

**Orange County Community College
Department of Science & Engineering
37110 Elements of Chemistry and Physics**

Spring 2007

A survey of the fundamental principles of chemistry and related physical laws. Only elementary mathematics is used. Topics include: safety in the laboratory, measurement, atomic structure, the periodic table, chemical equations, solutions, electrolytes, acid-base reactions, pH, the gas laws, main organic functional groups, introductory biochemistry, nuclear physics and an introduction to mechanics.

Instructor: Cynthia MacMahon
Office: HO-3B
e-mail: cmacmaho@sunyorange.edu
Phone: 341-4576
Office hours: **See hours on office door.**
I will be around most of the week.
Students can drop by or make appointments to see me either during the posted office hours or outside of these hours. If you are having trouble or just have questions, please stop by and see me.

TEXT: Chemistry: An Introduction to General, Organic, and Biological Chemistry
Ninth Edition

Author: Karen Timberlake

Materials: Scientific calculator, notebook, goggles, willingness to learn.

Relationship to Programs:

Chemistry 37110 is designed to give an introductory examination of inorganic chemistry, organic chemistry, and an introduction to mechanics.

Course Objectives:

The student who successfully completes this course will:

- Convert numbers from within the metric system and between the English and metric systems.
- Name and give formulas for both ionic compounds and covalent molecules.
- Solve gas laws problems
- Solve simple stoichiometric problems.
- Calculate molarity and % for a solution.

Attendance/Withdrawal Policy:

Attendance is mandatory. Without proper attendance a student will not do well 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 1/3 of a missed lab. Labs cannot be made up. 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 this course. Note, Monday April 2nd is the last day for a student to withdraw from a course with a grade of W. An instructor's withdraw may be given up till and including 4/20/2007. 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. If you are in need of special accommodations owing to a disability, please see the instructor.

Lecture Schedule

Date	Topic	Chapter/Section	Lab
1/17/07 Week # 1	Introduction; Measurements	1.1, 1.4	Math Review
1/22			
Week # 2	Unit Conversions, Significant Figures, Matter Density / Specific Gravity Temperature scales	1.5-1.7 2.3	Instrument Reading
1/29 Week #3	Specific Heat and Calories/Joules Heating Cooling Curves	Chapt 2	Density
2/5 Week # 4	The Periodic Table; Protons, Neutron, and Electrons Valence Electrons; Ionic Bonds and Compounds	3.1-3.8 4.1-4.2	Calorimetry
2/12 Week # 5	TEST ONE Polyatomic ions, naming of compounds	***** 4.3-4.5	Periodic Table
2/19 Week # 6	The Mole, Chemical reactions Stoichiometric calculations	5.5-5.8	Nomenclature
2/26			
Week # 7	The Gas Laws / Boyles Law Properties of Gases; The Gas Laws	6.1 – 6.8	Phys/Chem Properties*
3/5 Week # 8	TEST TWO Properties of Solutions, %, Molarity (M), Osmotic Pressure	***** 7.1 - 7.5	Gas Laws Boyle's Law
3/12 Week # 9	Solutions Continued Acids and Bases, pH, pOH, calculations	7.5-7.7 8.1- 8.5	Known Conc.
3/19-25 3/26 Week # 10	Spring Recess Acid-Base reactions; Buffers	8.6-8.7	Solubility
4/2 Week # 11	Nuclear Physics: Radioactivity and Nuclear Stability Radioactivity	9.1-9.4 9.5-9.6	Titration*
4/9 Week # 12	TEST THREE Introduction to Organic	***** 10.1-10.2	Radioactivity
4/16 Week # 13	Cycloalkanes; Unsaturated Hydrocarbons	10.3 11.1	*****
4/23 Week # 14	Alcohols, Phenols, Ethers, Thiols Continued	12 13	Organic I
4/30 Week # 15	Pulleys	Handout Handout	Review
5/5-11	Final Exam Week		

* You will need goggles for these labs

37110 Elements of Chemistry and Physics

GRADING:

3 Tests =	16% Each
1 Final =	16% Total
Quizzes =	16% Total
Lab =	20% Total

 Total % = 100 %

Grade distribution: 100%-90% [A]; 89%-80% [B]; 79%-70% [C]; 69%-60% [D]; < 60% [F]

Quizzes will be based almost exclusively on homework. Quizzes cannot be taken late, but they may be taken early. The lowest quiz grade will be dropped before the average is calculated at the end of the semester. Labs cannot be made up. Any missed labs will receive a grade of zero. Tests will also be based on the homework with the possibility of some multiple-choice questions.

There are many homework handouts that I will be given out throughout the semester. In addition to these handouts, the following are problems found in the book that may help in your understanding of the material.

Homework Problems from Timberlake's Chemistry: An Introduction to General, Organic And Biological Chemistry, Ninth Edition

Homework: [All Study Check problems and the Odd numbered problems have answers in the back of the chapter]

CHAPTER	PROBLEMS
1	3,5,7,9,11,15,17,19,25,29,39,41,43,45,47,49,51,53,55,57,59,61,63,67,69,73,75
2	13,15,49
2	3,5,19,21,25,27,29,31,33,35,37,51,53,54
3	1,3,5,7,9,11,13,15,17,19,21,31,33,35,37,39,41,47,53,55
4	3,5,7,11,13,15,17,19,21,23,25,29,31,33,35,37,39,43,47,49,79,81,83
5	21,23,25,27,29,31,33,37,43,45,47,49,53,57,59,61,,69,75,77,79,81,85
6	7,11,13,15,19,23,27,35,41,43,49,51,77
7	1,5,7,,9,21,23,31,33,35,37,39,43,45,47,49,53,55,67,69,93,97,99
8	1,3,5,7,11,13,27,29,31,33,35,37,39,41,43,45,47,51,57,63,67
9	3 ,5,7,9,13,15,17,19,23,29,31,33,35,37,41,43,45, 53,55,59,63,65
10	1,3,5,7,9,11,13,15,17,19,21,27
11	1,3,5,7
10-13	See laboratory hand out

Levers and Pulleys: Homework is handed out in class.