

General Chemistry II

CHEM-1412

Summer 2025 Section 53703 4 Credits 06/09/2025 to 08/14/2025 Modified 06/06/2025

Course Information

Class Meetings:

Bldg	Room	Type	Days	Start Time	End Time
CET	INET	INET	MTWRFSU		
CET	INET	INTLB	MTWRFSU		

Withdraw Date:07/29/25

Certification Date:06/21/25

Course Description

This lecture and lab course should combine all of the elements of CHEM 1312 General Chemistry II Lecture which include chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. And 1112 General Chemistry II Lab, including the learning outcomes listed for both courses which include basic laboratory experiments will reinforce theoretical principles of general chemistry, introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports.

Requisites

Required: CHEM 1409 or CHEM 1411 with a minimum grade of "C."

State-Defined Learning Outcomes

Lecture:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.

3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using Le Chatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

Lab:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Instructor-Defined Learning Outcomes

Lecture

Upon successful completion of this course, students will:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
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Texas Core Objectives

The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the Texas Core Objectives for Student Learning. In this course, the activities you engage in will give you the opportunity to practice two or more of the following core competencies:

- A. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
- B. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
- C. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;
- D. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal;
- E. Personal Responsibility: to include the ability to connect choices, actions and consequences to ethical decision-making; and
- F. Social Responsibility: to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

Required Course Materials

[Course Materials Link \(https://www.bkstr.com/webApp/discoverView?bookstore_id-1=609&term_id-1=4&dept-1=CHEM&course-1=1412§ion-1=53703\)](https://www.bkstr.com/webApp/discoverView?bookstore_id-1=609&term_id-1=4&dept-1=CHEM&course-1=1412§ion-1=53703)

Graded Work

The "Criteria" table below is a summary of all the graded work in this course.

The "Breakdown" table explains the final letter grade.

Assignments	Platform	Percentages
3 Exams Including Final Exam	D2L	36%
Chapter Quizzes	D2L	15%
Labs	Beyond Labz.	25%
Lab Safety Quiz	D2L	1%
Homework Assignments	Macmillan/Achieve	22%
Syllabus Quiz	D2L	1%

Note: Google chrome and firefox are most suitable browsers for D2L. Students should use any one of these two browsers when taking exams and quizzes on D2L.

Lecture Videos: Lecture videos will be posted on brightspace (D2L) on weekly basis. Students must watch all lecture videos before attempting the questions for practice, homework, and exam.

Practice Questions: There will be questions set provided for each chapter along with the key. After watching lecture videos, students must work on questions provided in problem sets to ensure understanding of concepts and material before attempting homework. *Practice questions are not graded.*

Homework: There will one homework per chapter and will be made available about a week ahead of due date. On average, there will be two homework assignments due per week. We'll be using Macmillan/Achieve platform for homework assignments. Students should be able to enroll in Macmillan by clicking on "Macmillan/Achieve" icon on the home page of course inside D2L(ecampus). Usually, a full week will be given to finish the homework and students must turn in the homework by due date. All homework assignments will be due by midnight (11:59 PM CST) of scheduled date. Students must watch chapter videos and do the practice problems before attempting the homework. No extension and make up homework will be given. One lowest homework grade will be dropped at the end of the semester.

Chapter Quizzes: There will be one quiz per chapter and will be administered on D2L. There will be a total of 15-20 questions in each quiz. Quiz will be opened in advance and must be completed by the due dates. Questions in quizzes will test students knowledge and prepare them for class exam. Unlike homework, there will be only one attempt per quiz. Students can take as much time they want. Students will not be allowed to retake the quiz. Due dates are posted in the calendar. No extension will be provided. Students must take quizzes after completing the problem sets and homework.

Exams: There will be 2 regular exams and 1 comprehensive final exam. The due dates are provided on the course calendar. If you are going to miss an exam, you must notify the instructor at least three days in advance for the possibility of alternate scheduling of the exam. Exam will entail 45-50 multiple choice questions with 90-100 minutes allowed. Exams must be finished once started. All the exams will be administered in D2L. There are no extra credit projects or extra assignments in the class. So, please do not even ask toward the end of semester. Study guides and practice exams will be provided before each exam. The best way to study for exam to review all the homework questions and do questions provided on problem set. Final exam will be comprehensive and will entail all the material learned during the semester.

Labs: Lab Safety Quiz will be taken on brightspace (D2L). Students must watch all the safety videos posted inside icon "Lab Material" and then take Lab Safety Quiz. However, all the experiments will be done on Beyond Labz Platform. Parts of experiments on weekly labs are shown below. For example, density lab has three parts. Students must do all parts to receive the credit. Due dates for all the labs are provided in the calendar and assignments must be turned in by midnight (11:59 PM CST) of due date.

Title of experiment
1. Phase Change
2. Specific heat of Pb and a student chosen metal
3. Creating solutions of known molarity
4. Using Beer's Law to find conc of an unknown solution
5. Freezing Point Depression
6. Ionization constants of week acids
7. Concepts in Acid base titration
8. Predicting Equivalence point
9. Enthalpy and Entropy
10. Redox Reaction

Lab Reports are worth 25% of the overall course grade. This means each experiment is worth about 2.5% as there are a total of 10 experiments.

Follow the instructions provided in the link to register in Beyond Labz.

<https://beyondblaz.freshdesk.com/support/solutions/articles/63000264966>

Click on Beyond labz inside "Learning Materials" once you are inside D2L. Activation code is already embedded in that link. You can copy that link or write down the code and use it when asked for activation code at payment step. Click on Access courseware or go to Beyondblaz.com

Register yourself by using Dallas College ID and email address. Do not use personal email.

Once enrolled you must join a **Group** to see the assignments. Group code for this course is **141253703**

Once enrolled you will be able to see the assignments. At this point it will ask you for the payment, choose access/activation code and enter the access/activation code that you have received from the learning materials

If you have any trouble registering, feel free to email support@beyondblaz.com

Criteria

Type	Weight	Topic	Notes

Breakdown

Percentages	Letter Grade
90-100 %	A
80-89.9 %	B
70-79.9 %	C
60-69.9 %	D
0-59.9 %	F

Grade	Range	Notes

Course Schedule

The table below is a summary of course topics and due dates. All assignments will be due by midnight on respective dates. Instructor reserves the right to amend any changes in the schedule.

- Chapters HW will be administered on Macmillan/Achieve.
- Chapter quizzes and exams will be administered on D2L.

- Lab Experiments will be done on Beyond Labz.
- Your instructor will notify you of any changes to the schedule during the term.

Week of	Lecture Materials	Lab Materials
Week 1 (06/09-06/15)	<p>Go over syllabus, watch syllabus video and then take Syllabus Quiz (06/12)</p> <p>Chapter 12: Liquid and Solids Homework on Achieve (Due 06/15)</p> <p>Chapter 12 Quiz on D2L (Due 06/15)</p>	<p>Watch Lab Safety videos posted on D2L, Lab Safety quiz on D2L, (Due 06/12), Registration of Beyond Labz and Exp 1: Phase Change on Beyond Labz (Due 06/15).</p>
Week 2 (06/16-06/22)	<p>Chapter 13: Solutions homework on Achieve (Due 06/22)</p> <p>Chapter 13 Quiz on D2L (Due 06/22)</p>	<p>Exp 2: Specific Heat Capacity of Pb and a student chooses metal on Beyond Labz (Due 06/22)</p>
Week 3 (06/23-06/29)	<p>Chapter 14: Chemical Kinetics homework on Achieve (06/29)</p> <p>Chapter 14 Quiz (06/29)</p>	<p>Exp 3: Creating Solutions of Known Molarity on Beyond Labz (06/29)</p>
Week 4 (06/30-07/06)	<p>Chapter 15 Chemical Equilibrium homework on Achieve (07/06)</p> <p>Chapter 15 Quiz on D2L (07/06)</p> <p>Midterm 1 (Chapters 12 to 15) (07/08)</p>	<p>Exp 4: Using Beer's Law to find conc of an unknown solution on Beyond Labz (07/06)</p>
Week 5 (07/07-07/13)	<p>Chapter 16 Acid and Base Homework on Achieve (07/13)</p> <p>Chapter 16 Quiz on D2L (07/13)</p>	<p>Exp 5: Freezing Point Depression on Beyond Labz (07/13)</p>

Week 6 (07/14-07/20)	Chapter 17 Additional concepts on aq. equilibrium Homework on Achieve (07/20) Chapter 17 Quiz on D2L (07/20)	Exp 6: Ionization constant of week acids on Beyond Labz (07/20)
Week 7 (07/21-07/27)	Chapter 18 Chemical Thermodynamics Homework on Achieve (07/27) Chapter 18 Quiz on D2L (07/27)	Exp 7: Concept in Acid base titration on Beyond Labz (07/27)
Week 8 (07/28-08/03)	Chapter 19 Electrochemistry Homework on Achieve (08/03) Chapter 19 quiz on D2L (08/03) Midterm 2 (Chapters 16 to 19) on D2L (08/05)	Exp 8: Predicting Equivalence point on Beyond Labz (08/03)
Week 9 (08/04-08/10)	Chapter 20 Nuclear Chemistry Homework on Achieve (08/10) Chapter 20 quiz on D2L (08/10)	Exp 9: Enthalpy and Entropy on Beyond Labz (08/10)
Week 10 (08/11-08/14)	Comprehensive final exam all chapters (08/14)	Exp 10: Redox Reaction (08/13)

When	Topic	Notes

* Course Policies

Unexpected Class Changes

Any changes in the schedule will be announced. Student must check their Dallas College email and announcements periodically

Attendance and Participation

Late Work

Late Work Policy: There will be no acceptance for late assignment. If acceptable, there is 20 % deduction on any late assignment done. All assignments due dates are listed on the guided course schedule.

Support Contacts

[Contact Your Success Coach \(https://www.dallascollege.edu/successcoach\)](https://www.dallascollege.edu/successcoach)

Every Dallas College student has a personalized Success Coach who supports them from day one to graduation. Contact your coach for help navigating college and reaching milestones leading to graduation and a career.

[Get Free Tutoring \(https://www.dallascollege.edu/tutoring\)](https://www.dallascollege.edu/tutoring)

Tutoring is free to all current Dallas College students. You can walk in or schedule an appointment at all [Learning Commons \(https://www.dallascollege.edu/learningcommons\)](https://www.dallascollege.edu/learningcommons) campus locations. Live, online tutoring is also available via eCampus.

[Explore More Free Student Resources \(https://www.dallascollege.edu/help\)](https://www.dallascollege.edu/help)

You have access to many free resources as a Dallas College student, including [Counseling and Psychological Services \(https://www.dallascollege.edu/counseling\)](https://www.dallascollege.edu/counseling), [Child Care Resources \(https://www.dallascollege.edu/childcare\)](https://www.dallascollege.edu/childcare), [Housing Resources \(https://www.dallascollege.edu/housing\)](https://www.dallascollege.edu/housing), [Emergency Aid Funds \(https://www.dallascollege.edu/emergencyaid\)](https://www.dallascollege.edu/emergencyaid), [Food Pantries \(https://www.dallascollege.edu/foodpantry\)](https://www.dallascollege.edu/foodpantry), and more!

[Submit the Student Care Form \(https://www.dallascollege.edu/careform\)](https://www.dallascollege.edu/careform)

Not sure which free college resources can help? Submit the Student Care Form! Our [Student Care Network \(https://www.dallascollege.edu/studentcare\)](https://www.dallascollege.edu/studentcare) will connect you to support for physical and mental health, financial concerns, food, clothing, and more.

[Contact Technical Support \(https://www.dallascollege.edu/techsupport\)](https://www.dallascollege.edu/techsupport)

Need help with eCampus or another college technology? Our technical support staff can assist you.

Institutional Policies

Dallas College Policies

Please review the [Institutional Policies \(https://www.dallascollege.edu/syllabipolicies\)](https://www.dallascollege.edu/syllabipolicies) page to learn about accommodations for students with disabilities, class drop and repeat options, Title IX (harassment, discrimination, and sexual misconduct), and more.