



CHEM 1406.088 – Introduction to Chemistry I – ONLINE

Course Syllabus: Fall 2026

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

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Weekday	Office Hours
Monday	By appointment
Tuesday	8:30 – 9:30 am 4:30 – 5:30 pm
Wednesday	8:30 – 9:30 am 10:30 am – noon 1:00 – 5:30 pm
Thursday	8:30 – 9:30 am
Friday	None

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:

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

A survey course introducing chemistry, designed for allied health students and for students who are not science majors. Topics include inorganic, organic, and biochemistry with an emphasis on health sciences. The natural sciences and health science divisions of the college recommend that CHEM 1406 be the first course in any health sciences sequence and be taken prior to enrolling in A & P I. The topics covered in CHEM 1406 serve as a foundation to the following courses: A & P I and A & P II, Microbiology and Nutrition. May be taken as preparation for CHEM 1411 but cannot be substituted for CHEM 1411.

Note: Additional course fee(s) required.

Prerequisite(s): TSI complete.

Student Learning Outcomes:

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.

Teamwork

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

Student Learning Outcomes:

1. Demonstrate the ability to carry out conversion problems, including dosage, nutritional, and temperature conversions.
2. Be able to identify part of the atom, write isotopic formulas, write nuclear decay equations, and solve half-life problems.
3. Be able to define the octet rule, predict charges on ions, identify ionic vs. covalent bonding, write formulas and names for compounds, and use VSEPR theory to predict shapes of simple molecules.
4. Be able to write and balance chemical equations, recognize reaction types, define oxidation/reduction, and understand the factors that influence reaction rate.
5. Be able to distinguish organic and inorganic compounds, identify functional groups and distinguish and identify isomers. Name straight chain, branched and cycloalkanes or alkenes.
6. Identify types of attractive forces present in compounds, define pressure, and solve simple gas law problems.
7. Distinguish between solute and solvent, write equations with solutions such as electrolytes and nonelectrolytes. Express concentrations as percentage, equivalent or molarity units and perform dilution calculations.
8. Describe acids and bases using Arrhenius and Bronsted-Lowry definitions, define chemical equilibrium and use LeChatelier's principle, identify acid/base conjugate pairs, write an equilibrium expression and calculate pH or $[H_3O^+]$.
9. Be able to understand the structure and metabolic activity of carbohydrates, lipids, proteins, and nucleic acids.
10. Working in teams, students will demonstrate safe and proper handling of laboratory equipment and chemicals and carry out experiments and experimental work by calculating, interpreting, and communicating experimental results clearly in lab notebooks or written reports.

These learning objectives will be assessed throughout the course and on the final exam.

Evaluation/Grading Policy:

The breakdown of the course requirements is as follows:

%	Requirement
35%	Chapter Exam Average
13%	ALEKS/Other Work Average
12%	ALEKS Pie Progress
5%	Periodic Checks Average
25%	Lab Average
10%	Comprehensive Final Exam

Semester grades will be earned as follows

Percentage	Letter Grade
90% and above	A
80 %–89%	B
70 %–79%	C
60%–69 %	D
59.9% and below	F

Grades are posted to Blackboard during the term, typically within a week of the due date. The student should email the instructor for any questions or concerns about grades. Students will have access to the exams only when the exam is open in Blackboard but may always schedule a time to discuss the questions with the instructor. Overall grades will be rounded according to standard rounding rules (i.e., an 89.4 = 89 but an 89.5 = 90), and grades must be earned (not “bumped up” to a higher letter grade that was not earned).

Required Instructional Materials:

Textbook with 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 **September 9, 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. ***General, Organic, and Biological Chemistry w/ALEKS 360 Smith; 6th Edition***
Publisher: McGraw-Hill SBN10: 1260732037 | ISBN13: 9781260732030

CHEM 1406: 584264DV - Intro to Chemistry Lab Kit – Each student must order a Chemistry Lab Kit from the Bookstore. Once the order is processed, the student will receive an email with the **lab kit redemption code** and instructions to redeem the lab kit voucher code on the Carolina Science website. Carolina ships the physical kit directly to the student's address within 48 hours after redeeming the lab kit code. The student should receive the physical kit within 5 business days. Note: The physical lab kit will NOT be shipped UNTIL the lab kit voucher code is redeemed in Blackboard.

Household items to complete the labs: bottled or filtered water (Lab 8); permanent marker (Lab 9); crushed ice, plastic trash bag or old towel; labeling tape, optional single-hole punch (Lab 13)

Scientific calculator: A TI-30X is recommended; No programmable or cell phone calculators are allowed on exams; sharing calculators is not permitted.

Optional Instructional Materials:

A spiral notebook is recommended for taking notes from the PowerPoint slides and for scratch paper while working through homework problems in ALEKS. (Note: The homework is totally online, but when reviewing, it is helpful to have ready access to these homework solutions. Therefore, don't tear pages out of the notebook; keep it all together.) One of the challenges of taking an online class is staying organized. A spiral notebook is not the only method to stay organized, but some system of organization is imperative.

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 in Required Instructional Material

Required Computer Literacy Skills:

Ability to use a web browser to access NTCC Blackboard Learning Management System for course information, eBook, ALEKS assignments, and lab experiments.

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 online course is designed to cover the same concepts and topics taught in a traditional (face-to-face) Introductory Chemistry course. Online instruction is provided through reading assignments, powerpoint slide presentations, tutorials, simulations, visualizations, videos, and homework practice to reach mastery using the learning management system *Blackboard* with the eBook *General, Organic, and Biological Chemistry*, and the online homework system *ALEKS 360*. Laboratory experiments will be completed at home using virtual computer simulations as well as materials in the *Carolina* lab kit and common household items. The course does NOT meet virtually (such as on Teams), but the instructor is available to meet virtually with students individually by appointment.

Tentative Course Schedule:

Note: instructor reserves the right to adjust this timeline as needed in the term.

A printable detailed schedule can be found in the Start Here folder of Blackboard.

- Week 1: Chemistry basics, measurement, dimensional analysis; lab orientation & safety
- Week 2: Atoms and isotopes, radioactivity, nuclear changes; half-lives; measurements lab
- Week 3: Electrons in atoms, octet rule, ionic and Exam 1; ionic/covalent bonding lab
- Week 4: Covalent bonds, chemical reactions and VSEPR; molecular modeling and VSEPR lab

- Week 5: Kinetics, reduction-oxidation reactions; chemical reactions lab
- Week 6: Exam 2, Gas laws and intermolecular forces; ideal gas law lab
- Week 7: Solutions, electrolytes, dilution; solutions & dilutions lab,
- Week 8: Exam 3 (comprehensive midterm exam), Identifying and naming acids and bases, and pH; titration lab
- Week 9: Equilibrium constants, weak acids/bases; LeChatelier's Principle; organic chemistry lab
- Week 10: Representing organic compounds, functional groups, nomenclature of organic compounds, isomers; condensation reaction lab
- Week 11: Exam 4; dietary lipids; osmosis lab.
- Week 12: Classes of carbohydrates, stereochemistry of monosaccharides; identify unknown lab
- Week 13: Protein structure and function; enzyme lab
- Week 14: Components and formation of nucleic acids, DNA, RNA, protein synthesis; periodicity lab
- Week 15: Metabolism; Exam 5
- Week 16: Final Exam

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. To schedule a virtual TEAMS or in-person appointment with the instructor, the student should email the instructor. Students may email anytime, even after hours and weekends, and may expect a response typically within 24 hours.

Institutional/Course Policy:

EXAMS

- Exams 1, 2, 4, and 5 are taken in Blackboard during the scheduled window of time that generally runs from 8am Friday through midnight Sunday (see schedule for exact dates). Typically, they consist of a mixture of multiple choice and free response questions. Students may use a non-programmable calculator, scratch paper, and instructor-provided reference information like a periodic table and equation list. Using other resources is academic dishonesty and may result in disciplinary action per the NTCC Academic Honesty and Academic Ethics policy. The exams use Respondus Lockdown Browser which does not require a video camera.
- Exam 3 Midterm Exam and the Final Exam are both comprehensive and must be taken during the scheduled window of time at the **NTCC testing center or an alternative proctored location.**
Students CANNOT take these two exams at home.

These are the options for the two proctored exams:

Use the NTCC testing center

NTCC's testing center is located on the main campus of NTCC in the Student Services Building. The hours of the testing center are Monday—Thursday 8:00 a.m. to 6:00 p.m. and Friday 8:00 a.m. to 12:00 p.m. The center does not allow students to begin an exam within one hour of closing time.

Use another testing center

If a student does not reside near NTCC's service center, he may choose to take these exams at another testing center. **If desiring to use an alternate test center, the student must give the instructor contact information for the alternate test center (physical address, email, and a phone number) by Wednesday of the second week of class** so the instructor can contact the center to determine if it will be acceptable. It is the student's responsibility to find this alternate test center and to pay any fee the center may charge.

These comprehensive exams have types of questions like the other exams. Likewise, students may use

a non-programmable calculator, scratch paper, and instructor-provided reference information like a periodic table and equation list.

ASSIGNMENTS:

This category includes homework assignments in ALEKS, an online homework system, as well as any other assignments that do not fit into another category.

- To register for the ALEKS materials, simply **click on the ALEKS link** found at the top of the course page **in Blackboard** and complete the registration using the NTCC email; no access code is needed for ALEKS.
- Use this same link to access homework assignments throughout the semester.
- ALEKS homework is due on Mondays at midnight (see schedule for specific due dates). Students should NOT wait until the night before the due date to start these assignments but rather should pace themselves. Chemistry is learned through practice.

There are two kinds of **ALEKS assignments**:

Traditional, non-adaptive **Homework** assignments which are open from the first day of class until the due date.

- Students have 5 attempts to answer each question correctly.
 - Students have 2 attempts to submit each Homework assignment until the due date.
 - Students may retake the incorrect problems after the first submission; ALEKS keeps the best score.
 - Students have access to embedded resources (on the right bar in ALEKS) such as the eBook, periodic table, tables of reference material, and sometimes short instructional videos (but not Explanations) in Homework.
 - Students also have access to explanations, but it will “cost” one of the 5 attempts on the question.
 - After the due date, a student may submit an ALEKS Homework assignment late with a 2% per day penalty.
- Non-traditional, adaptive **Modules** which are available only during the “open” window. Because only one Module can be open at a time, the student may work on a Module only (a) while it is “open” but before the due date and (b) during scheduled Open Pie times, when no module is open, allowing students to work on *any* Module, future or past due.
 - ALEKS Modules require the student to answer correctly three to five questions on a topic before receiving credit; the required number of correct answers varies for each topic.
 - 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 before getting the required number of correct answers. After the due date, the Module grade is locked in. If the student works on the Module later, it will improve the Pie Progress grade but not the Module grade (see next paragraph). Students have access to embedded resources like the eBook, periodic table, reference material, explanations, and sometimes short instructional videos in Modules.
 - Clicking “Explanation” in Modules gives a detailed solution to the problem, deducts one of the correct answers, and then gives a new problem to answer for credit. (For example, if the student had three correct answers in a row for a topic that required five correct answers in a row, then clicking Explanation would reset the count to two correct answers.)
 - **The goal is to master each topic.**

Both kinds of ALEKS assignments require great attention to detail; this is a needed skill in chemistry and one

that will transfer to any career path.

There are two kinds of **grades** earned in **ALEKS**:

- The **Assignments grade** is a combination of the score earned on Modules and Homework assignments as of the due dates plus other possible work that may be assigned that doesn't fit in another category.
- The **Pie Progress grade** tracks topics the student has mastered (shown through Homework assignments, Modules, and Knowledge Checks) 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 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 if mastery is not retained (and it is possible to regain it later). Again, the goal is to master the topics and retain that knowledge.
 - 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.

PERIODIC CHECKS:

Periodic Checks sprinkled throughout the lecture powerpoints. They consist of a few questions to aid the student in thinking about the material just presented, using any resources available to understand these questions. The student should copy the question and answer in his notes with name and date visible, then take a picture and upload it into each Periodic Check's link in Blackboard. These are low-stakes formative assessments; the answer is given on the next slide. They help clarify understanding. If the answer does not make sense, please do not hesitate to contact the instructor.

LABORATORY EXPERIMENTS:

Laboratory work is an integral part of the chemistry class. Computer-based virtual labs are useful but cannot provide the true hands-on experience that comes with the traditional chemistry laboratory. To overcome this obstacle, students will purchase and use a home lab kit from Carolina Science. To keep costs down, this course uses a combination of virtual labs in Carolina and in ALEKS, some Carolina wet labs, and post-lab questions in Blackboard. Please refer to the detailed schedule found in the Start Here folder of Blackboard to know what lab work is due each week. Links to the lab work are found in the chapter folders in Blackboard.

The Carolina labs guide the student through pre-lab reading and lab instructions with access to helpful resources along the way. There will be knowledge check questions interspersed in the pre-lab reading to confirm understanding of the lab content. After going through the pre-lab material, **the student must score 100% on a pre-lab assessment/quiz to continue the lab**. For any question missed, the student will review the pertinent material and then re-answer only the questions missed the first time. Once all the quiz questions are answered correctly, the student begins the hands-on part of the lab. Carolina walks the student through the instructions for completing the experiments, recording data and uploading photos of the work, with name and date visible. Note: The LAB NOTEBOOK is accessed via a button at the top right of the screen. Once complete, the student must 1) save and close the lab notebook then 2) navigate back to the Assignments page and click "submit" for that lab then 3) confirm submission. Make sure the work is complete before clicking Submit because Carolina Gateway allows no changes after submitting.

- Each lab is worth 100 points, a combination of the Lab Notebook grade in Carolina for virtual and wet labs, ALEKS virtual labs, and/or Post-Lab Questions in Blackboard.
- Lab assignments are due on Sundays at midnight. Refer to the course schedule for titles and due dates of specific labs.
- No late labs are accepted, but the lowest grade will be dropped at the end of the course.

- To avoid getting behind in lab, the student should ORDER THE LAB KIT ASAP following the instructions provided by the NTCC bookstore and should contact the instructor right away if there are any issues getting the lab kit. Please understand that once the NTCC Bookstore emails a redemption code, the student still **must enter the code on the Carolina website**, according to the directions given in the email from the NTCC Bookstore to facilitate shipment of the lab kit.

Institutional/Course Policy:

Attendance:

Regular and punctual attendance 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. *Attendance in this online course is counted by submitting assignments on time.* This course does not meet virtually (such as on Teams) or face-to-face. **Attendance is certified by completing the Student Questionnaire in the Start Here folder of Blackboard by midnight, August 27, 2026.**

Student responsibilities:

- The student in this online course will do the same amount of work as if attending in-person.
- The student will NOT have specific days and times for class each week.
- The student will not be with the instructor and classmates in person but will study the material in Blackboard and ALEKS on his own time.
- The student will complete the labs at home on his own time using materials from the Carolina lab kit and household items.
- The student must follow lab directions and lab safety protocols taught in Carolina Science Online.
- The student must take the initiative to contact the instructor for help as needed, but this will not be immediately available (like raising a hand in class would be).
- The student must have self-discipline and organization to complete assignments on time.
- The student must arrange for proctoring the mid-term and final exams at a testing center as described above in the Course Overview.
- The student must check NTCC email every day.

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.

- *Exams* must be taken at the scheduled time unless alternate arrangements are made with the instructor before the exam is due.
- No late *labs* are accepted. (If the student has extenuating circumstances regarding completion of a lab, he should contact the instructor BEFORE the due date.) Failure to *order the lab kit* by the end of the first week of class will not be an acceptable reason for late labs. The late policy for ALEKS assignments is explained in the section above titled Assignments.

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 bgooding@ntcc.edu). The last day to drop this course with a grade of W is Thursday, November 17, 2026. Failure to officially withdraw by this date will result in the student's earned grade being factored into the GPA.

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:

Employees and students shall be permitted to explore artificial intelligence (AI) and implement its use in and out of the classroom in accordance with policy and administrative regulations. The use of AI shall only be as a support tool to enhance student outcomes or as necessary to engage in research and shall never take the place of faculty, staff, and student decision-making. Any use of AI must comply with law, policy, and administrative regulations relating to student and employee privacy and data security. A student shall only use AI tools with faculty permission and shall be expected to produce original work and properly credit sources, including AI tools used in creating the work.

Example:

APA (7th edition)

OpenAI. (2026). ChatGPT (March 25 version) [Large language model]. <https://chat.openai.com/>

MLA (9th edition)

OpenAI. ChatGPT. 25 Mar. 2026, <https://chat.openai.com/>.

Employees or students who use AI tools to deceptively harm, bully, or harass others shall be disciplined in accordance with policy. [See DH, DIA series, FFD series, FFE, FLB, and the FM series] AI Use by Employees and Students. Northeast Texas Community College 225500 TECHNOLOGY RESOURCES CRB ARTIFICIAL INTELLIGENCE (LOCAL) DATE ISSUED: 12/8/2025 1 of 1 UPDATE 50 CRB(LOCAL)-AJC Adopted: 12/16/2025

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 accommodation 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 accommodation as required to afford equal educational opportunity. It is the student's responsibility to request accommodation. 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:

- Classroom accommodations
- NTCC Care Center Food & Hygiene Closet
- Financial literacy
- Tutoring
- Mental Health Counseling Services, 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.