CHEM 3110 Laboratory for Chemistry 3110 (CRN: 10818, 14882, 17967) Fall 2025

Schedule:

Lecture: Wednesday 1:30 – 2:20 p.m. (LART 209)

Lab Wednesday 2:30-5:20 p.m. & Thursday 1:30- 4:20 p.m. & Friday 12:30-3:20 p.m. (CCSB G.0714)

Instructors:

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(prior appointment is necessary).

Teaching Assistants:

Lissette Garcia Enriquez, PhD Candidate.
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Office hours: Wednesday 9:30 am to 11:30 am
(prior appointment is necessary).

Bhavna Kuli, PhD Student.
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Onibag Gutierres Artiles, Master's Student.
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Office hours: Tuesdays 10:30 am to 12:30 am
(prior appointment is necessary).

I. Textbook: No textbook is required for this course. Laboratory activities will be posted on the course Blackboard site.

II. Course Objectives:

a. To practice and improve your skills and knowledge in Instrumental analytical chemistry.
b. To apply the knowledge and gain hands-on experience in subjects covered in the lecture.

III. Course Description:

- These experiments are intended to illustrate the major analytical techniques described in the lecture.
- Every Wednesday at 1:30 PM we will have student presentations about the basics of the labcontent, followed by hand-on experiments on the corresponding day.
- A pre-lab quiz will be available each week, to test basic knowledge about the lab.
- It is important that you invest in good preparation BEFORE coming to lab by reading the lab manuals and writing your own outlined procedure for each lab.

IV. Course Evaluation:

You will be evaluated based on your overall grasp of the skills, concepts, and participation in the laboratory experiments and written exercises. Your overall lab grades will be divided among different components as given below:

Assessment Items	Points		Due Date
	Numeric	Percent	
a) Pre-Lab Quizzes	50 points each X 10 = **500**	20 %	**Every Tuesday by 11:59 PM.**
b) Student presentation	**375** points	15 %	**Wednesday at 1:30 PM.**
c) Lab Reports	62.5 points each X 10 = **625**	25 %	**The day before the next experiment at 11:59 PM.**
d) Final Exam	**500** points	20 %	**November 26th, 2025**
e) Participation in class	**250** points	10 %	
f) Attendance	**250** points	10 %	
TOTAL POINTS	**2500** points	100 %	

Grade Breakdown:

Points	**2500**	**2200**	**1950**	**1700**	**1450**	**0**
%	**100**	**88**	**78**	**68**	**58**	**0**
	A	**B**	**C**	**D**	**F**	

a) **Pre-Lab Quizzes (in blackboard)** - Pre-Lab Quizzes will be available each week in blackboard for the upcoming lab experiment. Pre-labs are due by 11:59 PM every Tuesday. The quizzes are designed to test your basic understanding of the materials for the specific week.

b) **Student presentations:** Each group will present the designated content (schedule is included in the Calendar). The group-based presentation will be 10-15 min and 5-10 min of questions and answers.

c) **Lab Reports**: Reports are turned in on individual basis in blackboard. A lab notebook is highly

encouraged for recording data during experiments. Lab reports will only be counted if you attend the lab. Any missed lab will result in a zero on that lab.

Reports should be uploaded to Blackboard, which the due date being the day before the next lab, by 11:59 PM. Reports submitted past the deadline will not be accepted.

LABORATORY REPORT REQUIREMENTS:

A lab report (individual) should contain the following components.

1. Your name (the group members name)-Each person's contribution in the report and experimental part in % .
2. The date that the experiment was performed.
3. Title of the experiment.
4. Objectives of the experiment.
5. Introduction: A description of the basic theory of the experiment and the operation of the instrument used. (5 pts)
6. Materials and Methods: (15 pts)
   - List all chemicals (including solvents) to be used. List formula weights for each substance and other useful information such as the physical properties, MSDS, etc. Find this information in the reference libraries, or on-line.
   - A clearly and concise procedure statement. You are required to use a flow chart to illustrate the procedure.
7. Results and Discussions: (30 pts)
   - Data, numerical analysis, graphs, tables, etc. Show appropriate calculations and clearly identify important answers. Always use units in your calculations. Be sure to indicate any uncertainties.
   - Discussions of the results: Describe experimental conditions, observations, and interesting finding. You may find references to support your hypothesis and statements.
   - Discussions of any challenges or mistakes that you encounter during the experiment and how your group address the problems.
8. Conclusion: A conclusion statement summarizing the result and any conclusion. A summary statement about the data found and the determined results must be clearly stated. Also indicate what you have learned in this experiment. (10 pts).
9. References: List at least 2 references cited in your reported. (2.5 pt).

d) **Final Exam:** A comprehensive exam will be given at the end of the semester. The exam will cover all the concepts and abilities gained during the semester.

e) **Participation in class:** Participation in this course will be assessed through various activities, including responses to trivia questions posed during lectures and questions directed to other presenters. Your participation will be evaluated based on consistency in contributing to discussions, the quality of your responses, active engagement with the material, and effective collaboration during group activities. Additionally, actively questioning and engaging with your peers during their presentations will also contribute to your participation grade. This will reflect your preparation, critical thinking, and overall engagement with the course content.

f) **Attendance** - You must be present during each lab experiment to be eligible for a grade on this category. DON'T SCHEDULE OTHER APPOINTMENTS/commitments during this lab time, as your grade will suffer if you are not in the lab at the scheduled times.

V. Course Policies:

- Goggles are required in the lab. No open toe shoes are allowed.
- The labs are long, and you will need to use your time wisely.
- **Academic honesty:** Materials (reports, quizzes, exam or otherwise) submitted to fulfill academic requirements must represent a student's own efforts. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.
- There could be small modifications made to the syllabus during the semester. The instructor and TA will inform the student about any change by announcing in the class and on blackboard course site. However, it is the student's responsibility to attend the class and/or check the course site to keep up to date with any information that is provided to him/her and to use it responsibly.

VI. Others:

- **Safety:** Please practice safety.
  - Safety eyewear and lab-coats must be worn during experiments.
  - Cell phones must be turned off. NO EXCEPTIONS.
  - Open-toe shoes are not allowed.
  - Gloves should be worn when appropriate and recommended by the instructor.
  - Long hair must be tied back so it will not accidentally fall into an experiment.
  - No foods or drinks are allowed in the lab.
  - You must wash your hands after dealing with chemicals or dirty glassware, and when you are done with the lab.
  - Always look behind you before beginning to move in a lab.
  - Speak loud and clear to warn others of an accident and or potential danger.
  - Know your safety options before you begin (sinks, shower, eyewash, gloves).
  - Know your path out of the lab, if it becomes necessary.
  - Know where the fire extinguishers are.
  - If an instructor is present during a fire, allow them to operate the fire extinguisher.
  - Know what can go wrong and be prepared with a solution.
  - Research any chemical that is unfamiliar to you. Know its properties.
  - Familiarize yourself with the first-aid supplies and their location.

- **Waste**

  Improper waste disposal into the drain is not only dangerous to you, but hazardous to a whole community. Unpredictable and dangerous (explosive) chemical reactions can occur. Follow the directions given to you on the boards or hoods for properly disposing

chemical waste. **Make sure to write down the name and the quantity of the waste put into the waste bottle.**

VII. Course Withdrawal Policy

Classes dropped before the official census date **(09/10/2025)** will be deleted from the student's semester record. After this date, the University permits any student to drop withan automatic "W" by the course dropping deadline **(10/31/2025).** After this date, students who withdraw must receive an "F" grade.

VIII. Course Calendar:

The content is tentative and subject to change. Any changes will be announced in advance.

Week		Subject	Presentation Schedule
1.	08/25-08/29	No lab	
2.	09/01-09/05	No lab	
3.	09/08-09/12	Safety and Introduction & Lab Tours.	
4.	09/15-09-19	Exp. 1. Calibration of Volumetric Glassware	Group 1
5.	09/22-09/26	Exp. 2. Gravimetric Determination of Calcium as Monohydrated Calcium Oxalate ($CaC_2O_4 \cdot H_2O$).	Group 2
6.	09/29-10/03	Exp. 3. Preparing Standard Acid and Base	Group 3
7.	10/06-10/10	Exp. 4. Statistical Evaluation of Acid-Base Indicators	Group 4
8.	10/13-10/17	Exp. 5. Analysis of a Mixture of Carbonate and Bicarbonate	Group 5
9.	10/20-10/24	Exp. 6. EDTA Titration of Ca^{2+} and Mg^{2+} in Natural Waters	Group 6
10.	10/27-10/31	Exp. 7. A Cyclic Voltammetry Study of the Oxidation of Ascorbic Acid ($C_6H_8O_6$) at the Glassy Carbon Electrode	Group 7
11.	11/03-11/07	Exp. 8. Determining Purity of a Potassium Permanganate ($KMnO_4$) Sample by UV-Vis Spectroscopy	Group 8
12.	11/10-11/14	Exp. 9. Spectrophotometric Determination of Iron in Vitamin Tablets	Group 9
13.	11/17-11/21	Exp. 10 Microscale Spectrophotometric Measurement of Iron in Foods by Standard Addition	Group 10
14.	11/24-11/28	**Final Exam**	

IX. Technology requirements

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update the following software: Microsoft Office, Lockdown Browser and Adobe Acrobat Reader. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

X. Course communication: How we will stay in contact with each other

Here are the ways we can keep the communication channels open:

- Office Hours: By appointment
- Email: UTEP e-mail is the best way to contact us. We will make every attempt to respond to your e-mail within 48 hours of receipt. When e-mailing me, be sure to email from your UTEP student e-mail account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.
- Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

XI. Illness precautions

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodation.

XII. Make-up work

Make-up work will be given only in the case of a documented emergency. A maximum of two chances (for the entire semester) will be given to make-up any missed lab(s) but it must be made up according to the availability of the scheduled labs. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to

reach out to me—in advance if possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

XIII. Accommodations policy

The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodation, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodation online via the CASS portal.

XIV. Guidance on artificial intelligence

AI prohibited

Use of AI technologies or automated tools, particularly generative AI such as ChatGPT or DALL-E, is not allowed for assignments in this class. Each student is expected to use critical and creative thinking skills to complete tasks and not rely on computer-generated ideas. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

XV. Plagiarism detecting software

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase