed well concerning the SLOs assessed. The one area of improvement should be made towards the students’ effort in answering the post lab questions. It does require a lot of concentration to be able answer questions #2 &amp; #3. A way to help the students to answer the question better is to perform the experiment again, by applying the situation described in questions #2 &amp; #3. The issue with this solution is that there won’t be enough time.</p>
5) Plan of action/what to do next	<p><b>The SLO was achieved</b> because 113(99.1%) of the students earned developing or accomplished correct on the assessment.</p> <p>There is no plan of action as the SLO was met.</p>