

CHEM 1410 | General Chemistry for Science Majors

Fall 2026 | Sections 251, 252 & 512 | Flipped Hybrid

University of North Texas | College of Science | Department of Chemistry

Dr. Sammer M. Tekarli

Course Design at a Glance

This course uses a flipped, hybrid model: initial learning happens asynchronously in Canvas, and we meet once each week for an 80-minute, team-based recitation focused on applying chemistry, solving problems, explaining reasoning, and correcting misconceptions.

Welcome to CHEM 1410

This is the first course in a two-semester general chemistry sequence for science majors. We will use an atoms-first approach: we begin with matter, energy, atoms, and electronic structure, then build toward bonding, molecular structure, reactions, stoichiometry, thermochemistry, gases, and intermolecular forces.

Chemistry is both qualitative and quantitative. Success therefore depends on learning concepts, practicing calculations, interpreting evidence, and explaining why a particular approach makes sense. My goal is not for you to memorize a collection of procedures, but to develop the ability to use chemistry as a way of reasoning about matter and change.

How to Read This Syllabus

The syllabus establishes course policies and the semester framework. Canvas contains the current weekly learning sequence, assignment instructions, section-specific due dates, and announcements. When a due date differs by section, the due date displayed on the individual Canvas assignment and Canvas Calendar is the official deadline.

Course & Instructor Information

Course	CHEM 1410 - General Chemistry for Science Majors
Semester	Fall 2026
Modality	Flipped Hybrid: asynchronous learning through Canvas + one required in-person recitation each week
Instructor	Dr. Sammer M. Tekarli, Clinical Professor
Department	Department of Chemistry, College of Science
Office	TBA
Office Hours	Zoom by appointment

Zoom	https://unt.zoom.us/my/sammertekarli
Email	Sammer.Tekarli@unt.edu
Phone	N/A for course communication; please use UNT email

Section Meeting Information

Section	In-Person Recitation	Location	Canvas Deadlines
251	Monday, 8:35-9:55 AM	SAGE 230	Same deadline pattern as Section 252
252	Monday, 11:15 AM-12:35 PM	SAGE 230	Same deadline pattern as Section 251
512	Tuesday, 9:30-10:50 AM	FRLD 260	Generally one day later when needed to align with Tuesday recitation

Official Due Dates

Because the three sections do not meet on the same day, some deadlines differ by section. The due date shown on each Canvas assignment and in the Canvas Calendar is the official deadline for your section.

Communication

Email is the best way to contact me about personal concerns, course questions, accommodations, or scheduling a Zoom meeting. Please use your official UNT email account. I generally respond within two business days. If you have not received a response after two business days, a polite follow-up is welcome.

Course-wide reminders, deadline changes, and updates will be communicated through Canvas Announcements and/or UNT email. Check Canvas and your UNT email regularly.

Course Description, Prerequisite & Learning Outcomes

Catalog Description

3 hours. (3;0;1*) Fundamental concepts, states of matter, periodic table, structure and bonding, stoichiometry, oxidation and reduction, solutions, and compounds of representative elements. *This hour is a problem-solving session.

Prerequisite: C or better in MATH 1100, or equivalent. CHEM 1410 may be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.

Course Learning Outcomes

- Define and classify the fundamental properties and forms of matter.
- Convert units of measure and apply dimensional analysis, significant figures, and quantitative reasoning.
- Determine the basic nuclear and electronic structure of atoms and ions.
- Use the periodic table to interpret atomic information and predict trends in chemical and physical properties.
- Relate electronic structure to ionic charge, chemical bonding, and molecular behavior.
- Write chemical formulas and use nomenclature rules to name chemical compounds.
- Describe bonding and predict the structure and shape of simple molecules and ions.
- Write and balance chemical equations; classify chemical reactions and predict products when appropriate.
- Solve stoichiometric, composition, and solution-concentration problems.

- Apply energy, calorimetry, and enthalpy concepts to physical and chemical changes.
- Use gas laws and the kinetic-molecular theory to solve gas problems and interpret gas behavior.
- Use chemical evidence, models, and calculations to explain observations and evaluate whether an answer is reasonable.
- Work productively in a team by explaining reasoning, challenging ideas respectfully, checking work, and reaching evidence-based conclusions.

Required Materials & Technology

Textbook

Required: Flowers, Paul; Edward J. Neth; William R. Robinson; Klaus Theopold; and Richard Langley. Chemistry: Atoms First 2e. OpenStax, Houston, Texas, 2019. The textbook is freely available online and may also be downloaded for offline use.

[OpenStax Chemistry: Atoms First 2e](#)

Calculator

Required: a scientific calculator capable of scientific notation, logarithms, and inverse logarithms. A Texas Instruments TI-30XI or comparable scientific calculator is recommended. Bring your calculator to recitation and any assessment for which it is authorized.

Digital Course Materials

This course has substantial digital components. To participate fully, you need reliable internet access for Canvas, Canvas Studio video assignments, course readings, Practice Assignments, announcements, grades, and assignment submission. If your circumstances change or additional technology is required, you will be notified through Canvas.

- Canvas Learning Management System (required)
- Respondus LockDown Browser for exams/assessments when specified
- CamScanner or the instructor-specified scanning workflow for submitting completed recitation packets as one PDF
- A device capable of accessing Canvas outside recitation. Device use during recitation is governed by the in-class technology policy below.

Canvas Is the Course Hub

Use Modules as your primary navigation path. Every week begins with a Week X To-Do List that tells you what to complete before class, what we will do in recitation, and what practice follows afterward.

How This Hybrid Course Works

The course is organized around a repeatable weekly learning cycle. The terminology below is the same language used throughout the Canvas modules.

Phase	Purpose	Typical Course Items
BEFORE CLASS Learn & Check	Encounter and organize the week's concepts before recitation.	Week X To-Do List; Concept Guides; readings; Canvas Studio Video Assignments; short checks.
IN CLASS Recitation & Application	Use chemistry with a team: solve, explain, compare approaches, interpret evidence, and correct misconceptions.	80-minute Week X Recitation Assignment; team discussion; checkpoints; individual check.

Phase	Purpose	Typical Course Items
AFTER CLASS Practice & Strengthen	Practice independently, revisit difficult concepts, and use feedback to improve.	Week X Practice Assignments; review of Concept Guides and worked examples; optional PLTL/tutoring.

Current Module Design

The first part of the course illustrates how the weekly sequence works:

- Prerequisite Refresher: Math & Measurement Skills - unit conversions, accuracy/precision, and significant figures.
- Week 1: Matter, Physical Properties & Energy - classification of matter, density, specific heat, energy units, and kinetic/potential energy.
- Week 2: Atomic Structure - supporting laws and atomic theory, isotopes and average atomic mass, classical experiments and the nuclear model, element classification, electron configuration, ions, preferred charges, and polyatomic ions.

Later weekly modules follow the same Learn & Check -> Recitation & Application -> Practice & Strengthen structure even as the chemistry content changes.

Assessment & Grading

Category	Weight	What It Represents
Exams	40%	Four midterm exams are given. The lowest eligible midterm exam score is dropped; the remaining three determine the Exam category average.
Final Exam	20%	Comprehensive final examination. The final is required and is never dropped.
Video Assignments	10%	Required Canvas Studio videos with embedded questions that support BEFORE CLASS learning.
Recitation Assignments	20%	Weekly in-person packet work emphasizing completion, meaningful engagement, reasoning, teamwork, and individual accountability.
Practice Assignments	10%	Canvas practice problem sets completed AFTER CLASS. These generally allow unlimited attempts with the highest score retained.

Letter Grades

Course Average	Letter Grade
90.0-100%	A
80.0-89.9%	B
70.0-79.9%	C
60.0-69.9%	D
Below 60.0%	F

Grades are based on the weighted categories above. The course is not graded on a competitive curve against other students.

Exams

There will be four midterm exams. The lowest eligible midterm exam score will be dropped when the Exam category is calculated. A grade of zero resulting from a confirmed academic integrity violation is not eligible to be dropped.

Exam dates are TBA and will be announced in Canvas. Exams will be administered online in Canvas using Respondus LockDown Browser when specified. Testing location, availability window, permitted materials, and all other exam instructions will be posted in Canvas before each exam.

Assessment	Date / Time / Location
Exam 1	TBA - official details will be posted in Canvas
Exam 2	TBA - official details will be posted in Canvas
Exam 3	TBA - official details will be posted in Canvas
Exam 4	TBA - official details will be posted in Canvas
Comprehensive Final Exam	TBA - will follow the university-scheduled final examination time; date, time, and location will be posted in Canvas and updated in the syllabus once confirmed

Important: Final Examination

UNT requires courses to use the university-scheduled final examination time unless an alternate time is approved. The final exam is comprehensive, required, and is not part of the dropped-midterm policy.

Video Assignments

Video Assignments are required Canvas Studio lessons with embedded questions. They are part of the BEFORE CLASS | Learn & Check phase. These are designed to help you arrive at recitation ready to use the material rather than encounter it for the first time.

Practice Assignments

Practice Assignments are low-stakes, graded problem sets designed for repeated practice. Unless an individual assignment states otherwise, attempts are unlimited and the highest score is retained. Correct answers may not be automatically displayed; use additional attempts to diagnose where your reasoning needs improvement rather than simply guessing again.

Recitation Assignments

Recitation is the one required in-person meeting each week. You will typically work in teams of four. The physical packet is provided in class and is designed for active problem solving, explanation, checkpoints, and reflection. Your grade is based primarily on completion and meaningful engagement rather than perfection on the first attempt.

Each student is responsible for completing their own packet while collaborating with the team. After recitation, scan the original completed pages using CamScanner (or the current instructor-specified scanning method) and submit one clear PDF through the Canvas Recitation Assignment. Photographs, screenshots, or photographs pasted into a document are not substitutes for a proper scan. Detailed submission instructions are provided on each Canvas Recitation Assignment page.

Attendance, Participation & Late Work

Required Recitation Attendance

Attendance is required because recitation depends on real-time team problem solving and completion of the weekly packet. Attendance will be taken at each recitation meeting. Merely being physically present is not the same as participating; meaningful engagement with the packet and your team is part of the Recitation Assignment expectation.

UNT Policy 06.039 recognizes that regular attendance and participation promote student success and requires instructors to communicate special attendance requirements. University-authorized absences will be handled in accordance with that policy. If you will miss recitation for an authorized university reason, contact me as early as possible so that an appropriate makeup option can be arranged.

For illness, emergency, or other extenuating circumstances, communicate with me promptly. Documentation may be requested when appropriate. Do not wait until after a deadline if you are able to contact me beforehand.

Late Work & Extensions

Late submissions are not accepted after the posted Canvas deadline unless an extension has been approved. When circumstances allow, extension requests should be made before the deadline. University-authorized absences and documented emergencies will be handled consistent with UNT policy. The Canvas assignment page and Canvas Calendar contain the official deadlines for your section.

University Holidays

No assignments or assessments will be due on Labor Day (September 7) or during Fall Break (November 23-29). Section-specific due dates and any holiday-related adjustments will be shown in Canvas.

Technology, Focus & Generative AI

Technology During Recitation

Our weekly recitation is intentionally designed as focused, collaborative problem-solving time. Cell phones and laptops must remain put away unless I specifically authorize their use for an activity. The purpose of this policy is to protect the time your team has to think, write, discuss, and explain chemistry without competing screen distractions.

Tablets/iPads may be used for handwritten note-taking. To retain permission to use a tablet during the following week's recitation, email me a copy of your handwritten recitation notes from the current week. This is not an additional graded assignment; it simply confirms that the device is being used as a learning tool consistent with the purpose of our in-person session. Approved accommodations through the Office of Disability Access will always be honored.

Generative AI as a Learning Tool

Generative AI tools such as ChatGPT may be used to support learning when the specific assignment does not prohibit their use. Appropriate uses include asking for another explanation, generating additional practice problems, checking your reasoning, identifying where you may have made an error, or asking for a different problem-solving approach.

Use AI to Help You Think - Not to Replace Your Thinking

AI should not be used simply to obtain an answer that you then submit as your own work. You remain responsible for the chemistry, the reasoning, and being able to explain the work you submit. Assignment-specific directions always take precedence; if you are unsure whether AI use is allowed, ask before using it.

During recitation and PLTL, AI tools and electronic devices may not be used to answer the packet or worksheet unless I specifically authorize them. During exams and assessments, AI and other unauthorized aids are prohibited unless expressly authorized in writing.

Peer-Led Team Learning (PLTL) - Optional Earned Exam Credit

PLTL is strongly encouraged as an additional opportunity to practice chemistry, prepare for assessments, and develop stronger problem-solving habits. PLTL is not a second lecture and it is not simply tutoring. Sessions are built around active problem solving, discussion, test preparation, and learning how to approach unfamiliar chemistry problems with the guidance of a trained PLTL leader.

What Counts as a Qualifying PLTL Session

- Attend and participate for the full session.
- Actively contribute to the problem-solving and discussion.
- Complete the assigned physical PLTL worksheet.
- Submit the original hard-copy worksheet to the PLTL leader at the end of the session. The PLTL leader will provide the collected work to the instructor.

Attendance alone does not earn credit. Simply signing in, attending briefly, or attending without completing and submitting the assigned work does not qualify.

PLTL Technology Rule

PLTL is a paper-and-pencil problem-solving session, similar to recitation. Computers, laptops, tablets/iPads, and cell phones may not be used during the session to answer the worksheet unless specifically authorized by the instructor or required by an approved accommodation. At the end of the session, you may briefly use your phone to take a photograph of your completed worksheet for your own study records before turning in the original physical copy. The photograph does not count as the submission.

Earning & Applying PLTL Credit

PLTL credit is earned in two-session participation cycles. A cycle is completed after two qualifying PLTL sessions in consecutive weeks. You are welcome and encouraged to attend every week; there is no required skip week. The credit value associated with a qualifying cycle will be announced in Canvas before the opportunity begins.

Earned PLTL credit will be applied to the exam portion of your course grade. Because four midterm exams are given and the lowest eligible midterm exam is dropped, you do not need to choose which exam receives your credit. I will apply earned PLTL credit in the way that provides the greatest positive impact on your overall course grade, subject to any limits announced with the PLTL opportunity. PLTL credit will never lower your grade and cannot be used to offset a zero resulting from an academic integrity violation.

How to Succeed in General Chemistry

Chemistry improves through repeated, spaced practice. Watching solutions can create familiarity, but familiarity is not the same as being able to solve a problem independently. Build a weekly routine around the course learning cycle.

- Preview the Week X To-Do List and complete BEFORE CLASS learning before recitation.
- Pause videos and attempt examples before the solution is shown.

- Write calculations, units, and reasoning on paper. Do not rely on mental math for multi-step chemistry problems.
- During recitation, explain your reasoning and ask teammates, "How do we know?"
- Use Practice Assignments repeatedly; an incorrect attempt is information about what to review.
- Attend PLTL and/or departmental tutoring early rather than waiting until an exam is close.
- Contact me when you are stuck. Asking for help is part of learning chemistry.

Course Support

- Teaching Assistants: contact information and support hours will be posted in Canvas. TAs support Canvas questions and offer Zoom/in-person help as announced.
- Peer-Led Team Learning (PLTL): 90-minute peer-led sessions for structured practice; details and sign-up information will be posted in Canvas.
- Chemistry Resource Center (CRC) and UNT Learning Center: tutoring and academic support are available. Current schedules are linked from Canvas and UNT instructional-resources pages.

Tentative Course Calendar

The schedule below provides the required general description of subject matter and assigned readings for the semester. It is a planning guide and may be adjusted as needed. Canvas Modules will contain the current weekly sequence, readings, videos, and assignments. Students will receive reasonable notice of substantive changes.

Week / Date	Planned Subject Matter	Assigned Reading / Preparation
Before Week 1	Prerequisite Refresher: unit conversions; accuracy, precision & significant figures	Canvas Prerequisite Refresher resources
Week of Aug 17	Matter, physical properties & energy; course introduction and quantitative review	OpenStax 1.1-1.6 + Week 1 Canvas resources
Week of Aug 24	Atomic theory and supporting laws; isotopes; nuclear atom model; periodic-table tools; introductory electron configuration and ions	OpenStax 2.1-2.4, 3.6 + Week 2 Canvas resources
Week of Aug 31	Electronic structure of atoms (continued/deeper study)	OpenStax 3.1, 3.3 + weekly Canvas module
Week of Sep 7	Periodic trends	OpenStax 3.4-3.6 + weekly Canvas module; no assignments due Sep 7
Week of Sep 14	Ionic and covalent compounds	OpenStax 2.4, 3.7 + weekly Canvas module
Week of Sep 21	Empirical and molecular formulas; the mole	OpenStax 4.1-4.3, 6.1 + weekly Canvas module
Week of Sep 28	Structures of molecules	OpenStax 2.4, 4.2, 4.4, 4.5, 6.2 + weekly Canvas module
Week of Oct 5	Shapes of molecules	OpenStax 4.6, 5.1-5.3, 10.1 + weekly Canvas module
Week of Oct 12	Stoichiometry of chemical reactions	OpenStax 7.1, 7.3, 7.4 + weekly Canvas module
Week of Oct 19	Classifying reactions and predicting products	Assigned reading/resources listed in weekly Canvas module
Week of Oct 26	Acid-base reactions, molarity, and redox reactions	Assigned reading/resources listed in weekly Canvas module
Week of Nov 2	Energy: calorimetry and enthalpy	OpenStax 9.1-9.4 + weekly Canvas module
Week of Nov 9	Gases	OpenStax 8.1-8.3, 8.5 + weekly Canvas module
Week of Nov 16	Intermolecular forces and phase changes	Assigned reading/resources listed in weekly Canvas module
Nov 23-29	Fall Break - no class and no assignments/assessments due	No new required work due during Fall Break
Week of Nov 30	Synthesis, cumulative review, and final-exam preparation	Review assigned Canvas modules and instructor-provided review resources
Final Exam Period	Comprehensive Final Exam	Date/time/location TBA; university-scheduled final examination time will be used

Midterm Exams 1-4: dates TBA. Exam announcements in Canvas will identify the tested modules, exam window/location, and permitted materials. The course calendar is subject to change. If a campus closure affects the course, students will be notified through Eagle Alert and Canvas, and contingency instructions will be posted in Canvas consistent with UNT Policy 15.006.

Academic Integrity & Examination Conduct

Academic Integrity

UNT promotes integrity in learning and expects submitted work to reflect authorized assistance and the student's own academic effort. Cheating includes using unauthorized assistance on exams, quizzes, or other assessments and using sources beyond those authorized by the instructor when solving problems or completing assignments. Suspected violations will be handled under UNT Policy 06.003, Student Academic Integrity, including the required reporting and student response/appeal process.

For a confirmed violation, course-level academic penalties may include partial credit or no credit on the affected assignment or assessment, up to course failure depending on seriousness and university procedures. A zero assigned for a confirmed academic integrity violation on a midterm exam is not eligible to be dropped as the lowest exam.

Unauthorized Aids During Examinations and Assessments

Students may use only those materials and resources that are expressly authorized by the instructor for a particular examination or assessment. Touching, holding, or accessing any unauthorized aid during the examination period constitutes a violation of the Student Code of Conduct, regardless of whether the aid is used.

Any item that may be considered an unauthorized aid must be kept out of view and in a closed container (e.g. zipped backpack, buttoned purse, etc.) during the entirety of the examination or assessment.

Unless specifically authorized in writing by the instructor, prohibited aids include, but are not limited to:

- Mobile phones and smartphones
- Smartwatches and fitness trackers with communication, recording, or internet capabilities
- Tablets, laptops, and other computing devices
- Earbuds, headphones, and other audio devices
- Smart glasses, cameras, recording devices, and wearable technology
- Artificial intelligence (AI) tools, chatbots, and other generative AI technologies
- Notes, textbooks, study guides, formula sheets, or reference materials
- Any other device, material, or resource not expressly permitted by the instructor

Students are responsible for clarifying any questions about permitted materials before the examination begins.

Learning Environment & Course Conduct

Every student has the right to learn and participate in an environment of respect and courtesy. We will challenge ideas and reasoning without attacking individuals. Productive disagreement is welcome; personal attacks, harassment, or behavior that interferes with others' opportunity to learn is not.

Unauthorized photography, audio recording, or video recording of recitation, the instructor, classmates, or instructional materials is not permitted unless explicitly authorized or required by an approved accommodation. Course materials and recordings made available in Canvas are for enrolled students' educational use and should not be redistributed outside the course.

University Policies & Student Support

Disability Accommodations

The University of North Texas makes reasonable accommodation for students with disabilities. Students needing a reasonable academic accommodations must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the student will request their letter of accommodation. ODA will provide faculty with a reasonable accommodation letter via email to begin a private discussion regarding a student's specific needs in a course. Students may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to meet with faculty regarding their accommodations during office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website.

[Office of Disability Access](#)

Emergency Notification & Campus Closures

UNT uses Eagle Alert to communicate critical information about severe weather, campus closures, and public-safety emergencies. Keep your contact information current in MyUNT. In the event of a closure or disruption, refer to Canvas for course-specific contingency plans. The tentative calendar is subject to change when university operations are affected.

Student Academic Integrity

Policy 06.003: [Student Academic Integrity](#)

Attendance & Authorized Absences

Policy 06.039: [Student Attendance and Authorized Absences](#)

Code of Student Conduct

[UNT Code of Student Conduct](#)

Academic & Well-Being Resources

UNT provides academic, health, and well-being resources. Using support early is a strength, not a last resort.

- [UNT Success / Academic Support](#)
- [Student Health and Wellness Center](#)
- [Counseling and Testing Services](#)
- [UNT Food Pantry](#)
- [Chemistry Instructional Resources / Tutoring](#)

Technical Support

For Canvas or UNT-supported technology problems, contact the UNT Help Desk. If a documented university-system outage prevents completion of a time-sensitive assignment, contact me promptly and report the problem to the Help Desk so that an appropriate accommodation can be considered.

[UNT Help Desk](#)

Syllabus Changes

This syllabus is a good-faith plan for the semester. I may make reasonable changes when needed to support course learning, respond to university requirements, or account for unexpected circumstances. Students will

receive reasonable notice of substantive changes through Canvas, and an updated syllabus will be made available when appropriate.

Final Reminder

When you are unsure what to do next, go to Canvas Modules, open the current Week X To-Do List, and follow the sequence: BEFORE CLASS | Learn & Check -> IN CLASS | Recitation & Application -> AFTER CLASS | Practice & Strengthen.