Chemistry 161L Lab – General Chemistry Lab I

TA: Bryson Nakamoto
bryson20@hawaii.edu
office
Office Hours

Prof: Kevin Magnuson
magnuson@hawaii.edu
Office: 247B
Office Hours: Mon – Thurs, 2-3pm

Philosophy: Observation, hypothesis and experimentation make up the scientific method and is how knowledge is gained. It is important to learn to make careful observations and interpret experimental results. Confidence in your results, comes from knowing that you performed the experiments carefully and properly. This laboratory is designed to show you lab skills, help you realize that things do not always work out perfectly, reinforce concepts presented in lecture, and teach you scientific problem solving.

I. Required Materials/Equipment

Laboratory Manual: Available at the UH Manoa bookstore. The lab schedule is posted on Laulima, on the lab door, and at the bottom of this document.

Safety Glasses: Departmental approved (OSHA) safety glasses or goggles are required at ALL times in the laboratory. If you wear glasses, you will need safety glasses or goggles over your glasses.

Laboratory Attire: Proper lab attire will be required at ALL times. You must always attend lab wearing safety glasses, knee-length (preferably long) pants, close-toed shoes, and a shirt that covers the upper body (at least equivalent to a t-shirt). Long hair should be tied back. If your TA determines you are dressed inappropriately, you will not be allowed in lab and sent home to change.

II. General Information

Attendance: Each lab will start promptly on time. Do not be late. You will not be allowed to submit work for a lab you did not attend. Unexcused absences will result in a zero for that lab no matter what you turn in. If you miss more than two labs you cannot earn a passing grade, NO Exceptions. Excused absences (court, funeral, professional trip, athletic event, super sick) require notification and prior arrangements.

Cell Phones: No cell phone use by the lab benches, this practice avoids chemical contamination.

Safety: You are responsible for your own safety in lab. Take it seriously. No horseplay! Your TA will ask you to leave if they feel like you are putting others at risk. No food, drink, or gum will be allowed in lab.

Lab Grading: Lab performance will be based on participation, prelab assignments, homework, and lab report. Approximate break down is experiment participation 10%, prelab, 20%, homework 20%, and lab report 50%.

Academic Integrity and Dishonesty: Use your original words and ideas for each of your lab reports or properly cite the words and ideas of others. Your lab report should NOT be identical to your lab partner's. If you submit work that is not your own, you will get an "F" grade for the entire course.

III. Grading *Grade Scale:* Letter grades will be determined based on your percentage and are up to the discretion of the professor.

Grade Earned	**A+**	**A**	**A-**	**B+**	**B**
Percentage (%)	> 98.0	93 – 97.9	90 – 92.9	88.0 – 89.9	83.0 – 87.9
Grade	**B-**	**C+**	**C**	**C-**	
%	80.0 – 82.9	78.0 – 79.9	73.0 – 77.9	70.0 – 72.9	
Grade	**D+**	**D**	**D-**	**F**	
%	68.0 – 69.9	63.0 – 67.9	60.0 – 62.9	< 59.9	

IV. Day of Lab

* All students are expected to come prepared for lab. Before coming to lab, you should familiarize yourself with the theory, techniques, and safety precautions for the experiment.

Homework: Homework for each experiment is found in Appendix 1 and will be due at the beginning of lab.

Prelab assignment: On a piece of plain white copy paper, you should have the **title, objective statement, background, and procedure for the experiment** (see below for more instruction).

Presentation: The TA will give a brief presentation of the day's lab with hints, tips, and tricks.

Experiment: You will be working individually to perform each experiment. Write down all of the data and understand what you have done during the lab so you can write the lab report. Try to finish the lab report as soon as you can after the lab. You will be more successful than if you wait until the next week to finish it.

* Always write in your notebook in PEN, not pencil! Mistakes in the lab notebook should be crossed out with a single line. Whiteout, etc is not acceptable.

Lab Reports: Will be due at the beginning of the following lab period. Lab reports include prelab, data sheets, calculations sheet, any paper used for calculations, and answers to the questions. Late lab reports will be marked down 20% per day

V. Lab Notebook

Purpose: The purpose of a research lab notebook is to enable your work to be duplicated without you present. This means, it should be complete enough that you or any other worker at the same level as you to understand your experiment and the results. Although Chem 161L lab experiments aren't in a true research environment, it is still a goal to teach the habits and level of detail that are required of a scientist or any other (medical, legal, engineering) professional.

* The notebook should always be entirely written in third-person removed viewpoint, using compete sentences and proper punctuation. This means no pronouns! No "I" or "we" or "the researchers" or "this researcher". You will need to learn this style of writing.

* Each lab entry in the notebook should include after the title:

1**) Objective**: a concise statement (a full sentence) of the purpose of the experiment;

2) **Background**: Important information needed to complete the experiment. This includes: a table of all chemicals, chemical formula, and hazards (if any); a list of glassware/ special equipment used;

3) **Procedure**: an outline, in your own words, of the procedure that will be followed (bulleted points are ok).

4) **Results:** all results and observations must be written directly in the lab notebook on the data sheet. For the final report, computer-generated tables and graphs are encouraged and must be included.

5) **Calculations**: should either be done on a separate paper or on the back of the data sheet in the lab notebook. Each calculation should be written neatly with units and labels, and crossed out if the calculation is wrong. The "answer" should be included in the calculations sheet. If a calculation was performed in Excel, note it;

6) **Questions:** Answer the questions in the questions section of the lab.

VI. Tentative Schedule and Lab Category

Week	Dates	Monday		Wednesday	
		A	B	A	B
1	24 – 26 May	**Intro/Safety**	**No lab**	**No lab**	**Intro/Safety**
2	31 May – 2 June	**Holiday**		**1. Density & 2. Sublimations**	**No lab**
3	7 – 9 June	**No lab**	**1. Density & 2. Sublimations**	**3. Avogadro's Number**	**No lab**
4	14 – 16 June	**No lab**	**3. Avogadro's Number**	**4. Chemical Formula**	**No lab**
5	21 – 23 June	**No lab**	**4. Chemical Formula**	**5. Solutions & 7. Gas law**	**No lab**
6	28 – 30 June	**No lab**	**5. Solutions & 7. Gas law**	**No lab**	**No lab**