

COURSE SLO ASSESSMENT REPORT, SCC

Department: Earth, Space, and Physical Science Course: Chem 209

Year: 2012 Semester: Fall

1) Outcome to be assessed	SLO A: "Describe chemical events through utilization of equations and solve problems using chemical concepts"
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.
3) Summary of data collected	Number of students assessed: 118 Number of sections: 5 Average correct answers for each section: 17.8(71.2%), 20.6(82.4%), 17.33(69.3), 18.05(72.2%), 18.75(75.0%) Average answers for all sections combined: 18.35(73.1%)
4) Analysis of data	From the data, some of these questions had a lower correct(less than 50%) answers. This includes: Question #4(Periodic Trend: atomic radii)49.2% correct Question #6(Reaction: Balancing)40.7% correct Question #9(Bonding: polarity)57.6% correct Question #16(Atomic Structure: EM radiation)49.2% correct Question #22(Gases: Ideal Gas Law)23.7% correct Question #24(Bonding: VSEPR)31.4% correct

5) Plan of action/what to do next	<p>There were only 2 questions (22 & 24) that had low correct response rates. Question #22 is a surprising result. 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 (ex: not converting the temperature into Kelvin) was. Question #24 historically gives students difficulty because of the many concepts (Lewis structures, VSEPR, & bond angles) the student must be proficient in to be able to get the question correct.</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 (22 & 24) were again at the end of the assessment. Perhaps next year these two questions should be moved earlier in the assessment to see if fatigue, not comprehension, is a factor.</p>
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1) Outcome to be assessed	SLO B: "Perform experiments with given directions and collect valid scientific data"
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.

3) Summary of data collected

Number of students assessed: 104

Number of sections: 5

	Beginning 0	Developing 1	Accomplished 2
Chemical Eqn.	12(11.5%)	3(2.9%)	89(85.6%)
Data	0(0%)	24(23.1%)	80(76.9%)
Mass NaHCO₃	0(0%)	15(14.4%)	89(85.6%)
Theoretical Yield of NaCl	2(1.9%)	14(13.5%)	88(84.6%)
Actual Yield of NaCl	5(4.8%)	11(10.6%)	88(84.6%)
% Yield	8(7.7%)	7(6.7%)	89(85.6%)
Answer to Q2	26(25.0%)	29(27.9%)	49(47.1%)
Answer to Q3	31(29.8%)	33(31.7%)	40(38.5%)
Answer to Q4	14(13.5%)	14(13.5%)	76(73.1%)

4) Analysis of data	The lowest scoring portion of the assessment are the questions(#2 & #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 & #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.
5) Plan of action/what to do next	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 & #3.