

Fall 2019

# CHEM 124-001: General Chemistry Lab

Pin Gu

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## Chemistry: *Fall 2019 Course Syllabus*

**NJIT Academic Integrity Code:** All Students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

### COURSE INFORMATION

**Course Description:** Chemistry 124 (General Chemistry Lab) is a laboratory course; it is designed to be taken concurrently with Chem 126. The experiments are designed to provide the students with practical experience and basic techniques in the chemistry laboratory. Also they will help the students understand the underlying concepts covered in Chem 125 and Chem 126.

**Number of Credits:** 1

**Prerequisites:** Chem 125

#### Course-Section and Instructors

| Course-Section | Instructor | Email           | Office Hours            |
|----------------|------------|-----------------|-------------------------|
| 001            | Gu, Pin    | pin.gu@njit.edu | Tuesday 1-3pm           |
| 005            | Gu, Pin    | pin.gu@njit.edu | Wednesday 8:30-10:30am  |
| 007            | Gu, Pin    | pin.gu@njit.edu | Wednesday 10:30-12:30pm |
| 101            | Gu, Pin    | pin.gu@njit.edu | Thursday 9-11am         |

#### Required Textbook:

|           |  |
|-----------|--|
| Title     | General Chemistry Laboratory Experiments |
| Author    | R.W. Kluiber                             |
| Edition   | 8.4                                      |
| Publisher |  |
| ISBN #    |  |

**University-wide Withdrawal Date:** The last day to withdraw with a W is Monday, November 11, 2019. It will be strictly enforced.

### 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.

### POLICIES

All CES students must familiarize themselves with, and adhere to, all official university-wide student policies. CES takes these policies very seriously and enforces them strictly.

**Grading Policy:** The final grade in this course will be determined as follows:

Lab Reports and Accuracy: 85%

Pre-Quiz: 10%

Cleanliness of lab bench and sink: 5%

**Grading scheme:**

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

**Attendance Policy:**

- 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.

**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 three 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 must hand in a separate lab report, which includes data and calculations which are their own work.

### Makeup Lab Policy:

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**.

**Cellular Phones:** All cellular phones and other electronic devices must be switched off during all class times. Such devices must be stowed in bags during exams or quizzes.

### 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).
- Lab coat (available at amazon.com).
- Each lab group will be required to purchase a lock for the equipment locker.

### Safety and Clean Up Policy:

- 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 sandals.
- 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!**

## ADDITIONAL RESOURCES

**Chemistry Tutoring Center:** Located in the Central King Building, Lower Level, Rm. G12. Hours of operation are Monday - Friday 10:00 am - 6:00 pm. For further information please click [here](#).

**Accommodation of Disabilities:** Office of Accessibility Resources and Services (*formerly known as Disability Support Services*) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director at the Office of Accessibility Resources and Services at 973-596-5417 or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation and additional support services provided please visit the Accessibility Resources and Services (OARS) website at:

- <http://www5.njit.edu/studentsuccess/disability-support-services/>

### Laboratory Schedule

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    | Molecular Weight of a Volatile Liquid                         |
| 10   | Kinetics: the Clock Reaction                                  |
| 11   | Spectrometric Analysis for Phosphate                          |
| 12   | No class: Thanksgiving recess                                 |
| 13   | pH, Buffers and the Dissociation Constant, $K_a$              |
| 14   | Make up and Check out   |