



Chem1411 - General Chemistry I

Course Syllabus: Summer 2023

"Northeast Texas Community College exists to provide responsible, exemplary learning opportunities."

NORTHEAST TEXAS
COMMUNITY COLLEGE

Bryan Trickey

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On Campus	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	10:20 AM - 4:10 PM	10:20 AM - 4:10 PM	10:20 AM - 4:10 PM	10:20 AM - 4:10 PM		Email me to arrange web or phone conference.

The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Catalog Course Description (include prerequisites):

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 introductions to thermodynamics, quantum mechanics, and descriptive chemistry. 3 hours lecture and 3 hours laboratory each week.

Prerequisite(s): MATH 1314, equivalent, or above.

Successful completion (final grade of C or better) of CHEM 1411 will allow the student to continue on to CHEM 1412.

Required Textbooks & Materials:

Inclusive Access: We have negotiated with the Publisher to obtain a discounted price for your lecture course materials. Your eBook and Mastering Chemistry Access Code are included with your tuition and will be available through Blackboard on the first class day. The materials are required for your class and essential in your success. If you also determine that you would like a print copy of your text in addition to your exclusive access loose-leaf copies will be available in the College Store at a discounted price. You may opt out of purchasing your materials from the College Store through the Census Date for the course. If you choose to opt out you will be responsible for purchasing your Mastering Chemistry Access Code from another vendor. You will receive a refund for the Inclusive Access if you opt out.

Textbook: Chemistry Structure and Properties, 2nd Edition, Tro.

Publisher: Pearson

ISBN number: 9780134528229 Copyright 18 (inclusive access)

Other Required Materials:

Lab manual for CHEM1411- Experiments in General Chemistry I (V6.0)

Lab safety glasses or goggles. Approved safety glasses can be purchased in the college book store. Many safety glasses and goggles can be purchased from online sources. Students who wear correct eyewear must wear safety goggles that cover their glasses in their entirety. Check with the instructor if you have questions. Students will not be allowed to work in the lab without safety goggles which could result in a grade of zero for any missed lab sessions.

Scientific Calculator:

A scientific calculator is required for this course. You will be able to use graphing calculator but you will be required to clear the memory before exams. You will not be allowed to use a cell-phone calculator during any exam in this course.

Pencils and Erasers: Pencil will be required for exams and quizzes. Work submitted in pen will not be accepted. Any papers that are too sloppy or not readable will have major point deductions.

Computer with Internet Service and Web Cam:

This course includes online assignments which requires a internet capable tablet or computer.

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

CT1. 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

CS1. Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS1. Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.

EQS2. 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.

Course Student Learning Outcomes: Students will...

1. Define the fundamental properties of matter; and classify matter, compounds, and chemical reactions.
2. Determine the basic nuclear and electronic structure of atoms, with a basic understanding of quantum mechanics.
3. Identify trends in chemical and physical properties of the elements using the Periodic Table.
4. Describe the bonding in and the shape of simple molecules and ions.
5. Convert units of measure and demonstrate dimensional analysis skills, and solve stoichiometric problems.

6. Write chemical formulas, and use the rules of nomenclature to name chemical compounds.
7. Define the types and characteristics of chemical reactions, write and balance equations.
8. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
9. Determine the role of energy in physical changes and chemical reactions.
10. Use basic apparatus, apply experimental methodologies used in the chemistry laboratory, and demonstrate safe and proper handling of laboratory equipment and chemicals.
11. Conduct basic laboratory experiments with proper laboratory techniques.
12. Make careful and accurate experimental observations, relate physical observations and measurements to theoretical principles, and record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
13. Design fundamental experiments involving principles of chemistry, and interpret laboratory results and experimental data, and reach logical conclusions.
14. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Tentative Course Timeline:

The instructor reserves the right to adjust the following timeline as necessary. This course will cover chapters E and 1 through 10 of the Tro textbook.

Week 1	Introduction, measurements and precision, atomic theory, quantum mechanical model. Chapters E, 1, and 2.
Week 2	Periodic properties and the periodic table, bonding, the mole, VSEPR. Chapters 3, 4, 5.
Week 3	Valence bond theory, molecular orbital theory, chemical reactions. Chapter 6, 7.
Week 4	Aqueous reactions, enthalpy. Chapters 8, 9.
Week 5	KMT and gas laws. Final exam. Lab practical. Chapter 10.

Evaluation/Grading Policy:

Mastering Chemistry	10%
Assignments & Attendance	15%
Unit Exams	45%
Labs	25%
ACS Final Exam	5%
	<hr/>
	100%

A final grade for the course will be based on the following scale:

<u>Grade</u>	<u>% of Total Points</u>
A	90 to 100
B	80 to 89
C	70 to 79
D	60 to 69
F	0 to 59

Grades will be posted in Blackboard. Students should monitor their progress by reviewing the gradebook. Should a student have a question concerning their grades they should make arrangements to speak with the instructor.

Attendance:

- Attendance is mandatory for this course. Points can be earned for attendance.
- Attendance can be lost for attitude, teamwork, and/or other interpersonal issues.

Course Structure and Overview:

Both the lecture and laboratory portion of this course will be presented in a face-to-face format. Students are expected to be present for the scheduled lecture and laboratory sessions.

- **Lecture:** Monday through Thursday, 10:20AM -12:30PM.
 - Lecture will cover the prior days reading assignments. Additional course material may be assigned in the form of online videos or Blackboard based instructions. The lecture period will be utilized to explain and provide examples of the topics covered and provide opportunities for guided practice.
 - Quizzes and exams will usually be administered during the lecture period.
 - Due to the condensed summer timeline the instructor reserves the right to utilize scheduled lab time as potential lecture period if needed.

Assignments:

Assignments will be considered anything assigned by the instructor that is not identified as lab work, quizzes or an exam.

- Most assignments will be completed using the online resource Mastering Chemistry which is included with your inclusive eBook purchase.
- All assignments will be announced in Blackboard and a copy of the announcement sent to students NTCC email account. Each Mastering Chemistry assignment will be found in Blackboard with due dates identified.
- Students that score lower than 85 on an assignment will receive an adaptive follow-up assignment. Adaptive follow-ups are additional questions focused on the topics of the parent assignment.

Quizzes:

In general quizzes will be mini exams that focus on specific topics during a previous lecture period. Quizzes will be announced ahead of time and take place during the lecture period. In general students will have 15 minutes to complete a quiz. In some cases a take-home quizzes may be assigned.

Exams:

- **Unit Exams:** Exams are assessments of a student's mastery of topics covered in specific chapters. Students should use these exams as feedback for progress in the course and readiness for the final exam.
 - There will be 4 unit exams: These are *tentatively* scheduled for:
 - Monday June 12
 - Tuesday, June 20
 - Monday, June 26
 - Monday, July 3
 - Exams will be administered at the beginning of the lecture period. Owing to the shortness of the summer terms exams will be timed. Students will have 1 hour to complete an exam. The remainder of the lecture period will be utilized after an exam.
 - Students will be allowed to use a calculator and scratch paper when taking an exam. Reference information will be provided within an exam. Electronic devices such as phones and smart watches will not be allowed during an exam.
 - Students may be assigned seats during exams.

- Students may not leave the classroom during an exam. Students that leave the classroom will be required to turn in their exam to be graded as is.
- Students should communicate with the instructor if there is a situation that requires a student to miss an exam. This should be communicated before the exam date. Emergencies do happen so students should contact the instructor immediately if they miss an exam. It will be up to the discretion of the instructor if the cause for the absence was valid. The instructor reserves the right to assign a zero for a missed exam should the excuse not be deemed an emergency.
- **Final Exam:**
 - The final exam will be the American Chemical Society (ACS) Standardized First-Semester General Chemistry Final Exam.
 - This will be administered during the last lecture period of the term on July 6 starting at 10:20AM (110 minutes).
 - 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.
 - Students with an exceptional performance on the ACS Final Exam – 80 percentile or above – will automatically earn a course grade of “A” for the semester, provided they meet the following criteria: (1) no grades of zero 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 Mastering Chemistry work for the semester, and (4) no more than three unexcused lecture absences during the semester.

Laboratory: Monday through Thursday 2:00PM – 4:10PM. The pace that student’s work in the laboratory varies so students may find that they need more time to complete. Students should understand that they may have to stay in the laboratory past 4:10PM to finish their lab assignment.

Laboratory Evaluation

Regular Experiments	75%
Behavior, safety, and teamwork	10%
<u>Lab Practical</u>	<u>15%</u>
Total	100%

- Approximately 10 lab assignments will be completed during the term. Lab assignments will be identified during the lecture period and posted on Blackboard with due dates.

Laboratory Conduct and Attire

- Student will be expected to abide by the terms in the “Commitment to Laboratory Safety Pledge”.
- Students must wear clothing that protect them while in the chemistry laboratory. This includes:
 - Long pants that cover the ankles.
 - Shoes that cover the feet.
 - Approves safety glasses/goggles.
 - Long hair pulled back.

- Student not dressed properly for lab will not be allowed in the laboratory and will earn a grade of zero on that experiment.
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Pre-lab 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.

Laboratory Evaluation/Grading

- Questions in the lab manual that require written explanations must be answered in complete, thoughtful sentences. Failure to do so will result in loss of points.
- Calculations in the lab report must show all of the steps necessary to generate the answers provided, including proper use of units and significant figures. Failure to do so will result in loss of points.
- Lab papers must be completed neatly in pencil. Lab papers that are sloppy and/or illegible will not be graded; although, some points may be earned for completing the experiment. Errors must be completely erased. Lab reports written in pen and lab reports with scratched-out or scribbled-out writing will not be accepted and will earn zero points.
- All pages of the prelab and the during lab assignments must be properly stapled and in the correct order. Students will lose points for sloppy or incorrect submissions.
- 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.
- 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.
- Leaving lab early is not permitted; students leaving lab before the experiment is completed without permission of their lab partner(s) and instructor may earn a grade of zero on that experiment.

Lab Practical Exam

- A Lab Practical is required and is worth 15% of the laboratory grade.
- This will involve designing and conducting an experiment and writing a lab report about the experiment. More details will be given during the laboratory periods and can be found in the lab manual. The Lab Practical is an exam, and all Exam Guidelines must be followed (see above).
- Students not completing the Lab Practical will earn a grade of “F” in the course.
- In the event that the course must move to a fully online mode during the semester, the Lab Practical Exam will be administered virtually.
- The Lab Practical Report must be submitted as a pdf file online through blackboard.

Extra credit

Extra credit will be available *during* the term. Extra credit opportunities will be announced in class and announced in Blackboard. The quantity and type of extra credit will vary.

Communication:

- NTCC email is the official form of communication used by the college. Email communications from non-NTCC email addresses run the risk of being marked as spam and may not be answered.
- Course announcements that occur outside of lecture and lab sessions will be announced via Blackboard's announcement feature. These will be cc'd to students via NTCC email.
- Students are expected to check Blackboard and their NTCC email accounts regularly.
- All grading policies and due dates for online homework assignments are listed in the online homework system.

Responsibilities/Expectations/Deadlines:

- Chemistry is a difficult class and it requires your attendance and **PRACTICE**. If you manage your time, work hard, utilize all available resources and ask questions in a timely manner you will be successful. This will not be the case if you procrastinate and try to complete assignments at the last minute. Due dates for each assignment, lab, exam will be posted within Blackboard. Due dates are necessary to ensure students to work on the course in a timely manner and to give the instructor time to review student work.
- **The instructor reserves the right to assign a grade of zero for late work!** If you should have difficulty meeting a due date because of technical issues contact me about an extension. These technical difficulties should be rare. Numerous requests for extensions may not be honored. Assignments not completed by their due dates may result in a grade of zero for that assignment.
- The last day to drop the course with a grade of W is **Wednesday, June 28, 2023**. If circumstances require you to withdraw from this course, you must do so by that date. It is the **student's responsibility** to initiate the withdrawal with the registrar's office. **Failure to officially withdraw will result in your receiving a grade of F.**

NTCC Academic Honesty Statement:

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

Academic Ethics

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

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.

Other Course Policies:

NA