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## Chemistry 103 Laboratory Spring 2014, Section 33L

**Lab Room:** Cowley 410

**Professor:** Nicholas McGrath, Ph. D.

**Email:** [nmcgrath@uwlax.edu](mailto:nmcgrath@uwlax.edu)

**Office:** 4009 Cowley Hall

**Time:** Th 2:15-5:20 PM

**Phone:** (608) 785-8287

**Office Hours:** Mon. 9:00-10:30

Tue. 11:00-12:30

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### Course Objectives

- ❖ Reinforce concepts covered during lecture through hands-on experiments.
- ❖ Learn how to use laboratory equipment in a safe and effective manner.
- ❖ Learn proper handling and disposal procedures for laboratory chemicals.
- ❖ Learn how to routinely obtain both accurate and precise experimental data.
- ❖ Become efficient at carrying out calculations based on the data you collect in the laboratory.
- ❖ Become proficient using Microsoft Excel to summarize and analyze experimental data.
- ❖ Learn to think critically when analyzing and interpreting experimental data and results.
- ❖ Learn how to work collaboratively and efficiently in a chemistry laboratory.

### Lab Materials

- ❖ Lab Goggles: Available in the Chemistry Stockroom for ~\$5
- ❖ Lab Manual: University of Wisconsin-La Crosse, Chemistry Department, First Semester General Chemistry Experiments 1-12. Spring 2014.
- ❖ Scientific Calculator

### Working in Lab

Although students will work in pairs to perform each experiment, every student must record the original data and perform their own calculations to be submitted for credit. Each student is expected to SAFELY conduct all of the experiments. Always be aware of your own safety and the safety of all others while working in a chemistry lab. At the conclusion of pre-lab comments, ALL students must immediately put on their safety goggles, and continue wearing them throughout the lab period. Each student will be given a single warning per lab period about wearing safety goggles, and then will be penalized for each subsequent warning. Students must maintain a clean workbench and be sure to wipe down work areas prior to leaving lab each period.

### Lab Equipment and Glassware

All lab equipment and glassware should be treated with respect and care. Since accidents happen, each student is allowed 3 breakages per semester. Students will be charged fees for any breakages above and beyond this allotment. At the beginning of the semester, each student will check in lab equipment/glassware stored in a lab drawer shared with another lab student. At this time, it is the students' responsibility to make sure all equipment/glassware on the list is present and not broken. Students will be charged at the end of the semester for anything that is missing, so it is important to keep track of their lab equipment and ensure that it all makes its way back into the drawer at the conclusion of each period. Both students should confirm that the drawer is locked before leaving lab. Also, any equipment that was checked out from the stockroom should be returned at the end of the lab period.

## Graded Work:

### 1. Quizzes

Each week we will have a quiz worth **15 points** given at the start of the lab period that will primarily cover material from the previous lab. There will be, however, at least one question related to the experiment that you would be performing that day.

### 2. Labs (Data Sheets/Homework)

The data sheets with all pertinent calculations for each experiment, along with homework, will be collected at the start of the next lab period **before** taking the quiz. Each data sheet and homework will collectively be worth **15 points**.

In order to receive full credit, each student **must** show all of his or her work for every calculation that is performed on the data sheet and in the homework assignment. Each number **within** the calculation and the final answer needs to be labeled with correct units. Full credit will not be given for correct answers unless they are accompanied by complete work showing how the answers were achieved. If your calculations are not legible and organized, points will be deducted. Every answer must also be reported to the correct number of significant figures in order to receive full credit.

\*Note: I will initial and date each student's data sheet **before** the student has cleaned up for the day. This is done to make sure each student has collected the necessary data to complete the calculations and homework for that day, and to account for each student, at all times, for safety reasons.

### 3. Lab Practices Evaluation

A lab practices evaluation worth up to **10 points** will be used to assess students on each of the following:

- Attendance (This includes attending ALL labs and arriving/finishing on time each day)
- Preparation Each Week
- Safety in Lab (Proper disposal of chemicals, wearing safety goggles, etc.)
- Lab Skill/Technique
- Attitude

## Lab Grades

At the end of the semester, your lab percentage will be calculated and assigned a letter grade based on the following grading scale. I will report **only** this letter grade to your lecture professor. YOU MUST THEN CONSULT YOUR LECTURE SYLLABUS TO DETERMINE HOW MANY POINTS YOUR LAB LETTER GRADE IS WORTH TOWARD YOUR OVERALL CHM103 COURSE GRADE, AS DETERMINED BY YOUR LECTURE INSTRUCTOR.

### Lab Grades Breakdown:

A+	97-100	C	75-77
A	94-96	C-	71-74
A-	91-93	D+	68-70
B+	88-90	D	65-67
B	85-87	D-	61-64
B-	81-84	F	60 and below
C+	78-80		

## Monitoring Lab Progress

I will be posting all lab grades on D2L as they are assigned. Please check your grades frequently to make sure no errors have been made during the recording process. With the grades reported on D2L, you will be able to quickly calculate your grade at any time throughout the semester.

## Absences

Attendance to every scheduled lab period is mandatory, as you are required to pass **both** the laboratory and lecture portion of the course. If you are unable to attend lab due to illness or an emergency, you must contact me before the start of the lab period. In emergencies when this is not possible, you need to contact me within 24 hours of the start of your scheduled lab time. Any missed work for unexcused absences will not be accepted for credit. Missed work for excused absences will need to be made up by the student in a timely fashion.

## Academic Dishonesty

**You are expected to maintain a high level of academic honesty and integrity**, and any indication that these standards are not being met will be confronted. **Plagiarism, cheating, and copying the work of fellow (past or present) students will invoke severe penalties and may lead to dismissal from the University.** For complete details of UW-L's policy on student conduct, please refer to the following website: [http://www.uwlax.edu/studentlife/academic\\_misconduct.htm](http://www.uwlax.edu/studentlife/academic_misconduct.htm).

## Disabilities

Any student with a documented disability (e.g., physical, learning, psychiatric, vision, hearing, etc.) must contact the instructor and the Disability Resource Services (DRS) office in 165 Murphy Library at the start of the semester to arrange for any reasonable accommodations. Students who are currently using the DRS will have a copy of a contract that verifies they are qualified students with disabilities who have documentation on file in the DRS office.

## Lab Schedule

Date	Quiz	Experiment Conducted
1/30	N/A	Introduction, safety, check-in
2/6	N/A	1. Mass, Volume, Density and Error
2/13	1	2. Avogadro's Number
2/20	2	3. Determination of the Formula of a Compound
2/27	3	4. Chemical Reactions
3/6	4	5. Molarity: Determination of the Concentrations of Acid and Base Solutions
3/13	5	6. The Activity Series of Metals and Hydrogen
3/20	N/A	SPRING BREAK
3/27	6	7. Hydrogen Atom
4/3	7	8. Concentrations of CuSO <sub>4</sub> Solutions by Spectroscopy
4/10	8	9. Lewis Structures, Molecular Geometries and Molecular Models
4/17	9	10. The Gas Laws
4/24	10	11. Determination of the Gas Constant R
5/1	11	12B. Solubility and Intermolecular Forces & Check-Out
5/8	N/A	No Lab