DVC Instructional Course SLO, Complete Assessment History

Course: CHEM-121, General College Chemistry II

Contact: Tish Young Last edited by LBorowsk on Mar 3, 2011 Most recent plan activated Fall 2009 SLO Committee approved Apr 23, 2010

Goal: This course is a continuation of Chemistry 120, General College Chemistry I. Subject matter includes: buffers, titration curves, solubility products, thermodynamics, electrochemistry, kinetics, molecular orbital theory, coordination complexes, nuclear chemistry, organic chemistry, spectroscopy, quantitative experiments, and qualitative analysis.

Outcome #1, edited on Mar 3, 2011 by LBorowsk				plan activated Fall 2009
Outcome: Students completing the course will be able to construct and balance chemical equations.	**Assessment method:** (a) Write the net ionic equation for the formation of a complex ion. (b) Write the overall equation combining the solubility of salts and the formation of complex ions.	**Criteria:** (a) 75% of the students will correctly write a net ionic equation for the formation of a complex ion. (b) 60% of the students will correctly write the combined equilibrium equation representing the overall reaction.	**Analysis:** (a) 64% of 39 students wrote correct NIE for forming a complex ion. (Dec 17, 2008) (b) 85% of 28 students wrote a correct overall equilibrium from a Ksp and Kf. (assessment question was embedded in a larger problem, 18 Feb 09)	**Plan:** (a) More practice recognizing and writing formulas for complex ions will be given in class. (b) Affirmation of current curriculum -- no changes needed.

Outcome #2, edited on Mar 3, 2011 by LBorowsk				plan activated Fall 2009
Outcome: Students completing the course will be able to develop problem solving skills.	**Assessment method:** (a) Use a molecular orbital diagram for a diatomic molecule to determine the species bond order. (b) Correctly determine the order of a reaction based on initial rate data.	**Criteria:** (a) 75% of the students will correctly determine the bond order. (b) 75% of the students will determine the order of the reaction.	**Analysis:** (a) 91% of students correctly calculated the bond order of a diatomic molecule using an MO diagram (April 7, 2009) 85% of 41 students correctly calculated the bond order of a diatomic molecule using an MO diagram (8 April 2009) (b) 64% of 39 students determined that a chemical reaction was second order. (Dec 17, 2008) 76% of 46 students correctly determined the rate law for a chemical reaction using initial rate data (May 5, 2009) 76% of 39 students correctly determined the reaction orders for a chemical reaction using initial rates data (4 May 2009)	**Plan:** The average results of all students evaluated indicated that the measurement criteria was met. No changes in curriculum are needed.

Outcome #3, edited on Mar 3, 2011 by LBorowsk				plan activated Fall 2009
Outcome: Students completing the course will be able to develop and demonstrate appropriate chemical laboratory techniques; they will be able to perform a variety of chemical experiments, record data/observations, analyze and communicate the results.	**Assessment method:** (a) Perform an titration and graphically analyze class results to determine the temperature dependence of barium iodate solubility. (b) Measure the cell potential of a silver concentration cell and use the measured voltage to determine the Ksp of an unknown silver salt.	**Criteria:** (a) 75% will be determine the Delta H for the reaction. (b) 75% will correctly calculate the Ksp value.	**Analysis:** (a) 86% of 46 students correctly calculated delta H (March 9, 2009) (b) 82% of 35 students correctly calculated the Ksp (October 14, 2008) 86% of 43 students correctly calculated the Ksp (March 18, 2009) 87% of 46 students correctly calculated the Ksp) (12 March 09)	**Plan:** Affirmation of current curriculum -- no changes needed.

Outcome #4 *(removed)*, edited on Aug 28, 2009 by JRuehl				plan activated Fall 2009
Outcome: Students completing the course will be able to develop and demonstrate appropriate chemical laboratory techniques; they will be able to perform a variety of chemical experiments, record data/observations, analyze and communicate the results.	**Assessment method:** (a) Perform an titration and graphically analyze class results to determine the temperature dependence of barium iodate solubility. (b) Measure the cell potential of a silver concentration cell and use the measured voltage to determine the Ksp of an unknown silver salt.	**Criteria:** (a) 75% will be determine the Delta H for the reaction. (b) 75% will correctly calculate the Ksp value.	**Analysis:** (a) 86% of 46 students correctly calculated delta H (March 9, 2009) (b) 82% of 35 students correctly calculated the Ksp (October 14, 2008) 86% of 43 students correctly calculated the Ksp (March 18, 2009) 87% of 46 students correctly calculated the Ksp) (12 March 09)	**Plan:** Affirmation of current curriculum -- no changes needed.