

**CHEMISTRY 212 - LABORATORY SCHEDULE**  
**Fall 2012**

**TEXT/MATERIALS:** Laboratory worksheets and POGIL handouts are available on the Blackboard website. Lab manual: *CHEM 212*, Fountainhead Press (2012); ISBN 978-1-59871-577-4.

**REQUIRED EYE PROTECTION:** Students must wear the approved goggles issued by the department *at all times in the laboratory—NO EXCEPTIONS.*

<b>Week of:</b>	<b>EXPERIMENT</b>
1. Aug. 27 <sup>th</sup>	<b>CHECK-IN / SAFETY ORIENTATION</b> : Safety in the Laboratory; Glassware & Equipment/Data Representation and Recording
2. Sept. 3 <sup>rd</sup>	<b>LABOR DAY (Sept. 3<sup>rd</sup>) – NO LABS</b>
3. Sept. 10 <sup>th</sup>	Separation and Recovery of Components in a Ternary Mixture
4. Sept. 17 <sup>th</sup>	Determining the Empirical Formula of Magnesium Oxide
5. Sept. 24 <sup>th</sup>	Stoichiometry - A Mole Ratio Study
6. Oct. 1 <sup>st</sup>	Classifying Chemical Reactions
7. Oct. 8 <sup>th</sup>	Redox Chemistry - Activity of Metals
8. Oct. 15 <sup>th</sup>	<b>LAB MIDTERM EXAM</b>
9. Oct. 22 <sup>nd</sup>	Determination of the Universal Gas Constant, R
10. Oct. 29 <sup>th</sup>	Calorimetry and Hess's Law
11. Nov. 5 <sup>th</sup>	The Bohr Model and Spectroscopy of the Hydrogen Atom
12. Nov. 12 <sup>th</sup>	Periodic Properties of Some Elements
13. Nov. 19 <sup>th</sup>	<b>THANKSGIVING (Nov. 22<sup>nd</sup>) – NO LABS</b>
14. Nov. 26 <sup>th</sup>	Lewis Structures and Molecular Shape / <b>CHECK OUT</b>
15. Dec. 3 <sup>rd</sup>	<b>LAB FINAL EXAM</b>

**\*FAILURE TO CHECK OUT MAY RESULT IN A FAILING GRADE FOR THE ENTIRE SEMESTER.**

**Grading:** The overall lab grade is a weighted average, and is calculated using the formula below:

$$(\text{Lab average} \times 0.70) + (\text{Midterm Exam} \times 0.15) + (\text{Final Exam} \times 0.15) = \text{lab grade}$$

**Letter grades are assigned based on the overall lab grade compared to the following cutoffs:**

$$90\% = \text{A}; \quad 80\% = \text{B}; \quad 70\% = \text{C}; \quad 60\% = \text{D}; \quad <60\% = \text{F}$$

## LABORATORY DIRECTIONS AND COURSE OBJECTIVES

1. **APPROVED EYE PROTECTION IS REQUIRED IN THE LABORATORY AT ALL TIMES BY ILLINOIS LAW.** Shorts, skirts, and open-toe shoes or shoes without socks are *not* permitted (i.e., no bare skin below the waist). Shirts covering the entire torso and having sleeves are also required. Students *will not be permitted* in the laboratory without eye protection and proper clothing in place.
2. If you are injured in *any* way during the laboratory, immediately report it to your lab instructor.
3. The laboratory is to be conducted in a quiet and orderly manner.
4. Do your laboratory work and your report independently unless otherwise instructed. Laboratory questions should be directed to your laboratory instructor.
5. Use only designated chemicals. Read labels and follow directions carefully. Do *not* do unauthorized experiments.
6. (a) **USE AS LITTLE REAGENT AS NEEDED TO PERFORM YOUR EXPERIMENT.**  
(b) Avoid contamination of the reagents! Never return unused chemicals to the stock bottles, as this may cause other students' experiments to suffer.  
(c) The reagent bottles should not be carried to your bench. Use clean test tubes or beakers for carrying liquids. Use beakers, watch glasses, or small squares of paper for carrying solids.  
(d) Pour the reagent solutions into your own containers, in order to avoid contamination of the stock solutions. Do not insert your own pipettes or medicine droppers into the reagent bottles.  
(e) Hold bottle stoppers in your hand to avoid picking up any impurities from the bench and thus contaminating the solution when the stopper is put back on the bottle.  
(f) Replace stopper or cap tightly to avoid evaporation or spillage.
7. Clean up and properly dispose of all spills—liquids or solids—***immediately***. This is especially important in and around the balances. Some corrosive chemicals may permanently damage equipment or laboratory fixtures.
8. Throw all chemicals to be discarded into the waste containers and record them on the waste inventory sheet. Wastepaper belongs in the wastebaskets. Broken glass should ***only*** be discarded in the glass containers.
9. At the close of each laboratory period, leave your glassware clean and dry. Wash and wipe off the bench top.
10. If you withdraw from the course before the end of the semester you must still check out of the laboratory, or your withdrawal cannot be completed. At the end of the semester, failure to check out during the assigned time may result in a ***failing grade*** for the lab.

### *Course Objectives*

On completion of this course, students are expected:

1. To have learned how to write chemical formulas, name compounds, perform chemical calculations, make observations and record the data from those observations appropriately.
2. To be familiar with the behavior and properties of gases, liquids, solids, and aqueous solutions.
3. To have learned how to work safely in a chemistry laboratory.
4. To have learned how to manipulate scientific equipment and to carry out laboratory experiments.

### *Course Grades*

Laboratory grades will be determined using a weighted average as follows:

Lab grade = (avg. on lab exercises x 0.70) + (lab midterm exam x 0.15) + (lab final exam x 0.15). Final grades will be assigned based on location of weighted average in the following distribution:

A = 90%

B = 80%

C = 70%

D = 60%

F < 60%

(rev 8/96 WRM; 1/06 DSB/MJS; 7/08 DSB)