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Fall 2024

### Chem 126A-003: General Chemistry Lab II

Carlos Pacheco

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Pacheco, Carlos, "Chem 126A-003: General Chemistry Lab II" (2024). *Chemistry, Environmental and Forensic Science Syllabi*. 587.

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**Chemistry:**  
**GENERAL CHEMISTRY LAB II (CHEM126A-003)**  
**Fall 2024 Course Syllabus**

**NJIT Academic Integrity Code:** (Refer to the PDF link provided.) 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 there must be no plagiarism, i.e., copying homework, class projects, lab assignments, or cheating in quizzes and exams. Under the University Code on Academic Integrity, **students must report such activities to the instructor.**

**COURSE INFORMATION:**

**Course Description:** Chemistry 126A (General Chemistry Lab II) is a laboratory course designed concurrently with Chem 126. Instructions are in the lab book, and concepts are from the text and lecture of the Chem 126 course. The experiments are designed to provide undergraduate students with further practical experience and continue to train students with laboratory techniques/equipment standards for chemistry laboratories.

**Number of Credits:** 1

**Course-Section and Instructors**

Course-Section	Instructor	Email	Office Hours
CHEM126A-003 Tuesdays, 2:30 PM - 5:20 PM <b>Tiernan Hall 208</b>	Carlos Pacheco, Ph.D. <b>Office: B006.</b> <b>NMR laboratory:</b> <b>B008</b>	<a href="mailto:carlos.n.pacheco@njit.edu">carlos.n.pacheco@njit.edu</a>	Tuesdays, 1-2 PM; NMR laboratory Tiernan Hall, <b>B008</b> or by appointment (in-person or virtual)

**Required Textbook:**

<b>Title</b>	Laboratory Manual, Chemistry, a Molecular Approach
<b>Author</b>	John B. Vincent, and Erica Livingston
<b>Edition</b>	5 <sup>th</sup> edition
<b>Publisher</b>	Pearson
<b>ISBN #</b>	013498983X

**University-wide Withdrawal Date:** The last day to withdraw with a **W** is Monday, November 11, 2024. It will be strictly enforced.

### Learning Outcomes:

- Comply with the safety rules when working in a chemistry laboratory.
- Continue to improve logical reasoning ability.
- Learn to integrate seemingly unrelated properties into patterns.
- Apply some synthetic techniques in general chemistry.
- Continue to practice preparing a lab report.
- Prepare for continued studies in chemistry and related fields.

**Required Materials (All the materials below must be purchased and brought to the lab by the students):**

- Lab book
- Lab coat
- Safety goggles
- Disposable nitrile gloves

### 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-lab: 10%

Cleanliness of lab bench and sink: 5%

### Grading scheme:

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

### Attendance Policy:

- **Attendance is mandatory.** Students will be allowed **only one make-up lab** at the end of the semester. Suppose a student has a legitimate reason for missing a lab. In that case, the student should contact the Dean of the Students office and present written verifiable proof of the reason for missing the lab, *e.g.*, a doctor's note, police report, court notice, etc., clearly stating the date AND time of the mitigating problem. The student must also notify the instructor through the Dean of the students. **Two unexcused absences will result in an automatic failure.**
- When arriving in the lab, students will be asked to sign the attendance sheet each week.
- All experiments must be completed during the same lab period.
- For each experiment, a demonstration video will be shared with students. Students should watch the video before attending the class.

### ***Pre-lab Questions:***

**EACH** student must complete pre-lab questions in the lab book before the class for each experiment.

### ***Lab Reports:***

A lab report will be submitted for each experiment. The report consists of the completed Report Sheet and Questions in the lab book and a separate page containing your calculations if needed. Each student (or group) should submit **ONE lab report**. For some experiments, lab reports must be handed in immediately following completion of the lab. The students have one day to finish the report for a few experiments. **Only on-time lab reports will be accepted.**

### ***Working in Groups:***

- Students may perform experiments with **one, two, or three** other persons. Any students in a group larger than **three** will receive a **zero** for that lab grade.
- Students working in groups must arrive at the lab and begin the experiment **simultaneously**. **They must remain in the lab until the experiment is completed.**
- Students working in groups can experiment and do calculations together. However, **EACH** group must hand in a separate lab report that includes data and calculations based on their work.

### ***Make-up Policy:***

The last week of the semester will be reserved for students to make up a missed lab. At this time, students will be permitted to make up **one missed experiment only**.

### ***IMPORTANT - Cellular Phones and AI tools:***

- *Use mobile phones and other electronic devices responsibly in class to enhance the learning process is essential.*
- *Avoiding the use of various AI tools is crucial when performing laboratory reports. The laboratory report and the pre-laboratory Questions related to the experiment **should be based primarily on your work and analytical thinking.***

### ***Safety and Clean-Up Policy:***

- **WEAR SAFETY GOGGLES AT ALL TIMES IN THE LABORATORY.**
- Clothing that covers your legs and shoulders is required. No shorts or short skirts.
- Everyone will be required to wear lab coats and gloves during each experiment.
- Closed shoes must always be worn. **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.
- Clean your workspace at the end of each lab session and wash your hands before leaving the laboratory. **A 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.

**Accommodation of Disabilities:** The Office of Accessibility Resources and Services (*formerly Disability Support Services*) offers long-term and temporary accommodations for undergraduate, graduate, and visiting students at NJIT. If you need accommodations due to a disability, please get in touch with Marsha Williams-Nicholas, M.A., E.D.M., Accessibility Resources, and Services Manager, at 973- 596-2994 or via email at [marsha.williamsnicholas@njit.edu](mailto:marsha.williamsnicholas@njit.edu). The office is in Kupfrian Hall 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required. For information regarding self-identification, the submission of medical documentation, and additional support services provided, please visit the Accessibility Resources and Services (OARS) website at <https://www.njit.edu/accessibility/accommodations-and-support-services>

## Laboratory Schedule

Below is a tentative weekly schedule. Students will be notified of any changes from the syllabus throughout the semester.

Date	Experiment
9/3	Check in, Introduction, and Safety
9/10	Colligative Properties: Freezing point depression (Experiment 18)
9/17	Activation Energy Determination (Experiment 19C)
9/24	Kinetics Lab (Handout)
10/1	Equilibrium Constant and Le Chatelier's Principle (Experiment 20)
10/8	Absorption Spectrum and Beer's Law (Handout)
10/15	Acid and Base Titration (Experiment 22)
10/22	Determining the Buffer Capacity of Antacids (Experiment 23)
10/29	Group I Cations (Experiment 27A)
11/5	Group IV Cations (Experiment 27D)
11/12	Anions (Experiment 27E)
11/19	Esters (Experiment 28)
<b>11/28</b>	<b>Thanksgiving Holiday</b>
12/3	Make up ( <b>one missed experiment only</b> )