CHEM 1405-088D – Introductory Chemistry I

Course Syllabus: Fall 2025 **– Online/Dual Credit**

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

Instructor: Sarah Whitfield (lecture)

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday
		9:00 – 11:00am via TEAMS 4:30 – 5:00pm via TEAMS or F2F	1:30 – 4:00pm via TEAMS or F2F	9:00 – 11:00 am via TEAMS 2:00 – 5:00pm via TEAMS or F2F	Send Blackboard Message or email anytime (can set up TEAMS virtual meeting if desired)

Co-Instructor: Althea Carling (lab)

Email: acarling@pittsburgisd.net

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.
A general course for the non-science major. An introduction to the discipline of chemistry including scientific measurements, atomic structure, bonding, stoichiometry, physical and chemical properties, energy, and chemical notation is presented. Relationship of chemistry to our daily lives is emphasized. Successful completion of CHEM 1405 with a C or better allows the student to continue on to CHEM 1407. May be taken to prepare for CHEM 1411 but cannot be substituted for CHEM 1411. Offered as dual-credit only.

Note: Additional course fee(s) required.

Prerequisite(s): TSI complete.

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. Define the fundamental properties of matter; classify matter, compounds, and chemical reactions; and identify trends in chemical and physical properties of the elements using the periodic table.
2. Write chemical formulas, write and balance equations, use the rules of nomenclature to name chemical compounds, and define the types and characteristics of chemical reactions.
3. Demonstrate the ability to solve stoichiometric problems, to convert units of measure, and to demonstrate dimensional analysis skills.
4. Obtain and introductory understanding of quantum mechanics, apply the octet rule, draw resonance structures, and use VSEPR, valence bond, and molecular orbital theories.
5. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems, determine the role of energy in chemical reactions, and solve thermochemistry problems.
6. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
7. Demonstrate safe and proper handling of laboratory equipment and chemicals.
8. Conduct basic laboratory experiments with proper laboratory techniques.
9. Working in teams of two, demonstrate use of critical thinking and scientific problem-solving skills in the laboratory including the ability to carry out experiments in a safe and efficient manner.

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:

45% Exams (9% each exam)
25% Laboratory
10% Final Exam
10% ALEKS work/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	<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 access to the eBook and ALEKS are included in the price of tuition and will be available on the first day of class through a link at the top of the course page in Blackboard. The

materials are required for this class and essential for student success. Through September 14, 2025, 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 access from another vendor. If hard copies of the textbook are desired in addition to electronic access, they may be purchases in the College Store at a discounted price.

Introduction to Chemistry with ALEKS 360(18-week access) IA DC; *Bauer 6th edition*
Publisher: McGraw-Hill **ISBN Number: 9781266627620**

Scientific calculator: A TI-30X is recommended; No programmable or cell phone calculators are allowed on quizzes and exams.

Optional Instructional Materials: Spiral notebook

Organized students take notes from the PowerPoint slides in a spiral notebook and use it for scratch paper 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.). They keep notes only for this class in it and don't tear pages out. One of the challenges of taking an online class is keeping oneself 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

Required Computer Literacy Skills:

Ability to use a web browser to access NTCC Blackboard Learning Management System for course information, eBook and ALEKS assignments, and Messaging
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*. We cover approximately one chapter per week and take an exam every third week (generally covering two chapters). Students should direct lecture questions to the online instructor; this gives the online instructor insight into any difficulties the students are having with the content. Laboratory experiments will be completed face-to-face with the co-instructor on the high school campus. The lab co-instructor will provide all needed supplies for labs. Both lecture and lab learning activities are designed to support and enrich a student's understanding of the topics covered.

Exams – Five exams, each covering a couple of chapters, will be given in person at the high school campus according to the posted schedule. All are on Wednesdays except for Exam 5 and the final exam. Questions could come from lecture, homework, and videos; the format may include multiple choice, short answer, and problem-solving questions. Review materials will be provided in Blackboard for each exam. Students will be allowed to 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. Each test counts 9% of the semester grade, so the test average counts **45% of the overall grade**.

Laboratory Assignments - The experiments will reinforce topics covered in lecture and help the student apply knowledge to real world problems. Work in the laboratory is central to the topic of chemistry, so it is imperative that students make arrangements with the 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**.

A **comprehensive Final Exam** will be given on Tuesday of finals week, December 9, 2025. Like the chapter 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 format of the final exam will be announced in class the week before the final exam. It counts **10% of the grade**.

ALEKS Homework & Modules and Other Assignments – This category includes ALEKS assignments and anything assigned by the instructor that does not fit into another category. There are ALEKS assignments for every topic in our Student Learning Objectives.

- ✓ Students access all ALEKS assignments through the ALEKS link at the top of the Blackboard course. **No access code** is required; a Registration page appears upon initial access. Register with an NTCC email address to aid the NTCC IT team in troubleshooting if there are any technical issues.
- ✓ The ALEKS assignments include a wealth of embedded tutorials, explanations, videos, links to eBook, reference material, questions and practice problems to help you reach mastery. The platform assesses a student's level of understanding and then personalizes learning.
- ✓ The student can use the **Message Center** button on the right bar in ALEKS to send a **screenshot** with a question or concern to the instructor.
- ✓ ALEKS offers many learning resources to help the student master the topics, but this can take extra time compared to a traditional homework assignment in which the student could just guess without ever really understanding the topic. Students should NOT wait until the night before the due date to start these assignments.
- ✓ Notice that the numbers of exams and modules match. For example, Modules 3A and 3B and HW 3C and 3D will all be tested on Exam 3.
- ✓ The student earns TWO grades from ALEKS: A Homework grade and a Pie Progress Goal grade.

  The **Homework grade** is worth **10% of the overall grade** and comes from both **Homework assignments** and **Modules** in ALEKS**.** This ALEKS work is due on Monday nights.
  - A few ALEKS assignments are like traditional, non-adaptive **Homework** assignments. The instructor selects the questions, and all students get variations of the same questions.
    - The students may work on them ANYTIME from the first day of class until their due date
    - The students may save work and finish later before the due date
    - The students may attempt each question 5 times until due date
    - The students may retake any incorrect questions after submitting the assignment, until the due date; ALEKS keeps the best score. The goal is to master all topics in the course.
    - No late Homework submissions are allowed. After the due date, the students may rework homework assignments for practice, but does not affect their grade. The Homework grade is determined by their score on the due date/time.

  - Most ALEKS assignments are adaptive **Modules**. Students get personalized questions based on their answers to previous Modules and Knowledge Checks in ALEKS. A student who has mastered more topics could get fewer questions than a student still working to master those topics.
    - The students will input answers in a variety of formats (rarely multiple choice).
    - The students **must answer 3 -5 similar questions to receive credit** to "prove" mastery of that topic.
    - The students may ask ALEKS to explain the problem to them with no penalty. Afterward, the student will get a new, similar problem to try for credit.
    - The students will be warned if their answer has the wrong number of significant figures.
    - The students must complete the OPEN Modules before working on any CLOSED (past

or future) Modules.
- The students will receive whatever grade they earned when the Modules closes on the due date; this becomes part of the overall Homework grade that counts 10% of the overall course grade.

The **Pie Progress Goal Grade** is worth **10% of the overall grade**.

- The Pie Progress Chart shows how many topics the student has mastered. More of the chart fills in as learning progresses.
  - The **Initial Knowledge Check** shows ALEKS what the student already knows and what he is ready to learn. ALEKS uses these results to personalize learning and fill in topics on the Pie Chart.
  - Several additional **Knowledge Checks** are scheduled throughout the semester, including a Final Knowledge Check. As more of the topics are mastered, more of the Pie Chart will be filled in.
  - The student should take the Knowledge Checks when he is able to focus and do his best; ALEKS adjusts learning based on these answers.
  - The Knowledge Checks cover what was learned up to that point. Most of the questions come from the most recently-learned topics, but a few questions may come from older modules to ensure retention or even future modules as a challenge. The Knowledge Checks serve to let each student know what he does and does not know in preparation for each test.
  - Certain Open Pie times are scheduled throughout the semester. During this time, no module is open, so the student may work on ANY module or homework, past or future. The goal is to master all topics in the course. Open Pie allows a student to catch up on missed work and get ahead on future modules.
  - Working on *past due*, closed modules does not change the Homework grade for that module, but it does improve the Pie Progress Goal grade. This rewards perseverance!
  - Working on *future*, closed modules improves both the Homework grade and the Pie Progress Goal grade.
  - The Pie Progress Goal is set at 90%. That is, the student mastering 90% of the topics scores a 100 for the Pie Progress Goal grade.

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. By completing the Student Questionnaire in the Start Here folder of Blackboard, students verify attendance at the start of the semester. Attendance in the online portion for the rest of the semester is counted by submission of assignments.

Student responsibilities: 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** and **organization** to complete assignments by the due date.
- ✓ The student will need to log into Blackboard every day.
  - Announcements from the instructor will pop up at login. Be sure to read them!
  - Check Blackboard Messages every day; a small purple circle with the number of unread messages appears beside the Messages tab at the top of Blackboard whenever there is an unread message.
- ✓ The student must take the initiative to contact the online instructor for help as needed.
- ✓ The student should check NTCC email several times a week.

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.

- ✓ 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.
- ✓ ALEKS assignments follow the late policy as explained in the Homework section of this syllabus.

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, Nov. 6, 2025. **Failure to officially withdraw by this date will result in the student's earned grade being factored into the GPA.**

Tentative Course Timeline

* The instructor reserves the right to adjust this timeline during the term to optimize learning in response to changing circumstances.

WEEK	DATE	TOPICS	Due Dates
1	8/25-29/25	Intro & Ch. 1 Matter, Measurements	8/25/25 ALEKS Initial Knowledge Check 8/26/25 Communication email 8/28/25 Questionnaire in Bb
2	9/1-5/25	Ch. 2 Atoms, Molecules and Ions	9/1/25 *Labor Day* 9/1/25 ALEKS Mod 1A, 1B, 1C due
3	9/8-12/25	Ch. 3 Ionic, Molecular & Acid Nomenclature	9/8/25 ALEKS Mod 1D, 1E, 1F due 9/6-9/25 ALEKS Knowledge Check 1 (covers all Modules 1's) 9/9-11/25 ALEKS Open Pie **9/10/25 Exam 1 (Ch. 1-2) F2F** *9/10/25 Census Day*
4	9/15-19/25	Ch. 4 Percent Composition; Mole	9/15/25 ALEKS Mod 2A, 2B due
5	9/22-26/25	Ch. 4 Empirical/Molecular Formulas Concentration of solutions	9/22/25 ALEKS Mod 2C, HW 2D due
6	9/29-10/3/25	Ch. 5 Chemical Reactions, Equations	9/29/25 ALEKS Mod 2E, 2F due 9/27-30/25 ALEKS Knowledge Check 2 (comprehensive through Mod 2F) 9/30-10/2/25 ALEKS Open Pie **10/1/25 Exam 2 (Ch. 3-4) F2F**
7	10/6-10/25	Ch. 5 Types of Reactions, Stoichiometry	10/6/25 ALEKS Mod 3A due
8	10/13-17/25	Ch. 6 Limiting Reactants, Energy in Reactions	10/13/25 ALEKS Mod 3B due 10/14-23/25 ALEKS Open Pie 10/18-21/25 ALEKS Knowledge Check 3 (comprehensive through HW 3D)
9	10/20-24/25	Ch. 7 Wave behavior of matter	10/20/25 ALEKS HW 3C, 3D due **10/22/25 Exam 3 (Ch 5&6) F2F**
10	10/27-31/25	Ch. 7 Bohr Model, Quantum Model of Atom	
11	11/3-7/25	Ch. 7 Periodic trends	11/3/25 ALEKS Mod 4A due
12	11/10-14/25	Ch. 8 Bonding Basics	11/10/25 ALEKS Mod 4B, 4C due 11/8-11/25 ALEKS Knowledge Check 4

			(comprehensive through Mod 4C) 11/11-13/25 ALEKS Open Pie **11/12/25 Exam 4 (Ch 7) F2F**
13	11/17-21/25	Ch. Ch. 8 Advanced Bonding	*11/18/25 W-drop deadline*
14	11/24-28/25	Bonding, cont'd.	*11/26-28/25 Thanksgiving*
15	12/1-5/25	Ch. 9 Gases	12/1/25 ALEKS Mod 5A, 5B, HW 5C due 12/4/25 ALEKS Mod 5D due **12/5/25 Exam 5 (Ch. 8-9) F2F** 12/5-9/25 ALEKS Open Pie 12/6-8/25 Final Knowledge Check
16	12/8-11/25	Finals Week	**12/9/25 Final Exam F2F** ***Labs are due end of class Fridays***

Communications: NTCC email is the official form of communication used by the college. When off campus, the student will access NTCC email using the 2-factor authentication and a cell phone. **When on the high school campus, the student will access NTCC email via the Institution page in Blackboard** (the Institution Page link works only on the high school campus). Course announcements will be made through Blackboard and copied to the student's NTCC email account. 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.