



CHEM 1407-048DC – Introductory Chemistry II

Course Syllabus: Spring 2026 – Online/Dual Credit

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

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	By appt.	8:30 – 9:30am 4:30 – 5:30pm	8:30-9:30am 10:03am – 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 via Blackboard and NTCC email.

Course Description:

4 credit hours.

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

Prerequisite(s): [CHEM 1405](#) with a grade of C or better.

Survey course introducing chemistry. Topics reinforced in lecture and lab may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry.

Designed for non-science and allied health students. Offered as dual-credit only.

Note: Additional fee(s) required.

Prerequisite(s): CHEM 1405 with a grade of C or better.

Core Curriculum Purpose and Objectives:

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning. Courses in the foundation area of life and physical sciences focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

College Student Learning Outcomes:

Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

Team Work

TW2. Students will work with others to support and accomplish a shared goal.

Student Learning Outcomes: Upon completion of this course, students will:

1. Recognize factors that affect reaction rates; demonstrate the ability to determine reaction rate laws from experimental data; write equilibrium constant expressions for reversible reactions and demonstrate the use of Le Chatelier's principle.
2. Identify characteristics of acids and bases and solve problems involving pH, the ionization constant of water, ionization constant values and acid-base titrations.
3. Identify characteristics of salts, determine the solubility product constant for a salt and the corresponding implication on solubility including the impact of the common ion effect.
4. Solve simple problems involving enthalpy and entropy to determine the effect of temperature on spontaneity.
5. Identify substances that are oxidized and reduced in a chemical reaction; identify and balance oxidation-reduction equations and determine standard cell potentials in electrochemical cells.
6. Demonstrate safe and proper handling of laboratory equipment and chemicals.
7. Carry out experiments and experimental work completely and accurately and calculate, interpret and communicate experimental results clearly in lab notebooks or written reports.

These learning outcomes will be assessed throughout the course and on the final exam. Teamwork and Communication Skills will be assessed through laboratory reports.

Evaluation/Grading Policy:

40% Tests & Quizzes
25% Laboratory
15% Final Exam
10% ALEKS Homework/other assignments
10% Pie Progress Goal
100% Overall course grade

Grading Scale	
A	100-90%
B	89-80%
C	79-70%
D	69-60%
F	$\leq 59\%$

Grades are posted to Blackboard during the term. The student should email the instructor for any questions or concerns about grades. Graded work is typically return within a week. Overall grades will be rounded according to standard rounding rules (i.e. an 89.4 = 89 but an 89.5 = 90), but grades must be earned (not "bumped up" to a higher letter grade when it was not earned).

Required Instructional Materials:

Inclusive Access: NTCC has negotiated with the publisher to obtain a discounted price for the lecture course materials. **The student's eBook and ALEKS are included in the price of tuition** and will be available on the first day of class through a link in Blackboard - Start Here folder. The materials are required for this class and essential for student success. Optional print copies of the textbook, in addition to electronic access, are available in the College Store for purchase at a discounted price. Through the Census Date, Feb. 4, 2026, the student may opt out of purchasing these materials from the College Store. If a student chooses to opt out, NTCC will issue a refund for the Inclusive Access, and the student will be responsible for purchasing the eBook and ALEKS from another vendor.

Scientific calculator: A TI-30X is recommended; No programmable or cell phone calculators are allowed on quizzes and exams. (Calculators are also available in Mrs. Carling's classroom.)

Optional Instructional Materials: Spiral notebook for all note-taking while studying, scratch paper while doing calculations, reviewing for exams, and staying organized.

Minimum Technology Requirements:

Laptop or computer with high-speed internet access
Microsoft Office 365 (available as a free download for all NTCC students)
Scientific calculator as described above

Required Computer Literacy Skills:

Ability to use a web browser to access NTCC Blackboard Learning Management System for course information, eBook and ALEKS assignments
Ability to access NTCC student email system and communicate professionally and competently with instructor;
Ability to create and complete Word documents, save on your computer, and upload into Bb assignment links as needed.

Course Structure and Overview:

This course is a dual credit course which allows a student to satisfy high school graduation requirements while also earning four college credits for a lab science at NTCC.

Online instruction is provided through reading assignments, lessons, tutorials, simulations, visualizations, and homework practice to reach mastery using the learning management system *Blackboard* with the eBook, *Introduction to Chemistry*, and the online homework system *ALEKS*. Homework assignments are done online, but exams are given in person at the high school. The lecture portion of the course does NOT meet virtually (such as on Teams), but the instructor is available to meet virtually with students individually by appointment; occasionally there may be in-person meetings at the high school. Students should direct lecture questions to the online instructor.

Students should recognize that the lecture portion of this course is online. The student will study the lecture material in Blackboard on his own time.

- ✓ The student will do the same amount of work as if attending in-person.
- ✓ The student will need self-discipline to complete assignments by the due date.
- ✓ The student will need to check Blackboard messages and NTCC email several times a week.

Laboratory experiments will be completed face-to-face with the co-instructor on the high school campus. Both lecture and lab learning activities are designed to support and enrich a student's understanding of the topics covered.

Exams – Four unit tests generally covering one chapter will be given in person at the high school according to the posted schedule. Questions may come from assigned readings, lecture, and homework; the format may include multiple choice, short answer, and problem-solving questions. There is a ALEKS review quiz for each chapter, due the night before each test. The student may complete the quiz any time before the due date. The four quizzes will count as one test grade. Students may use instructor-provided reference information such as periodic tables and equations during the exams, as well as a non-programmable calculator; sharing calculators is not allowed. The test average counts 40% of the overall grade.

A **comprehensive Final Exam** will be given during finals week on Wednesday, May 13, 2026. Like the unit tests, it will be taken in person at the high school, and students will be allowed to use a non-

programmable calculator and instructor-provided reference material. The final exam is a mixture of multiple choice, short answer, and show-your-work calculations. It counts 15% of the grade.

Laboratory Assignments - Work in the laboratory is central to the topic of chemistry. Experiments reinforce topics covered in lecture and help the student apply knowledge to real world problems. Experimental work takes place in person in the chemical laboratory, so it is imperative that students make arrangements with their instructor to make up any missed lab work. **Labs are typically due at the end of class of Fridays.** Lab assignments count 25% of the overall grade.

ALEKS & Other Assignments – This category includes ALEKS assignments and anything assigned by the instructor that does not fit into another category. Students access all ALEKS assignments via an ALEKS link at the top of Blackboard. There are generally two ALEKS assignments each week; students should expect to spend approximately three hours per week on homework. The **assignments are due Mondays at midnight.** Students should NOT wait until the night before the due date to start these assignments but rather should pace themselves. More information for registering for and using ALEKS is found in the Start Here folder of Blackboard. Assignments count 20% of the overall grade.

- Most ALEKS assignments are non-traditional, adaptive **Modules** which are available only during the “open” window. Only one Module can be open at a time, but if the student submits a Module before the due date, then no module is open at that time, so he may work on any future or past modules.
 - ALEKS Modules require the student to answer correctly (variations of) a question three to five times before receiving credit; the required number of correct answers varies for each question.
 - There are fewer questions than traditional homework assignments to give time to “prove” mastery by correctly answering multiple times (as well as to give time to refer to embedded resources for topics not yet understood).
 - The student earns full credit for a Module by *completing* the required number of correct answers before the due date, regardless of how many questions are missed in the process. Once the due date is past, the Module grade is locked in. If the student works on the Module later, the Pie Progress Goal grade improves but not the Module grade (see section below about ALEKS grades).
 - Students have access to embedded resources like the eBook, periodic table, reference material, explanations, and sometimes short instructional videos.
 - There is no penalty for clicking Explanation in Modules; it gives a detailed solution to the problem and then gives a new problem to try for credit.
 - **The goal is to master the topic.**
- ALEKS assignments require **great attention to detail**; this is a needed skill in chemistry and one that will transfer to any career path. In Modules, do not hesitate to click on Explanation to see what is wrong; often it is just a small detail like rounding off to the wrong number of significant figures.

There are two kinds of grades earned in ALEKS:

- The **Homework grade** which is earned on Modules as of the due dates.
- The **Pie Progress Goal grade** which tracks topics the student has mastered (shown through Modules and Knowledge Checks in ALEKS) throughout the semester.
 - ALEKS **Knowledge Checks** assess the student’s mastery at the beginning and end of the semester and a couple of times during the semester. They are used to personalize learning and ensure retention of learning. They may contain up to 25 questions.
 - It is to the student’s advantage to try to reason out the answer or even make a guess on these knowledge checks because ALEKS assesses mastery, updates the Pie Progress

- chart and adapts the cycles of learning/assessing based on these answers.
- It is possible to *lose* part of the Pie Progress Goal if mastery is not retained (and it is possible to re-gain it later). Again, the goal is to master the topics and retain that knowledge.
- Only one module may be open at a time in ALEKS. Because of this, there are only two times a student can work on past-due modules to show increased mastery: during scheduled Open Pie times and during the time after the current module is submitted but before its due date. These are times when no module is open, allowing students to work on *any* Module, future or past due, to improve the Pie Progress Goal by showing more mastery. The Homework grade will not change, but the Pie Progress Goal will improve.
- Please note that the Pie Progress Goal starts out as a low percentage and increases as the student gains more mastery; do not be alarmed by a low Pie Progress Goal grade at the beginning of the semester.

Institutional/Course Policy:

Attendance:

Regular and punctual attendance at all scheduled classes is expected for all students. Attendance is necessary for successful completion of course work. Students are expected to communicate with the instructor regarding any absence. The student is responsible for initiating procedures for make-up work. All course work missed, regardless of cause, is to be completed to the satisfaction of the instructor. Attendance in the online portion is counted by submitting assignments on time in Blackboard or ALEKS. Attendance Certification is based on **completing the Student Questionnaire in the Start Here folder of Blackboard by midnight, January 22, 2026.**

Late work: Chemistry is a sequential course; each topic builds on previously-taught topics. Therefore, it is critical to meet the assignment deadlines each week. Students have access to most instructional material from the first day of class and may work ahead. Students are expected to turn in work on time.

- See the **ALEKS & Other Assignments** section above for the late policy for ALEKS work. Other kinds of homework (if any) may be turned in up to one day late with a 10% penalty.
- **Labs may be turned in up to one day late with a 10% penalty.** The late penalty may be waived if the student has an excused absence and informs the instructor before the due date.
- **Tests** must be taken on the scheduled day unless prior arrangements have been made with the instructor before the exam date.
- The **final exam** must be taken at the scheduled time.

Withdrawing: There is a procedure for withdrawing from this course; the student should not simply quit attending. If the student determines that it is in his best interest to withdraw from this course, the student must contact the Registrar's office to initiate the withdrawal process (903-434-8139 or mgtorres@ntcc.edu). The last day to drop this course with a grade of W is Thursday, April 16, 2026. **Failure to officially withdraw by this date will result in the student's earned grade being factored into the GPA.**

Communications: NTCC email is the official form of communication used by the college. Course announcements will be made through Blackboard and copied to the student's NTCC email account. Therefore, students should check Blackboard (or NTCC email) **at least every other day**. To schedule a virtual TEAMS or in-person appointment with the instructor outside of office hours, the student should email the instructor. Students may email anytime, even after hours and weekends. The instructor typically responds to email messages within 24 hours.

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.

Eagle Assist

At Northeast Texas Community College, we understand that students may need support that extends beyond the classroom. “Eagle Assist” is the place to start when looking for that type of assistance. Our support system is here to help you succeed in both your academic and personal growth.

www.ntcc.edu/eagleassist

Services provided:

- Mental health counseling
- Classroom accommodations
- NTCC Care Center Food & Hygiene Closet
- Financial literacy
- Tutoring

Mental Health Counseling Services are available on campus – in person and online – to all NTCC students at no cost. If you are experiencing concerns, you may contact counseling-center@ntcc.edu or call 903-434-7825. Open Monday – Thursday, 8am – 6pm; Friday, 8am - noon.

Tentative Course Timeline (*note* instructor reserves the right to adjust this timeline at any point in the term): *A printable detailed schedule can be found in the Start Here folder of Blackboard.*

Week 1: Introduction and Kinetics; log-in to “ALEKS 360”

Week 2: Chemical Kinetics

Week 3: Chemical Equilibrium

Week 4: Chemical Equilibrium

Week 5: Review and **Exam 1**

Week 6: Acid/Base Equilibrium

Week 7: Acid/Base Equilibrium

Week 8: Acid/Base Equilibrium

Week 9: Review and **Exam 2 (midterm - cumulative)**

Week 10: Aqueous Equilibrium

Week 11: Review and **Exam 3**

Week 12: Chemical Thermodynamics

Week 13: Electrochemistry

Week 14: Electrochemistry

Week 15: Review and **Exam 4**

Week 16: **Final Exam (cumulative)**