UNIVERSITY of WISCONSIN-GREEN BAY

PRINCIPLES OF CHEMISTRY I
CHEMISTRY I LABORATORY

Course Number and Title	**CHEM 211 - Principles of Chemistry (4 Credits)** **CHEM 213 - Chemistry I Laboratory (1 Credit)**
Semester:	**Fall 2009**
Instructor	**Mr. Mike Wegner**
Email	**wegs@ssd.k12.wi.us or mikewegs@hotmail.com**
Building / Room	**Rm-2122; Shawano Community High School**
Dates	**September 1, 2009 – June 4, 2010**

COURSE DESCRIPTION: Principles of Chemistry I (211) is the first college semester of a two college semester introductory inorganic chemistry course which covers chapters 1-12 in the current text. We will cover the first college semester material over the full high school year.

Topics covered during this course will be Atomic Structure, chemical bonding, periodic table, thermochemistry, properties of gases, molecular structure and properties, solutions, chemical equations, thermodynamics, kinetics, chemical equilibrium, solubility, acid-base reactions, and oxidation-reduction.

TEXTBOOKS AND OTHER MATERIAL:
(REQUIRED)

1. Chemistry & Chemical Reactivity, 6th edition, Kotz & Treichel, Thomson Publisher. ISBN: 053499766X or Volume 1 (Ch 1-12) 0495010138
   NOTE: ORDER YOUR TEXT BOOK ON LINE AND SHOP FOR A FAIR PRICE OR BUY ONE FROM A PASSED STUDENT. NEED THE 1ST WEEK OF CLASS!!
2. Safety Goggles.
3. Calculator with capabilities for square roots, logarithms, trig functions, and scientific notation.

(OPTIONAL)

1. Study Guide to accompany text.
2. Student Solutions Manual to accompany text.
3. A carbonless, 50 page duplicating laboratory notebook.

COURSE INFORMATION:

Lectures and textbook: During lectures I will introduce principles and illustrate concepts with examples and demonstrations. You should read the textbook prior to class and take your own notes during lecture. In addition, at the end of each chapter in the text, you will find a list of learning objectives, called Chapter Highlights. This list will help you focus your studying on key points.

Problem Sets: Problem solving is a crucial aspect of this course. Suggested problems from the text will be listed at the beginning of each class. Answers to selected problems are in the back of the book. The assigned problems will not be graded but are typical of those you should master.

The best way to learn chemistry is to do problems while and after you read the textbook and lecture notes: study the textbook examples, try the textbook exercises, and work the assigned problems as soon as possible. Bring your questions to class where time will be allowed for questions. In order to master the material and excel in this course you must solve problems.

Quizzes: About once a week you will be given a quiz to help evaluate your progress. These quizzes count toward your final grade.

Lecture Demonstrations: We will use demonstrations during lecture to illustrate important ideas and facts. Be sure to make careful observations of what happens. If you do not understand the demonstration, ask questions during lecture, don't wait until later. Questions about observations or concepts that have been presented via demonstrations will occur on exams and quizzes.

Laboratory: The laboratory is a vital part of this course. In the laboratory, you will develop skills that need to practiced and not just demonstrated.

Before the laboratory experiment, be sure to study the description of the experiment in your lab manual or handout. Study the safety section in the lab handout. Wearing your safety goggles is required at all times you are in the lab. This requirement is not negotiable, it is the Law! Failure to wear your goggles is grounds for dismissal from the lab with no provision to make up the work that you miss. There will be pre-lab quizzes that will be part of your laboratory grade. Lab Report is due the day following the post lab discussion. Points will be deducted if the report is turned in late and no credit will be given for reports turned in after the reports are graded and returned to the class.

Exams: Announced chapter exams will occur periodically. They will cover concepts from lecture, demonstrations, and laboratory materials. The final exam will cover material from the entire year.

Grades: This course will be graded on an absolute scale out of a 100%. Your grade will not be affected by the performance of the other students. We hope that this absolute grading scheme will encourage you to work with your fellow students to learn chemistry efficiently and enjoyably. The grade breakdown for this course is:

Percentage	Letter Grade	Grade Points / Credit
100% - 92.0%	A	4.0
91.9% - 86.0%	AB	3.5
85.9% - 79.0%	B	3.0
78.9% - 72.0%	BC	2.5
71.9% - 65.0%	C	2.0
64.9% - 60.0%	CD	1.5
59.9% - 55.0%	D	1.0
Below 54.9.0%	F	0.0

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TENTATIVE SYLLABUS

September 1 – September 18
Safety in the Chemistry Laboratory
Laboratory Check – In
Chapter 1 – Matter and Measurement
Lab Experiment – Density
Problems: 11, 13, 15, 19, 25, 29, 31, 34, 41, 45, 59, 77, 79, 87, 95, 105.

September 21 – September 25
Chapter 2 – Atoms and Elements
Lab Experiment – Density II
Problems: 11, 12, 21, 25, 27, 29, 31, 33, 35, 41, 45, 53, 61.

September 28 – October 16
Chapter 3 – Molecules, Ions and Their Compounds
Lab Experiment – Empirical Formula of Tin Oxide
Problems: 1, 7, 19, 21, 25, 26, 27, 29, 33, 37, 39, 43, 46, 49, 55, 57, 59, 65, 77, 83, 87, 99, 107.

October 19 – November 6 (Oct. 29-30; State teacher convention)
Chapter 4 – Chemical Equations and Stoichiometry
Lab Experiment – Mass to Gas Volume Stoichiometry
Problems: 1, 5, 13, 23, 25, 29, 31, 35, 37, 39, 41, 47, 59, 65.

November 9 – December 4 (Nov. 25-27, Thanksgiving vacation)
Chapter 5 – Reactions in Aqueous Solutions
Lab Experiment – Stoichiometry of an Acid – Base Reaction
Problems: 2, 3, 5, 7, 9, 11, 15, 19, 23, 25, 29, 33, 35, 39, 41, 43, 45, 51, 53, 55, 57, 59, 65, 67, 71, 73, 101, 105.

December 7 – December 23; January 4 – January 8 (Dec. 24 – Jan 1, Christmas Vacation)
Chapter 6 – Principles of Reactivity – Energy and Chemical Reactions
Lab Experiment – Heat of Reaction (Computer assisted lab)
- Hess's Law
Problems: 3, 9, 13, 15, 17, 25, 29, 31, 35, 45, 49, 53, 75, 76, 91, 93.

January 11 - January 15 (*End of Semester One*)
Semester Review and Exam (Chapter 1-6)

January 18 – February 5 (Jan 25 – Teacher In service)
Chapter 7 – Atomic Structure
Lab Experiment – Atomic Spectra
Problems: 1, 3, 5, 9, 13, 17, 25, 35, 39, 45, 46, 53, 57, 58, 65.

February 8 – February 18 (February 19-22 vacation)
Chapter 8 – Atomic Electron Configuration and Chemical Periodicity
Lab Experiment – Ferrofluids
Problems: 3, 7, 9, 11, 15, 17, 21, 25, 29, 33, 41, 44, 47, 51, 55, 65.

February 23 – March 12
Chapter 9 – Bonding and Molecular Structure: Fundamental Concepts
Lab Experiment – Molecular Models
Problems: 7, 11, 15, 17, 19, 25, 27, 31, 37, 45, 47, 51, 55, 65, 81, 87, 97.

March 15 – April 16 (Easter Break: April 2- April 5)
Chapter 10 – Bonding and Molecular Structure: Orbital Hybridization and Molecular Orbitals
Lab Experiment – Bonding in Solids, Sparklers
Problems: 1, 7, 9, 11, 13, 17, 19, 25, 31, 33, 41, 43, 52, 53.

April 19 – May 14
Chapter 11 – Carbon: More Than Just Another Element
Lab Experiments – Preparation of Organic Compounds
- Preparation of Esters
- Preparation of Nylon, Synthetic Rubber, and Soap
- Synthesis of Aspirin

Problems: 3, 7, 9, 15, 19, 25, 27, 31, 37, 41, 43, 51, 61, 75, 89, 95.

May 17– May 28 (May 31 – Memorial Day)
Chapter 12 – Gases and Their Properties
Lab Experiment – Molar Mass of a Volatile Liquid
Problems: 1, 7, 11, 15, 21, 23, 25, 27, 31, 33, 37, 43, 49, 71, 74, 81.

June 1-June 4 (*End of 2nd Semester*)
Semester Review and Final Exam (Chapter 7 – 12)

June 4 – GRADUATION!!!