

Orange County Community College***34105 General Chemistry I***Fall 2006

A study of the fundamental principles of chemistry. Topics include: Stoichiometry, gases, atomic structure, periodic properties, ionic and covalent bonding, Lewis structure, liquids and solids, chemical equilibrium and introduction to acid-base theories. Laboratory work is the application of these principles with emphasis on quantitative relationships. The keeping of a laboratory notebook is stressed.

Instructor: Dr. Timothy MacMahon

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Office Hours: Office hours are posted on my door. In addition, I am around Monday through Friday on campus and will be happy to see any student outside of these office hours.

TEXT: Chemistry 7th edition, Houghton Mifflin Co. 2007.

Author: Steven S. Zumdahl and Susan A. Zumdahl ISBN 13: 987-0-618-52844-8

Suggested: Complete Solutions Guide for Chemistry 7th Ed.

Author: Hummel, Zumdahl and Zumdahl ISBN:

Materials: Scientific calculator, Notebook, Laboratory Notebook, Goggles, Willingness to learn.

Relationship to Programs:

Chemistry 34105 is designed for the physical science or biological science related major. It is also an excellent course for someone planning a career in science or engineering. This course does not require calculus. If in doubt about the proper chemistry course to take, consult with me, your advisor or with the Science and Engineering department chair.

Course Objectives

The student who successfully completes this course will be able to:

1. Solve stoichiometry problems
2. Solve colligative properties of solutions problems
3. Use VSEPR theory to identify the shapes of simple molecules and ions.

Attendance/Withdrawal Policy:

Attendance is mandatory. Perfect attendance is assumed in this course. **Since chemistry is an experimental science, anyone who misses three or more labs in the semester will automatically receive an F for the course.** If you are late to lab, it counts as 1/2 of a missed lab and is graded accordingly. Labs cannot be made up. Without proper attendance, a student will not do well in this course. To be successful in chemistry one must pay attention in lecture and conscientiously do the homework. It is the student's responsibility to ensure that she/he is doing well in the course. Friday November 3rd is the last day for a student withdrawal from this course. If you are in need of special accommodations owing to a disability, please see the instructor.

Extra Help

There is tutoring available on a limited basis for this course. The tutorial center is located on the second floor of the LRC. As tutors for this course are always in short supply, anyone interested in obtaining tutoring should do so as soon as possible.

Lecture Schedule-* You will need goggles for these labs

Date	Topic	Chapter/section	Lab
8/28/05 Week # 1	Introduction, 1,2,3 dimensional unit conversion, Significant Figures	1.3-1.6	Conversions
9/6 (Wed, Fri) Week # 2	No Class on Labor Day, Monday Temperature, Density	1.7-1.8	Cans and Atoms
9/11 Week # 3	Atomic Masses, Moles, Balancing reactions, Stoichiometry, Limiting Reagent	3.1-3.2,3.7 3.8, 3.9	Density
9/18 Week # 4	% Composition, Empirical and Molecular Formulas	3.4-3.5	Stoichiometry
9/25 Week # 5	Nomenclature, Oxidation/Reduction, Balancing REDOX reactions TEST 1	2.8, 4.9-4.10	Nomenclature
10/2 Week # 6	The Gas Laws, Calculation of Molecular Mass and Density of Gases	5.1-5.7	Formation of Salts
10/10(Tues, Wed, Fri) Week # 7	No Class Monday but on Tuesday Solutions, %, ppm, ppb, Molar (M), Molality (m), Normality (N) concentrations	4.1,4.3	Determination of the Molecular Mass of CO ₂
10/16 Week # 8	Precipitation Reactions and solubility,	4.2,4.5,4.7	Concentration of Solutions
10/23 Week # 9	Thermodynamics Part I: Enthalpy (ΔH_f), Hess's Law, Heat Capacity Test 2	6.1-6.4	Solubility of KClO ₃
10/30 Week # 10	Electromagnetic radiation, Wavelength (λ), Frequency (ν), Energy, The Hydrogen Atom	7.1-7.4	Specific Heat, Enthalpy ΔH , Heat of Fusion
11/6 Week # 11	Quantum Numbers and atomic Structure, Atomic size, Ionization Energy and Electron Affinity	7.6-7.12	Avogadro's Constant
11/13 Week # 12	Ionic and Covalent bonding, Lewis Dot Structures, Resonance, Formal Charge	8.1-8.12	The Periodic Table
11/20 Week # 13 Class only meets on Mon and Tues	No Class Wed, Thurs, Fri- Thanksgiving Vacation VSEPR Theory and Molecular Shapes, Hybridization	8.13, 9.1	Molecular Mass of a Volatile Liquid
11/27 Week # 14	Molecular orbitals for First and second row diatomic molecules, Test 3	9.2-9.4	Freezing Point Depression

12/4 Week #15	Vapor Pressure, Phase diagrams, Boiling Point elevation, Freezing Point Depression, Osmotic Pressure	10.8,10.9, 11.4-11.7	Review
12/11-12/15 Final Exams	Final Exams	Final Exams	Final Exams

GRADING:	Test 1,2,3	16% EACH
	Quizzes	16%
	Cumulative Final Exam	16%
	Lab Notebooks	10%
	Lab Summary Sheets	10%

Quizzes will be given during the first 10 minutes of class and cannot be made up unless special arrangements have been made with the instructor prior to the exam being given in class. Quizzes may be taken early. The lowest quiz grade achieved during the semester will be dropped from the total before the average is computed. Quizzes will be based almost exclusively on homework. Tests will also be based on the homework with the possibility of some multiple-choice questions. Labs cannot be made up but may if space permits be taken with other sections. Any labs missed are graded as a zero. If you are late to lab, it counts as 1/2 of a missed lab and is graded accordingly.

Prelabs must be done before the beginning of lab. Late prelabs will receive no credit. Conclusions to the labs are due one week after the completion of the lab. Late conclusions are graded but are marked 30% off.

I will hand out worksheets on many of the topics covered in class. In addition to these worksheets, there are numerous problems in the text that will help in your understanding of the material. The recommended problems from the book are shown below.