Orange County Community College
34103 Applied Chemistry I
Fall 2006

A study of the fundamental concepts of inorganic chemistry and techniques to be used in clinical laboratories. Topics include the nature of matter, the mole concept, nomenclature, redox reactions, solutions, colloids, chemical kinetics, chemical equilibrium, acids and bases, and the gas laws. Laboratory work stresses skills and techniques useful to the laboratory technician.

Instructor: Cynthia MacMahon
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Phone: 341-4576
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Office hours: See hours posted on 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: General, Organic, and Biological Chemistry Structures of Life

Author: Karen Timberlake

Support Services: The best source for help with this course is Cynthia MacMahon as she is the one to write all tests and quizzes. The LRC offers tutoring services if students would like additional help.

Materials: Scientific calculator, notebook**, laboratory notebook**, goggles, Willingness to learn.

Relationship to Programs:
Chemistry 34103 is a chemistry course which is designed to give an introductory examination of inorganic chemistry.

Course Objectives:
The student who successfully completes this course will:

- Determine the number of significant figures in a measured value.
- Convert numbers from within the metric system and between the English and metric systems.
- Calculate the density and specific gravity of a substance and use these to calculate the mass or volume of a substance.
- Name and give formulas for both ionic compounds and covalent molecules.
- Understand matter, energy, bonding, the gas laws, balancing chemical equations and simple organic chemistry and biological chemistry
- Solve simple stoichiometric problems.
- Calculate Molarity and % for a solution.
- Describe the dilution of a solution.
- Calculate pH, pOH, $[H_3O^+]$ and $[OH^-]$ given one of them using log and antilog.
- Perform experiments and draw conclusions based on the experimental data.
- Understand how to keep a scientific notebook.
- Develop thinking skills that will help in the rest of your college life and life in general.
- Be aware of and confident about your skills as a student and as an effective thinker.

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. Each lab notebook will be marked before lab is done. The lab notebook will contain a title, pre-lab answers, procedure, and any data tables needed for that day's lab. This must all be written in the lab notebook prior to that lab. After that lab is completed a conclusion is added to the end along with any other post answers to conclusion questions.
To be successful in chemistry one must pay attention in lecture and conscientiously do the homework. It is the student's responsibility to ensure she/he is doing well in the course. Note, Friday November 3rd is the last day last day for a student to withdraw from semester-long courses with a grade of **W**. If you are in need of special accommodations owing to a disability, please see the instructor.

Lecture Schedule

Week		Chapter/Topic		Laboratory
# 1	**8/29/06**	1.1-1.6	Matter, Measurements, Unit Conversions, Significant Figures	Math Review
# 2	9/5	1.7-1.9	Unit Conversions, Math Density, Specific Gravity	Instrument Reading
# 3	9/12	2.1-2.8	Atomic structure, The Periodic Table Atoms isotopic weights, Atomic weights	Density
# 4	9/19	4.1-4.4	Ions and compounds Ionic Bonds & Naming	**Test One**
# 5	9/26	4.5-4.8	Covalent Bonds, Polyatomic Ions & Naming	The Periodic Table
# 6	10/3	7.1-7.7 6.1-6.3	The Mole, Balancing Chemical Equations	Nomenclature
# 7	10/10		**Columbus Day makeup day - No Class on Tuesday**	
# 7	10/12	6.4	Chemical Reactions	
# 8	10/17	6.5-6.6	Chemical Reactions Cont'd	Physical and Chemical Properties *
# 9	10/24	8.1-8.9	Gases	**Test two**
# 10	10/31	9.1-9.5	Liquids/Solutions	Boyle's Law
# 11	11/7	9.6-9.8	Solutions Cont'd	Molar Volume of CO_2 *
# 12	11/14	9.9	Osmotic Pressure	Known Concentrations
# 13	11/20	6.8	Equilibrium	Solubility
	11/23-26		**THANKSGIVING RECESS**	
# 14	11/28	6.7	Equilibrium/Reaction Rates	**Test Three**
# 15	12/5	10.1-10-7	Acids and Bases	Formation of Salts *
#16	12/11-12/14		**FINAL EXAM WEEK**	

* These Labs require goggles

Grading:

3 Tests	=	16% Each
Quizzes	=	16% Total
1 Final	=	16% Total
Lab Sheets	=	10%
Lab Prelabs	=	4%
Lab Conclusions	=	6%
Total	=	100%

Typical grading 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.

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Homework Problems for Introduction to General Organic, and Biochemistry, Karen Timberlake 2nd Edition

Chapter Problems

1 7, 9, 11, 13, 17, 23, 27, 29, 31, 33, 37, 39, 55, ***59***, 61, 62, 65, 67, 71, 75, 77, ***83***, 97, 103, 109 (Measurements)

2 7, 9, 11, 13, 15, 17, 19, 20, 21, 30, 31, 33, 35, 37, 39, 41, 43, 45, 57, ***59, 61, 63, 65***, 86, 89, ***93, 95, 99, 101, 103, 115*** (Atoms and Elements)

4 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 25, 31, 35, 51, 53, 55 (Compounds and Their Bonds)

5 19, 25, 31, 33, 35, 1, 3, 5, 7, 11, 13, 15, 16, 43, 45, 47, 49, 87, 89; (Chapter 6) (Chemical Reactions and Quantities)

6 7, 9, 11 (Energy in Chemical Reactions)

7 6, 7, 10, 11, 12, 13, 15, 17, 19, 21, 23, 27, 33, 37, 39, 41, 47, 51, 53, 57, 59, 61, 63, 69, 71, 85, 81 (Gases)

8 1, 5, 3, 7, 9, 11, 13, 15, 17, 21, 23, 25, 27, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 65, 67, 69, 72 (Solutions)

9 7, 11, ***21,*** 29, 31, 5 (Equilibrium, Equilibrium Constants and Rates of Reactions)

10 1, 3, 5, 7, 9, 11, 13, 25, 33, 35, 37, 41, 43, 45, 47, 49, 51, 53, 61, 63, 65, 67, 69, ***91*** (Acid/Base)

8 ***55, 57*** (Calculations of Acid/Base Neutralization)

* Odd numbered answers at the end of each chapter. The ***italic*** numbers mean that the problem is not found in the old edition.

Homework Problems for Introduction to General Organic, and Biochemistry, Karen Timberlake Platinum Edition

1 7, 9, 11, 17, 19, 21, 23, 29, 31, 37, 41, 43, 61, 65, 66, 69, 71, 75, 79, 81, 89, 93, 101 (Measurements)

2 1, 3, 5, 7, 9, 11, 13, 14, 15, 24, 25, 27, 29, 31, 33, 35, 39, **59**, 65, ***68,*** 73, 75, ***79, 81, 83, 85*** (Atoms and Elements)

4 11, 12, 15, 21, 23, 27, 31, 33, 35, 37, 39, 41, 45, 47, 71, 75, 51, 55, 77 (Compounds and Their Bonds)

7 5, 9, 17, 19, 23; (Chapter 6); 41, 43, 45, 47, 63, 65; (Chapter 6) (Mole, Molar Mass and Mole and Mass Relationships in Chemical Equations)

6 1, 5, 9, 11, 15, 21, 23, 24; 27, 29, 31 (Chemical Reactions)

8 6, 7, 10, 13, 14, 15, 17, 21, 23, 25, 27, 31, 37, 41, 45, 47, 53, 55, 57, 59, 63, 65, 67, 71, 73, 77, 93 (Gases)

9 3, 5, 7, 11, 13, 15, 17, 19, 25, 29, 31, 33, 35, 43, 45, 47, 49, 51, 55, 57, 59, 61, 63, 71, 73, 75, 77 (Solutions)

6 37, (Chapter 7), 41, 39, 35 (Equilibrium and Rates of Reactions)

7 53, ***55*** (Equilibrium constants)

10 1, 3, 5, 7, 9, 11, 13, 27, 35, 37, 39, 43, 47, 49, 51, 53, 55, 79, 59, 61, 63, 65, 67, ***71, 73, 75*** (Acid/Base)

* Odd numbered answers are in the back of the book. The ***italic*** numbers mean that the problem is not found in the new edition.