

Course: Chem 8-9 - General Chemistry I lecture and Laboratory

1. Date of Application: 11/30/2011
2. Name, Dept of Proposer: Michelle Shulman, Chemistry
3. Name of Dept/Program housing course: Chemistry
4. Name of Chair/PD: Michelle Shulman
5. How often is the course taught:semesterly
6. Course Prerequisites:High School Chemistry
7. Unit value of course:1, 0.25
- 8: Normal Class Size: 35/17
9. Number of sections expected Fall 2012:6+
10. Number of sections expected Spring 2013:2
11. Is the course appropriate for first-year students: Yes
12. Relevant Learning Goal(s):Scientific Understanding
13. Chair will oversee submission of student work: Yes
14. Chair will oversee instructor participation in norming/asst: Yes

15. Teaching: "The first-core outcome of the Scientific Understanding will be met by achieving the six-course learning objectives outlined in the syllabus for Chem. 8 and the first course learning objective outlined in the syllabus for Chem. 9. Typically in a Chem. 8 session (1 hours 4x per week), material is first presented in a lecture format, as foundational material, and then additional in-class demonstrations, discussions, and problem-solving sessions are incorporated and are integral components to the course. In Chem. 9 students are introduced to the experiment in which fundamental principles are explored. Students work additional problems of varied complexity as they analyze and interpret their data. They are required to develop as critical thinkers and use their cumulative knowledge of the course as the semester progresses. The Chemistry Skills Mastery Center, Chem. SMC, facilitates deeper student comprehension and mastery of the material.

The second core outcome of the Scientific Understanding will be met by achieving the five-course learning objectives outlined in the syllabus for Chem. 9. The conceptual and computational knowledge acquired from course work in Chem. 8 ties in directly with the analysis component of the laboratory work. The experiments done by students in this course provide clear and thorough directions as they work to document their data in a safe and effective laboratory environment. They develop qualitative and quantitative laboratory skills requiring appropriate data analysis.

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16. Learning: Through a series of in-class problems, graded homework problems, quizzes, and/or exams given throughout the semester students are asked to demonstrate their understanding of the fundamental principles of chemistry and to demonstrate an ability to analyze data. Problems vary from checking students' conceptual understanding and ability to complete more quantitative calculations and detailed dimensional analysis. In the laboratory, students' ability to keep a report or notebook is evaluated. In lecture, additional problems are more integrative in nature, applying several principles at one time. Students are given problems that assess their mastery of the material and their ability to apply what they've learned to new situations and problems. The nature of chemistry requires that students build in their understanding from the most fundamental to the more complex. Regardless of the problem-type, students are asked to work problems through to completion and recognize that their approach must be clearly stated, thorough, and methodical.

