Spring 2020

CHEM 124-102: General Chemistry Lab (Revised for Remote Learning)

Nick Lee

Chem 124: GENERAL CHEMISTRY LAB
Spring 2020, Syllabus

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Office Hours: Monday 5 PM – 5:30 PM by appointment
Manual: "General Chemistry Laboratory Experiments (Experimental Procedures for Chem 124)" by R.W. Kluiber.

Description

Chemistry 124 (General Chemistry Lab) is a laboratory course; it is designed to be taken concurrently with Chem 126. The **students must read the course manual and complete the pre-lab quiz** prior beginning each experiment. Instructions are in the lab manual and concepts are from the text and lecture of the Chem 125/126 lecture courses and your Chem I / II Text.

We wish to indicate that the Freshman Chem I / II Text books are effective reference books for your remaining career in engineering / science / technical policy / etc. It is strongly recommended that you keep it on the main shelf of your bookcase with your active books and use it as a reference every time you need understanding or definition of chemical information / concepts.

Attendance

- Attendance is mandatory. You must attend one section of lab each week.
- Students should sign the attendance sheet each week when arriving in lab.
- All experiments must be completed during the same lab period.
- The last week of the semester will be reserved for students to make-up a lab which was missed. At this time, students will be permitted to make-up **one experiment only.**

Prelab Quizzes

- For each experiment, students must pass a prelab quiz prior to beginning the experiment.

  Students cannot begin an experiment until they have completed and passed the prelab quiz.

- The completed prelab quiz accounts for 10% of each lab grade.

Lab Reports

- A lab report will be handed in for each experiment. The report consists of the completed data sheet found in your lab manual, plus a separate page containing your calculations.

- For most experiments, lab reports must be handed in immediately following completion of the lab. For these experiments, **late lab reports will not be accepted**. For the final 3 experiments of the semester, students will be given one week to complete the report. Any reports turned in late will lose 10 points per week.

Working in Groups

- Students may perform experiments with **one or two** other persons. Any students found working in a group larger than **three** will receive a **zero** for that lab grade.
- Students working in groups must arrive at lab and begin the experiment **at the same time.** Both students must remain in lab until the experiment is completed and the lab reports have been handed in.
- Students working in groups can perform the experiment together and work on calculations together, but each student much hand in a separate lab report, which includes data and
  calculations which are their own work.

Grading

Lab Reports and Accuracy: 80%
Pre-Quiz: 10%
Cleanliness of lab bench and sink: 10%

grading scheme:

90 ……. 100	A
85 ……. 89.5	B+
80 ……. 84.5	B
75 ……. 79.5	C+
70 ……. 74.5	C
55 ……. 69.5	D
<55	F

- Remember, the completion of the prelab quiz is a part of your lab report grade. Each quiz is worth 10 points out of the total 100 points for each lab report. Failure to complete prelab quizzes is likely to affect your overall grade significantly.

Required Materials

- Lab manual (available at NJIT bookstore).
- Safety goggles (available at the NJIT Bookstore or Homedepot).
- Disposable nitrile gloves (available at amazon.com or Homedepot).

- Disposable lab coat (color in white, available at amazon.com).
- Each lab group will be required to purchase a lock for the equipment locker.

Safety and Clean-up

- WEAR SAFETY GOGGLES AT ALL TIMES IN THE LABORATORY.
- Clothing that covers your legs and shoulders are required. No shorts or short skirts.
- Everyone will be required to wear lab coats and gloves during each experiment.
- Closed shoes must be worn at all times. No saddles.
- Food or drink is not allowed in the lab.
- Turn off cell phones. Texting is not permitted in the lab.
- Properly dispose of waste materials.
- Cleanup your workspace at the end of each lab session and wash your hands prior to leaving the laboratory. **5% PENALTY WILL BE APPLIED TO YOUR LAB REPORT SCORE FOR FAILURE TO CLEAN UP PROPERLY!**

Laboratory Schedule for Spring 2020

Below is a tentative weekly schedule. I will try to stick to this schedule as closely as possible. Students will be consulted with to reach an agreement on any modifications or deviations from the syllabus throughout the course of the semester.

Week	Experiment
1	Check in, Introduction, and Safety
2	Measuring the Density of a Solid and a liquid
3	Some Non-metals and their Compounds
4	Water of Hydration
5	The Solvay Process
6	Paper Chromatography and Completion of the Solvay Process Lab
7	Calorimetry: Experiment Based on Thermodynamics
8	Analysis of Acidic Substances by Titration

9	No class: Spring Recess
10	Molecular Weight of a Volatile Liquid
11	Kinetics: the Clock Reaction
12	Spectrometric Analysis for Phosphate
13	pH, Buffers and the Dissociation Constant, K_a
14	Make ups and Check out

Learning Outcomes

- Comply with safety rules when working in chemistry laboratory.
- Demonstrate the ability to use general chemistry laboratory equipment.
- Demonstrate the ability to follow lab manual instructions to perform chemistry experiments.
- Demonstrate the ability to use the knowledge of General Chemistry principles to solve the problem.
- Develop practices in recording experimental procedures and data.

NJIT Honor Code

The NJIT Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students. Please carefully read the honor code at http://www.njit.edu/academics/honorcode.php.