



# CHEM 1411-001 General Chemistry I F2F

Course Syllabus: Spring 2025

*"Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed."*

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Office	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Hours	By appt.	8:30 – 9:30am 4:30 – 5:30pm	8:30-9:30am 10:00am – noon 1:00 – 5:30pm	8:30 – 9:30am	By appt.	Email anytime*

\*Refer to Communications section of syllabus

***This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.***

*Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.*

### **Course Description:**

4 credit hours.

Lecture/Lab/Clinical: 4 hours lecture and three hours of lab each week.

Prerequisite(s): MATH 1314 College Algebra or equivalent academic preparation; High school chemistry is strongly recommended.

Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Basic laboratory experiments supporting theoretical principles presented in CHEM 1411; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Successful completion (final grade of C or better) of CHEM 1411 will allow the student to enroll in CHEM 1412 (Fall, Spring, Summer).

### **Student Learning Outcomes:**

Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.

6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills.
14. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
15. Demonstrate safe and proper handling of laboratory equipment and chemicals.
16. Conduct basic laboratory experiments with proper laboratory techniques.
17. Make careful and accurate experimental observations.
18. Relate physical observations and measurements to theoretical principles.
19. Interpret laboratory results and experimental data, and reach logical conclusions.
20. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
21. Design fundamental experiments involving principles of chemistry.
22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

### Required Instructional Materials:

- Lecture Textbook
  - o *Chemistry, Atoms First* – Burdge & Overby; 5th Edition with ALEKS Digital Version with Access Code (ISBN # 9781266257483)  
Publisher: McGraw Hill
  - o The required materials for the lecture portion of this course are available using INCLUSIVE ACCESS. This means that you paid a discounted price for the eText and ALEKS when you paid tuition for this course. You automatically have your access code for ALEKS.
- Lab Supplies
  - o Lab Manual for CHEM 1411 – *Experiments in General Chemistry I* (v 7.3)  
NTCC Printing, only available in NTCC College Store
  - o Lab Safety Personal Protective Equipment (PPE)
    - Approved safety glasses are available in the college store, and other safety glasses and safety goggles are also available from online retailers. Students who wear corrective-vision glasses must have elastic-strap safety goggles that cover the entire glasses and seal against the forehead.  
**Always check with your instructor before purchasing eye protection from somewhere other than the NTCC College Store.**
    - **Beginning Thursday, February 6, students arriving to lab without proper safety glasses or goggles will not be allowed to participate in the experiment and will receive a grade of zero for that experiment.** Before that date, safety glasses/goggles may be rented from the instructor for the cost of five (5) points deducted from the behavior, safety, and teamwork (BST) grade.

- Pencils and Erasers  
Pencil is mandatory for writing on quizzes and exams. A strong, sturdy eraser is required to ensure that your work is professionally presentable. Any papers submitted in pen will not be graded and will receive a grade of zero. **Any papers that are too sloppy, messy, or unreadable will incur severe point deduction.** Pentel Hi-Polymer Eraser (#ZEH10) is the recommended eraser, but any good eraser will work fine.

### Minimum Technology Requirements:

- Scientific Calculator - TI-36x Pro or TI-30Xa is recommended, but other models will work; check with your instructor. **You will NOT be allowed to use a graphing calculator, programmable calculator, or cell-phone calculator during any exam in this course.**
- Wireless Internet-capable laptop computer or tablet (Chromebooks are not recommended)

### Required Computer Literacy Skills:

- Web browsing skills for working with the online homework system
- Ability to use Blackboard for access to course information
- Competent and professional emailing skills
- Functional use of MS Word and Excel for writing lab reports
- Video conferencing capability using Zoom or Teams through computer or mobile phone.

### Course Structure and Overview:

- Course Format: Face-to-Face
  - Both the lecture and laboratory portions of this course will be conducted in the traditional face-to-face format during the scheduled times as posted.
- Lecture Sessions: **Tuesdays and Thursdays 9:30-10:50am and Wednesdays, 9:30-10:30am**
  - Lecture will take approximately half to two-thirds of the class time, while the rest of the class time students will be working in small groups. Students will be required to work a paper quiz in small groups during each class period and occasionally complete a take-home quiz. The Wednesday morning recitation time is for reinforcement, especially practicing calculations. Additionally, students are expected to work on assignments, problems, and study a minimum of 3 hours outside of class for every one hour of class time.
  - Additional course material may also be presented fully online through videos and the course Blackboard page.
  - Exams consist of multiple-choice questions, short answer questions, calculation problems, and essay questions. For more information about exams, see the syllabus section on exams.
  - Exams will be conducted on-campus in person during the times scheduled.
- Laboratory Sessions: **Thursdays, 1:30-4:30pm**
  - Detailed instructions, guidelines, and descriptions of what is expected for laboratory sessions can be found on the following pages under the heading “Institutional/Course Policy.”
  - Some days there will not be an experiment, and some days there may be additional lecture sessions or exams scheduled during the lab time. Students are expected to follow posted schedules and the professor’s instructions. On days with experiments scheduled, students should plan to be working in the lab for at least three hours.

## Evaluation/Grading Policy:

- Course Grade Breakdown
  - ALEKS Assignments 10%
  - ALEKS Pie Progress 10%
  - Quizzes 11%
  - Attendance 2%
  - Unit Exams 35%
  - Laboratory 25%
  - ACS Final Exam 7%
  - Total Course Grade 100%

- Final grades are rounded to the nearest whole number percent, and letter grades assigned using the following scale:
  - A = 100-90%
  - B = 89-80%
  - C = 79-70%
  - D = 69-60%
  - F = 59-0%
- Grades are posted in Blackboard generally within one week of the due date. Blackboard provides an approximate course grade, which is typically within 1-3% of the actual course grade. The instructor's gradebook is the last word in grades and is what decides the final grades for the course. At any time during the term, students can request to view their grades in the instructor's gradebook or can request a pdf copy of their grades.
- Five unit exams will be given during the term. Unit exams are administered on campus in person as scheduled:

Exam 1	Chemistry Essentials	Ch 1, 2	Tues. Feb. 11	MS 124 9:30am
Exam 2	Electrons & Compounds	Ch 3, 4, 5	Thurs. Mar. 6	MS 124 9:30am
Exam 3	Bonding	Ch 6, 7	W-F Mar. 26-28,	Testing Center
Exam 4	Reactions & Solutions	Ch 8, 9	Tues. Apr. 22	MS 124 9:30am
Exam 5	Thermochemistry & Gases	Ch 10, 11	Thurs. May 8	MS 124 9:30am

- Exam dates are subject to change. Ample notice will be given verbally during class, in such instances. Under some rare circumstances, students may take exams in advance; this will be decided on a case-by-case basis in advance of the exam date. **There will be no make-up exams for missed exams without authorization before the exam date.**
- The **American Chemical Society (ACS) Standardized First-Semester General Chemistry Final Exam** will be administered during the mandated final exam time for this course. The ACS Exam is a nationally administered exam that covers topics from the first semester course in general chemistry. Questions on this exam will cover topics from all of CHEM 1411. This is a 70-question multiple choice exam with strict guidelines that will be discussed in class. This exam is challenging and will give students an idea as to how they perform relative to other students across the nation (community college and university) that take this test.

ACS Final Exam (110 min.)	Cumulative	Thurs. May 15	MS 124 9:30am
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Students who score exceptionally (80% or above) on the ACS Final Exam will automatically earn a course grade of "A" for the semester, provided they meet the following criteria: (1) no grade of 0 on any unit exam, (2) no more than one unexcused lab absence for the whole semester, (3) a score of 50% or above on total ALEKS work for the semester, and (4) no more than three unexcused absences in lecture for the semester.

### **Guidelines for in-person exams in this course**

- At the instructor's discretion, students may be assigned seats during an exam period.
  - Students are only allowed to bring pencils, erasers, and scientific calculators into the testing room.
  - **Programmable calculators, graphing calculators, and cell-phone calculators are not allowed.** Sharing calculators will not be permitted.
  - Bags, purses, etc. are not allowed at the student tables and should be stowed at the front of the room
  - Cell phones are not permitted. Phones should be turned off and surrendered to the instructor during the exam. A student in possession of a phone once the exam has started will earn a grade of zero on that exam. If a student's phone sounds, disrupting the exam, that student will earn a grade of zero on the exam and be asked to leave the testing room.
  - Watches are not permitted in the exam room; watches, and other personal electronic devices, must be stowed in a bag or surrendered to the instructor.
  - Students will be provided with scratch paper and a formula sheet for each exam. Other papers or notes will not be permitted during the exam.
  - Students that leave the testing room during the exam must turn in the exam to be graded and cannot return to the exam room until the testing period is over.
  - A student found in violation of any of these guidelines during an exam period will earn a grade of zero on that exam.
- **Graded Exams will not be handed back to the student.** Students are required to review their graded exams with the instructor. Students can make an appointment to review their exams with the instructor at times outside of office hours as well. Reviewing the exam is an exam score out of five points. Students must review their exam before the start of the next exam to earn the full five points.

### **Communications:**

- Students are expected to check Blackboard and their NTCC email accounts regularly. The primary communication between instructors and students in this course is face-to-face during lecture, laboratory sessions and office hours. Students are expected to ask questions, participate in discussions during lecture and laboratory sessions, and seek assistance from the instructor and tutors in person.
- NTCC email is the official form of communication used by the college. Any out-of-class announcements will be made using Blackboard's Announcement feature which will also send a copy of the message to your NTCC email.

### **Institutional/Course Policy:**

- **Students are expected to be working on assignments outside of class on their own time throughout the entire duration of this course.** For each hour that you spend in class, plan to spend a **minimum of three hours** out of class studying, reading the book, working on homework problems, etc.
- **Quizzes**
  - A quiz will be given during all lectures. Students who are absent from class will earn a zero on the quiz, and makeup quizzes will not be given.
  - In special cases, outside-of-class paper assignments may be accepted late; this requires prior authorization in advance of the due date.
  - **Late Quizzes: Quizzes that are "LATE" will earn a grade of zero; although, the late quizzes may be marked with comments for feedback on the content.**

- ▪ **In-Class Quizzes:** *These quizzes are late when the instructor leaves the classroom. Quizzes not in the instructor's possession when they leave the classroom at the end of class are considered "LATE".*
- ▪ **Take-Home Quizzes:** *These quizzes are considered late if they are not in the instructor's possession at the start of the class period. Take-Home Quizzes submitted to the instructor in any fashion once lecture has started are considered "LATE".*

- Syllabus Quiz

A **required** syllabus quiz will be administered through Blackboard at the start of the semester. This quiz is a binding agreement that you have received the syllabus and agree to its terms. The Syllabus Quiz is due Sunday, January 28 at 11:59pm. Students not completing the Syllabus Quiz by the census date – Wednesday, February 5 – may be dropped from the class and not allowed to re-enroll regardless of class participation.

- Attendance

- Attendance is mandatory for this course.
- You are expected to attend all classes. Chemistry is too hard to learn on your own. Some lecture material not found in the text may be presented during the semester that may show up on exams.
- Attendance is tracked through the Blackboard Attendance feature.
- Students who are late to class will lose attendance points.
- Attendance points may be lost for attitude, teamwork, and/or other interpersonal issues.

- Online Homework

- This course uses the ALEKS online homework system. Details about registering in ALEKS can be found on the course Blackboard page and will be discussed on the first week of class.
- Assignments and due dates will be listed in the ALEKS system.
- **Access to a computer with the internet is required for this course.** Computers are available on campus in the STEM Lab (MS 112) and the Learning Commons.
- *Late Assignments: Assignments not completed by the assigned due date/time are late. Late work is accepted according to the policy described in ALEKS.*

- Electronic Devices Policy

- Use of cell phones is prohibited during class and lab time. Students using phones for unapproved purposes during lab will be asked to leave lab and will earn a grade of zero on material for that lab period.
- Students are not to be in possession of electronic devices (phones, music players, watches, computers, tablets, headphones, etc.) during an exam. Students found with devices other than scientific calculators during an exam will earn a grade of zero on that exam.

- Laboratory Experiments

- There will be 12 experiments performed during the laboratory periods over the course of the term.
- Any experiments not completed and turned in will receive a grade of zero. ○ Any student earning a zero grade on three or more "During Lab" assignments will earn a grade of "F" in this course.
- A schedule of experiments will be provided as a separate handout.
- It is the responsibility of the student to arrive to lab prepared for the correct scheduled experiment.

- Laboratory Conduct and Attire

- Students are expected to adhere to the guidelines set forth in the "Commitment to Laboratory Safety Pledge" and in the safety video.
- Students must wear long pants covering their ankles—closed shoes (no exposed skin or

- sock), and shirts that cover their shoulders.
  - Approved safety glasses/goggles are to be worn at all times in the lab. Students who wear corrective vision glasses must have elastic-strap safety goggles that cover the entire glasses and seal against the forehead.
  - Long hair should be pulled back.
  - All jewelry – rings, watches, bracelets, etc. – should be removed.
  - Failure to follow laboratory safety protocols could result in injury to yourself or others and will result in reduction of your laboratory grade.
  - Students not dressed appropriately for lab will be asked to leave and will earn a grade of zero on that experiment.
- Prelaboratory Assignments
  - Prelaboratory Assignments accompany each experiment in the lab manual and must be completed prior to working the experiment.
  - **Prelaboratory Assignments are due by the beginning of the laboratory period.** Students not turning in a complete Prelaboratory Assignment will not be allowed to participate in that experiment and will receive a grade of zero on that experiment.
- During Lab Assignments
  - Every experiment consists of data pages for recording data and observations during the experiment and post-lab questions to be completed during or after the experiment. Together, these pages are the “During Lab” assignment.
  - Unless stated otherwise, During Lab Assignments are due at the end of the laboratory session.
  - Any student earning a zero grade on three or more “During Lab” assignments will earn a grade of “F” in this course.
- Experimental Design

Students will work over several weeks to design an experiment to accomplish a specific goal relevant to General Chemistry I. More detail will be provided during the semester.
- Laboratory Evaluation/Grading Policy
  - The laboratory portion of the course counts towards 25% of your overall course grade.

Regular Experiments	80% = 20.0% of course grade
Experimental Design	10% = 2.5% of course grade
<u>Behavior, Safety, &amp; Teamwork</u>	<u>10% = 2.5% of course grade</u>
<b>Total</b>	<b>100% = 25.0% of course grade</b>
  - Copying answers on any work will not be tolerated. Lab papers that appear to have answers copied from other students or internet sources or that appear to have cheated in any way will earn a grade of zero.
  - Details about what is expected for laboratory assignments can be found on the course blackboard page.
  - Specific experimental and report details and due dates are listed on the course Blackboard page, and it is the students’ responsibility to check for current requirements and due dates.
  - Additionally, relevant rubrics can be found on the course blackboard page.
  - Students are expected to attend all laboratory periods. There is no make-up experiment, and failing to attend lab will earn you zero points for that experiment. “I have to work” is not an acceptable excuse for missing a laboratory period.
  - Students may not leave lab before the experiment is completed without permission of their lab partner(s) and instructor; students doing so may earn a grade of zero on that experiment.

- Withdrawal Date (Drop Date)  
**Thursday, April 10, 2025** is the last day to withdraw from the course with a grade of “W”. If you stop attending class and fail to officially withdraw, expect to earn a grade of “F” in the course.
- Student Athletes  
It is the student athlete’s responsibility to communicate with the instructor. If the athlete will be absent from class or lab, it is the student’s responsibility to inform the instructor with as much advance notice as is logistically possible. Arrangements can be made for missed assignments, quizzes, experiments, exams, etc. with advance notice from the student. If no notice is provided from the student, missed assignments, quizzes, experiments, exams, etc. will not be excused and will earn grades of zero.
- Late Enrollment of Students  
Students that have enrolled in the course after the start of the semester are still responsible for any course material from the start of the semester. Quizzes may be made up if the student discusses in person with the instructor on their first day of class after enrollment. Otherwise, grades of zero will be given on these quizzes. ALEKS due dates will not be changed for late-enrolled students. Late assignment policies in ALEKS still apply.
- Extra Credit Opportunities  
There are many ways to earn “Extra Credit” in this course. There will be no additional extra credit at the end of the semester to bump up student grades.
  - 10% of each exam is extra credit (meaning students can earn up to 110% on each unit exam).
  - A percentage of ALEKS is extra credit such that the max score will be 110%.
  - Completing the course evaluation at the end of the semester will net the student 3 extra credit exam points.
  - Additional extra credit opportunities may become available during the semester at the discretion of the instructor. These will be announced during class or on Blackboard.
- Student Responsibilities/Expectations:
  - This course covers a lot of material and moves rapidly, so do not fall behind.
  - ***The only way to learn chemistry is through practice.*** You must be willing to spend time working problems from the textbook to be successful. If you are having problems with a particular topic, it may even be necessary to work problems from the textbook that are not assigned.
  - At the first sign of trouble, you should seek help immediately. I am happy to help you with any of your chemistry coursework. However, if you wait too long to seek help, you may not be able to catch up.
  - Work with a classmate on the homework, but do not just copy answers that you do not understand. There is a difference between working together and cheating.
    - If it feels like cheating, then it is cheating.
    - Assignments that appear to be copies of each other will earn grades of zero.
    - Students caught cheating will earn a zero on that quiz, lab, or any non-exam assignment and may earn a grade of “F” in the course for such actions.
    - **Students caught cheating on any exam, midterm exam, or final exam will earn an “F” in the course.**
    - Students with multiple instances academic dishonesty will earn a grade of “F” in this course.
  - Do not wait until the night before a test to study. Almost everything we cover will come up again later in the class. If you learn the material only long enough to take an exam, you will not



recognize it when we encounter it again. This *will* cause you to struggle through the entire course and to struggle through future chemistry courses.

- Questions and/or observations are encouraged during the class period. Courteous and attentive behavior is always expected. Students who consistently misbehave can expect to have their grade lowered.
- Like all colleges, Northeast Texas Community College strives to be a “community of scholars.” Please remember that you and all of the students in this class are pursuing very important goals in your lives. As human beings and as scholars, I expect every student to be courteous and considerate toward other students throughout the lecture and laboratory portions of this course.

### **Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements**

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC’s website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

### **Statement Regarding the Use of Artificial Intelligence (AI) Technology:**

Absent a clear statement from a course instructor, use of or consultation with generative AI shall be treated analogously to assistance from another person (collusion). Generative AI is a subset of AI that utilizes machine learning models to create new, original content, such as images, text, or music, based on patterns and structures learned from existing data (Cornell, Center for Teaching Innovation).

Unauthorized use of generative AI tools to complete an assignment or exam is not permitted. Students should acknowledge the use of generative AI and default to disclosing such assistance when in doubt. Individual course instructors may set their own policies regulating the use of generative AI tools in their courses, including allowing or disallowing some or all uses of such tools. Students who are unsure of policies regarding generative AI tools are encouraged to ask their instructors for clarification. **(Adapted from the Stanford University Office of Community Standards-- accessed August 31, 2023)**

### **NTCC Academic Honesty/Ethics Statement:**

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

### **ADA Statement:**

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are

students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

### **Family Educational Rights and Privacy Act (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

### **Tentative Course Timeline**

**(\*note\* instructor reserves the right to make adjustments to this timeline at any point in the term):**

This course will cover most of the material in Chapters 1-11 the Burdge text, additional material may be included if time permits. More detail can be found by examining the Table of Contents in the text and the detailed course schedule posted on Blackboard.

Week 1 Matter, Measurements, Significant Figures

Week 2 Dimensional Analysis, Density, The Periodic Table

Week 3 Atoms, Isotopes, Moles, Bohr, deBroglie

Week 4 EXAM 1, Quantum Mechanics, Electron Configurations

Week 5 Periodic Trends, Compounds, Binary Nomenclature

Week 6 Determining Formulas, Polyatomic Ions

Week 7 EXAM 2, Covalent Bonding, VSEPR Theory

Week 8 Intermolecular Forces, Valence Bond Theory, Molecular Orbital Theory; SPRING BREAK

Week 9 Chemical Equations, Stoichiometry, EXAM 3

Week 10 Solutions, Dilution, pH, Electrolytes, Precipitation Reactions

Week 11 Acid-Base Reactions, Quantitative Analysis

Week 12 Enthalpy, Calorimetry

Week 13 EXAM 4, Uses of Enthalpy

Week 14 Gases, Pressure, The Ideal Gas Law

Week 15 Gas Stoichiometry, Real Gases, EXAM 5

Week 16 ACS FINAL EXAM FALL GRADUATION – Saturday, May 17 – 9:00 & 11:00am