NJIT New Jersey Institute of Technology

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE

Chemistry:
GENERAL CHEMISTRY LAB II (CHEM126A-001)
Fall 2025 Course Syllabus

NJIT Academic Integrity Code - All students should be aware that the Department of Chemistry & Environmental Science (CES) at NJIT takes the University Code on Academic Integrity very seriously and enforces it strictly. This means there must be no plagiarism, such as copying homework, class projects, lab assignments, or cheating on quizzes and exams. According to the University Code on Academic Integrity, students are required to report such activities to the instructor.

COURSE INFORMATION:

Course Description: Chemistry 126A (General Chemistry Lab II) is a laboratory course offered in conjunction with CHEM 126. Instructions are provided in the lab manual, and concepts are based on the text and lecture materials of the CHEM126 course. The experiments aim to provide undergraduate students with additional hands-on experience and to continue training them in laboratory techniques and equipment standards for chemistry labs.

Number of Credits: 1

Course-Section	Instructor	Email	Office Hours
CHEM126A-001 Tuesdays, 11:30 M - 2:20 PM Tiernan Hall 208	Carlos Pacheco, Ph.D. Office: B006. NMR laboratory: B008	carlos.n.pacheco@njit.edu	Thursdays, 1:30 -3:30 PM – location: NMR laboratory, Tiernan Hall, B008 or by appointment (in-person or **Virtual: https://njit-edu.zoom.us/launch/chat?src=direct_chat_link&email=pacheco@njit.edu)

Textbook/Laboratory Manual to be used in CHEM126A-001**:

***It is not mandatory to acquire this lab manual; other means will be provided to access it. the experiment descriptions and pre-lab questions*

Title	Laboratory Manual, Chemistry, a Molecular Approach
Author	John B. Vincent, and Erica Livingston
Edition	5^{th} edition
Publisher	Pearson
ISBN #	013498983X

University-wide Withdrawal Date: The last day to withdraw is Monday, November 10, 2025. It will be strictly enforced.

Learning Outcomes:

- Follow safety rules when working in a chemistry lab.
- Keep improving your logical reasoning skills.
- Learn to connect seemingly unrelated properties into patterns.
- Use some synthetic techniques in general chemistry.
- Get ready for further studies in chemistry and related fields.
- Compose comprehensive laboratory reports that elucidate the outcomes of experiments logically and coherently, employing a well-structured formatting approach.

Required Materials (All the materials listed 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 and procedures. 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/Attendance/Warm-up quiz/Office Hours: 85%
Pre-lab: 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. 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, or court notice, clearly stating the date and time of the mitigating problem. The student must also notify the instructor through the Dean of Students. **Two unexcused absences will result in an automatic failure**.
- Students will be asked to sign the attendance sheet each week when arriving in the lab.
- All experiments must be completed during the same lab period.
- Students will watch a demonstration video for each experiment before attending class.

Pre-lab Questions:

EACH student must complete the Pre-lab Questions in the lab book before the class for each experiment and watch the video of the experiment.

**Attention: Only on-time pre-lab Questions will be accepted.

Lab Reports:

A lab report must be submitted for each experiment. The report includes the completed Report Sheet and questions in the lab book, along with a separate page for your calculations if necessary. EACH GROUP should submit ONE lab report. Students have until Sunday at 11:59 PM to complete the reports for all experiments.

**Attention: Only on-time lab reports will be accepted.

Working in Groups:

- Students may conduct experiments with one or two others.
- Students working in groups must arrive at the lab and begin the experiment simultaneously. They must stay in the lab until the experiment is finished.
- Students working in groups can collaborate on experiments and calculations to enhance their learning experience. Each group is required to submit **ONE lab report** that includes data and calculations from their work.

Make-up Policy:

The final week of the semester for CHEM126A-001 is designated for students to make up a missed lab. During this time, students can complete only one missed experiment. However, students may make up more than one laboratory experiment if they have submitted the justification to the Dean of the Students' Office for the missed laboratory(s).

IMPORTANT - Cellular Phones and AI tools, and general information about grading:

1) **Students who attend office hours on Thursdays from 1:30 to 3:30 PM, either in person or virtually, will earn 2 extra points for each visit. These points will be added directly to their laboratory report grades at the end of the semester, individually.**

2) Please use mobile phones and other electronic devices responsibly during class.

3) Using different AI tools to complete lab reports is optional **but encouraged if you properly cite the source**. Missing citations will lead to a 1-point deduction, regardless of the source. However, the lab reports and pre-lab questions related to the experiment should mainly showcase your work and analytical thinking.

4) To support the development of quality laboratory reports, the use of MS Excel or Google Sheets will be included, as they are essential for calculations and graph creation in quantitative experiments. Laboratory reports should include the Excel or Google Sheets file **as a separate document from the main report,** allowing for the review of calculations and graphs.

    a. Failure to comply will lead to a point deduction of:
        i. 0 points for the 1st time,
        ii. 2 points for the 2nd time,
        iii. 4 points for the 3rd time, and subsequent times.

5) Additionally, to improve the quality of laboratory reports, the qualitative experiments will require photos of the results, properly linked to each step of the experiment. These photos are vital for accurately documenting observations and conclusions. Laboratory reports should include **well-captioned photos inserted within the main report**, allowing for more precise grading.

   a. Failure to comply will lead to a point deduction of:
      i. 0 points for the 1st time,
      ii. 2 points for the 2nd time,
      iii. 4 points for the 3rd time, and subsequent times

Safety and Clean-Up Policy:

- Always wear safety goggles in the laboratory.
- Clothing that covers your legs and shoulders is required.
- No shorts or short skirts.
- Everyone must wear a lab coat and gloves during each experiment.
- Closed-toe shoes are always required. Sandals are not allowed.
- Food or drinks are 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.

Accommodations for Disabilities: The Office of Accessibility Resources and Services (formerly known as Disability Support Services) provides both long-term and short-term accommodations for undergraduate, graduate, and visiting students at NJIT. If you require accommodations due to a disability, please contact 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. The office is located in Kupfrian Hall 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services confirming your accommodations will be required. For self-identification details, submitting medical documentation, and additional support services, 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 updates to the syllabus throughout the semester.

Date	Experiment
9/2	Check in, Introduction, Safety, class structure
9/9	Colligative Properties: Freezing point depression (Experiment 18)
9/16	Activation Energy Determination (Experiment 19C)
9/23	Kinetics Lab (Handout)
9/30	Equilibrium Constant and Le Chatelier's Principle (Experiment 20)
10/7	Absorption Spectrum and Beer's Law (Handout)
10/14	Acid and Base Titration (Experiment 22)
10/21	Determining the Buffer Capacity of Antacids (Experiment 23)
10/28	Group I Cations (Experiment 27A)
11/4	Group IV Cations (Experiment 27D)
11/11	Anions (Experiment 27E)
11/18	Esters (Experiment 28)
11/25	Make up (one missed experiment only)