



CHEM 1405-088D – Introductory Chemistry I - ONLINE

Course Syllabus: Fall 2024 – 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	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Hours	By appt.	9:00 – 11am 1:00 – 2:00pm	9:00am – noon	9:00 – 11am 1 – 3pm	By appt.	Email anytime*

Co-Instructor: Althea Carling (lab)

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*Refer to Communications section of syllabus

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

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

Course Description:

4 credit hours.

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

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. Successful completion of CHEM 1405 with a C or better allows the student to continue 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.

Teamwork

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:

40% Tests & Quizzes

25% Laboratory

15% Final Exam

20% Mastering Chemistry/other assignments

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 eBook and Mastering Chemistry access code 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 loose-leaf print copies of the textbook, in addition to the electronic access, are available in the College Store for purchase at a discounted price. Through Sept. 15, 2024, 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 (or print book) and Mastering Chemistry access code from another vendor.

Chemistry: *The Central Science w/Modified Mastering* Brown, LeMay, et.al; 15th Edition

Publisher: Pearson

ISBN Number: 978-0-13-754274-1

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

Optional Instructional Materials: None

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 Mastering Chemistry 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 Blackboard assignment links as needed.

Communications: NTCC email is the official form of communication used by the college. It is also the most important method of direct communication between dual credit students and the NTCC instructor. 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 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.

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 at NTCC. Dual credit students will experience the traditional face-to-face class directed by their high school teacher. At the same time, these students will have online instruction directed by an NTCC instructor. In this context the term "lecture" applies to both settings. Online instruction is provided through reading assignments, instructor-developed lessons and tutorials, and third-party resources. Laboratory experiments will be completed face-to-face with the high school teacher. All of these are designed to support and enrich a student's understanding of the topics covered. We cover approximately one chapter per week. Online instruction will utilize Blackboard, a learning management system utilized by NTCC as well as many other colleges and universities. The eBook, *Chemistry, the Central Science*, and the online homework system, *Mastering Chemistry*, are essential to this course.

Tests & Quizzes – Three tests covering about three chapters each will be given on the scheduled Thursdays. Questions could come from assigned readings, lecture, homework, and quizzes; the format may include multiple choice, short answer, and problem-solving questions. There is a Mastering Chemistry review quiz for each chapter, due the night before the test that covers that chapter. The student may complete the quiz any time before the due date - right after completing the chapter or any time before the due date. These quizzes will be averaged into the test average. Students will be allowed to use instructor-provided reference information such as periodic tables and equations during the exams and quizzes, 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 on **Wednesday, December 11, 2024**, during finals week. 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 15% of the grade.

Laboratory Assignments - Work in the laboratory is central to the topic of chemistry. Each chapter has an experiment to reinforce topics covered in lecture and help the student apply knowledge to real world problems. Experimental work can only take 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.

Mastering Chemistry & Other Assignments – This category includes Mastering Chemistry assignments and anything assigned by the instructor that does not fit into another category. There is a **Mastering Chemistry Homework Assignment** for most chapter sections; they are generally due **midnight Monday** of the week after studying the chapter. Blackboard has links for each assignment. They include tutorials and activities for key topics as well as practice problems and questions to help you reach mastery. Students should NOT wait until the night before the due date to start these assignments but rather should pace themselves. The course timeline below notes the number of sections in each chapter to aid in pacing.

Because each chapter builds on the previous chapter in chemistry, it is important to correct any misconceptions quickly. A student scoring lower than 70 on a Mastering Chemistry assignment will automatically be assigned an Adaptive Follow-up assignment targeted to the particular areas of misunderstanding on that assignment. This gives the student another chance to learn, review, and answer questions correctly, and to add up to ten points extra credit to the original homework assignment.

More information for registering for Mastering Chemistry and its use can be found in Blackboard. Assignments count 20% of the overall 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. Attendance in the online portion is counted by submitting assignments on time in Blackboard.

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 to complete assignments by the due date.
- ✓ The student will need to 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. Students have access to most instructional material from the first day of class and may work ahead. Any assignment, lab or test that is not completed by the assigned date (or alternate date with instructor approval) earns a grade of zero. Nevertheless, **late work is accepted up to one day late for labs and Mastering Chemistry assignments 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. The review quizzes may be taken late only if the student made prior arrangements to take the corresponding test late. 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 bgooding@ntcc.edu). The last day to drop this course with a grade of W is Tuesday, November 19, 2024. **Failure to officially withdraw by this date will result in the student receiving a grade of F.**

Tentative Course Timeline

* The instructor reserves the right to adjust this timeline during the term as deemed necessary.

WEEK	BEGINNING	TOPIC (# of chapter sections)	Due Dates
1	8/26/24	Intro & Ch. 1 Basics (7)	8/22/24 Questionnaire 8/23/24 Communication email
2	9/2/24	Ch. 2 Atoms, Molecules, and Ions (9)	9/2/24 <i>Labor Day</i> 9/3/24 Ch. 1 Mastering
3	9/9/24	Ch. 3 Chemical Reactions & Stoichiometry (7)	9/9/24 Ch. 2 Mastering
4	9/16/24	More Stoichiometry; Review; Exam 1	9/16/24 Ch. 3 Mastering 9/18/24 Quiz 1, 2, 3 Mastering 9/19/24 Exam 1 (Ch. 1-3) F2F
5	9/23/24	Ch. 4 Reactions in Aqueous Solutions (6)	
6	9/30/24	Ch. 5 Thermochemistry (9)	9/30/24 Ch. 4 Mastering
7	10/7/24	Ch. 6 Electronic Structure of Atoms (9)	10/7/24 Ch. 5 Mastering
8	10/14/24	Review; Exam 2	10/14/24 Ch. 6 Mastering 10/16/24 Quiz 4, 5, 6 Mastering 10/17/24 Exam 2 (Ch. 4-6) F2F
9	10/21/24	Ch. 7 Periodic properties of Elements (7)	
10	10/28/24	Ch. 8 Chemical Bonding Basics (8)	10/28/24 Ch. 7 Mastering
11	11/4/24	Ch. 9 Molecular geometry & adv. Bonding (8)	11/5/24 Ch. 8 Mastering
12	11/11/24	Finish Ch. 9	
13	11/18/24	Ch. 10 Gases (7)	11/18/24 Ch. 9 Mastering 11/19/24 <i>W-drop deadline</i>
14	11/25/24	Finish Ch. 10	11/27-29/24 <i>Thanksgiving</i>
15	12/2/24	Review; Exam 3	12/2/24 Ch. 10 Mastering 12/4/24 Quiz 7, 8, 9, 10 Mastering 12/5/24 Exam 3 (Ch. 7-10) F2F
16	12/9/24	Review; Final exam	12/11/24 Final Exam F2F *Labs are due end of class Fridays*

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.