



# CHEM 2423 – Organic Chemistry I

Course Syllabus: Fall 2020

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

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	Monday	Tuesday	Wednesday	Thursday	Friday	Other Times
Office Hours	930 – 1050 on campus	None*	930 – 1050 via Zoom	930 – 1220 300 – 550 via Zoom	1100 – 1220 via Zoom	via Zoom by appointment

\* Tuesday mornings, I am in lab working 930-1220 and may also be available to meet in person.

***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:

Fundamental principles of organic chemistry will be studied, including the structure, bonding, properties, and reactivity of organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Laboratory activities will reinforce these fundamental principles of organic chemistry. Methods for the purification and identification of organic compounds will be examined. THIS COURSE IS INTENDED FOR STUDENTS IN SCIENCE OR PRE-PROFESSIONAL PROGRAMS.

Successful completion (final grade of C or better) of CHEM 2423 will allow the student to continue on to CHEM 2425.

This course consists of both lecture (3 hours) and laboratory (4 hours) each week.

**Prerequisite(s):** CHEM 1412 with final grade of C or better

## Course Structure and Overview:

- Course Format: Live Remote  
*NTCC Definition*

Live Remote classes will connect the instructor and the student in a virtual classroom where the student will receive live instruction and be able to interact directly with the faculty member during the course's class time.

*What this means for you...*

This course - both lecture and laboratory - will be conducted via Zoom. You are expected to be online in the Zoom classroom video chatting during the scheduled lecture and laboratory times. Additional course material may also be presented fully online through the course Blackboard page. Most assignments - including exams and labs - will be submitted electronically through blackboard.

- Lecture Sessions: Mondays & Wednesdays 130-250pm  
The lecture portion of this course is in the partially-flipped style. Students are required to complete online homework assignments before coming to class to prepare for that day's activity. Lecture will take approximately half of the class time, while the other half of the class time students will be working in small groups. Students will be required to work an online homework assignment and a paper quiz in small groups during each class period. A wireless internet capable laptop or tablet is required in class for completing these assignments. Additionally, students are expected to work on assignments, reading, and studying a minimum of 3 hours outside of class for every one hour of class time.

Exams consist of multiple-choice questions, short answer questions, and essay questions. For more information about exams, see the syllabus section on exams.

- Laboratory Sessions: Wednesdays 300-650pm  
Detailed instructions, guidelines and descriptions of what is expected for laboratory sessions can be found on the following pages under the heading "Institutional/Course Policy".

The course Blackboard page contains detail about what will be conducted in the laboratory sessions, what laboratory assignments are due, due dates, and rubrics.

#### Required Instructional Materials:

- *Organic Chemistry* – Klein; 3<sup>rd</sup> Edition with WileyPLUS  
Digital Version with Access Code (ISBN # 9781119340515)  
Publisher: Wiley

The required materials for the lecture portion of this course are available using INCLUSIVE ACCESS. This means that you paid a discounted price for the eText and WileyPLUS when you paid tuition for this course. You automatically have your access code for Mastering Chemistry. A discounted physical textbook is also available at an additional cost once the semester is underway. If you would like a physical book, you can only purchase one at this discounted price through the NTCC College Store. You can find additional information about exclusive access on the NTCC College Store's Exclusive Access website ([https://www.ntccbookstore.com/Exclusive\\_Access.asp?](https://www.ntccbookstore.com/Exclusive_Access.asp?)).

- *A Small Scale Approach to Organic Laboratory Techniques* – Pavia, Lampman, Kriz, & Engel; 4<sup>th</sup> Edition  
Hardcover (ISBN # 8781305253926)  
Publisher: Cengage
- Molecular Model Set for Organic Chemistry  
(ISBN # 0205081363)  
Publisher: Prentice Hall
- A National Brand Laboratory Notebook (# 43649) is required for the laboratory portion of the course. Additional details will be provided on the first day of lab.
- Scientific Calculator:  
A scientific calculator is required for this course. A model TI-36x Pro or TI-30Xa is suggested, but many models will work; check with your instructor. You will NOT be allowed to use a graphing calculator, programmable calculator, or cell-phone calculator during any exam in this course.
- Pencils and Erasers:  
Pencil is mandatory for writing on quizzes and exams. A strong, sturdy eraser is required to ensure that your work is professionally presentable. Any papers submitted in pen will not be graded and will receive a grade of zero. Any papers that are too sloppy, messy, or unreadable will incur severe point deduction or earn a grade of zero.

#### Minimum Technology Requirements:

- Scientific Calculator - TI-36x Pro and TI-30Xa are recommended
- Wireless Internet capable laptop computer or tablet (Chromebooks are not recommended)
- Video conferencing capability using Zoom through computer or mobile phone.
- Access to printer for required hand-written assignments.
- Access to a scanner for electronic submission of hand-written assignments. **NOTE: Free mobile phone applications are available that can substitute for a scanner. Hand-written assignments must be submitted in pdf format through Blackboard.**

#### Required Computer Literacy Skills:

- Web browsing skills for working with the online homework system
- Ability to use Blackboard for access to course information
- Competent and professional emailing skills
- Functional use of MS Word and Excel for writing lab reports
- Ability to print and scan documents for electronic submission of hand-written assignment.

#### Communications:

- The major communication pathway between instructors and students in this course is face-to-face during lecture and laboratory sessions and during office hours. Students are expected to ask questions and participate in discussions during lecture, lab, and tutoring.
- NTCC email is the official form of communication used by the college. Email communications from non-NTCC email addresses will 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.

### Evaluation/Grading Policy:

WileyPLUS	15%
Assignments* & Attendance	15%
Regular Exams	15%
Midterm Exams	25%
Laboratory	25%
<u>ACS Final Exam</u>	<u>5%</u>
Total Course Grade	100%

\* Assignments are anything assigned by the instructor that does not fit into any of the other categories.

### Grading Scale

A = 100 – 90%
B = 89 – 80%
C = 79 – 70%
D = 69 – 60%
F = <59%

Final course grades are rounded to the nearest whole number percent, and letter grades assigned using the grading scale.

Grades will be posted to Blackboard throughout the course. Blackboard provides an approximate course grade, which is typically within 2-4% of the actual course grade. The instructor's gradebook is the last word in grades and is what decides the final grades for the course. At any time during the term, students can request to view their grades in the instructor's gradebook or can request a pdf copy of their grades.

*Questions about what score on the Final Exam is required to earn a particular grade in the course will not be answered. Please do not ask.*

### Electronic Assignment Submission and Electronic Documents:

- All hand-written materials – quizzes, labs, exams, etc. – must be submitted for grading electronically through Blackboard.
- Papers must be submitted in pdf format. All materials must be a single pdf.
- Printing a given pdf and scanning answers is the preferred method of working assignments.
- If a pdf is not supplied for an assignment or lab or if a printer is not available, students may use their own paper to answer the questions. Students are expected to be clear about what they are answering, but copying the entire question onto the answer sheet is not required.
- If a scanner is not available, there are free mobile phone applications available that can act as a scanner. More details can be discussed in class.
- Typed lab assignments should be saved as pdf in MS Word – printing and scanning is not necessary.
- Any hand-written materials that are submitted incorrectly will not be graded. Physical papers from students will not be graded.
- All handouts and "paper" assignments for this course will be provided electronically via Blackboard.

### Exams:

- Three regular exams will be given during the semester. Regular Exams consist of two parts: (1) online multiple choice questions; students will have 60 minutes to answer questions in one sitting using the WileyPLUS online homework system and (2) online hand-written questions; students will access a pdf of exam questions through Blackboard and have 24 hours to print, answer the questions, scan into a single pdf file, and upload pdf answers to a Blackboard assignment. Regular exams are available from 700pm Thursday until 659pm Friday.

Exam 1	September 17-18
Exam 3	October 22-23
Exam 4	November 5-6

- Two cumulative midterm exams will be given during the semester. Midterm exams will be administered in-person on the NTCC campus during the scheduled lecture period. Midterm exams are entirely multiple choice and are machine graded via Scantron.

Midterm Exam 2	Monday, October 12
Midterm Exam 5	Monday, November 23

- Exam dates are subject to change, if circumstances dictate it. Ample notice will be given verbally during class, in such instances. Under some rare circumstances students may take exams in advance; this will be decided on a case-by-case basis in advance of the exam date. **There will be no make-up exams for missed exams without authorization before the exam date.**
- **The American Chemical Society (ACS) Standardized First-Semester Organic Chemistry Final Exam** will be administered during the mandated final exam time for this course. The ACS Exam is a nationally administered exam that covers topics from the first semester course in organic chemistry. Questions on this exam will cover topics from all of CHEM 2423. 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.

Wednesday, December 9 – 130pm (110 minutes)

- Midterm and Final exams will be administered in-person on the NTCC campus. Should conditions arise that in-person testing is not possible, these exams will be administered remotely. Students will be well informed in advance via class and Blackboard of how exams in this course will be administered.
- **Guidelines for online exams in this course:**
  - Online exam materials will be available for 24 hours (700pm Thursday until 659pm Friday).
  - Students will have 60 minutes to answer multiple-choice questions using the WileyPLUS online homework system and will have the full 24 hours to answer the hand-written portion.
  - Programmable calculators, graphing calculators, and cell-phone calculators are not allowed. Sharing calculators will not be permitted.
  - Cell phones are not permitted. Phones should be turned off and stowed during the exam.
  - Students are not allowed to use any materials during the exam other than what has been given through Blackboard.
  - Students are not to discuss the exam with anyone other than the instructor during the exam time.
  - Hand-written portions of the exams must be submitted as a single pdf file to the Exam Blackboard Assignment. Exams not submitted correctly will not be graded.
  - Exams marked "Late" in the Blackboard system will earn a grade of zero.
  - A student found in violation of any of these guidelines during an exam period will earn a grade of zero on that exam.
- **Guidelines for in-person exams in this course:**
  - During this pandemic time, face-coverings and social distancing will be required to take in-person exams in this course. Students' noses and mouths must be covered during the entire duration of the exam. Students will sit distanced from one another during the exam, and exam papers will be handed out and collected with as little contact as possible.
  - At the instructor's discretion, students may be assigned seats during an exam period.
  - Students are only allowed to bring pencils, erasers, and scientific calculators into the testing room. Programmable calculators, graphing calculators, and cell-phone calculators are not allowed. Sharing calculators will not be permitted.
  - Bags, purses, etc. are not allowed at the student tables and should be stowed at the front of the room or in the hallway.
  - Cell phones are not permitted. Phones should be turned off and stowed in a bag or surrendered to the instructor during the exam. A student in possession of phone once the exam has started will earn a grade of zero on that exam.
  - Watches are not permitted in the exam room; watches, and other personal electronic devices, must be stowed in a bag.
  - Students will be provided with scratch paper and a formula sheet for each exam. Other papers or notes will not be permitted during the exam.
  - Students that leave the testing room during the exam must turn in the exam to be graded and cannot return to the exam room until the testing period is over.
  - A student found in violation of any of these guidelines during an exam period will earn a grade of zero on that exam.
- **Graded Exams will not be handed back to the student:** Students are encouraged to review their graded exams with the instructor. Students can make an appointment to review their exams with the instructor via Zoom.

## **Institutional/Course Policy:**

- Students are expected to be working on assignments outside of class on their own time throughout the entire duration of this course. For each hour that you spend in class, plan to spend a minimum of three hours out of class studying, reading the book, working on homework problems, etc.

- Quizzes

A quiz will be given during all lectures and some labs. Students who are absent from class will earn a zero on the quiz, and makeup quizzes will not be given. Due dates and times are clearly noted on the course Blackboard page. In-class quizzes are due by 300pm during lecture sessions and/or 700pm during lab sessions. Take-home quizzes are due at the time and date indicated on Blackboard. All quizzes will be hand-written and answers submitted electronically through Blackboard assignments. Quizzes submitted after the due date/time will be marked "Late" by the Blackboard system. **Late quizzes are not accepted; you will earn a grade of zero.** In special cases, outside-of-class paper assignments may be accepted late; this requires prior authorization in advance of the due date.

- Attendance

Attendance is mandatory for this course. Attendance will be measured using zoom, and points will be earned for attendance.

You are expected to attend all classes. Chemistry is too hard to learn on your own. Some lecture material not found in the text may be presented during the semester that may show up on exams.

- Online Homework

This course uses the WileyPLUS online homework system. Details about registering in WileyPLUS will be discussed on the first day of class. Assignments and due dates will be listed in the WileyPLUS system. Access to a computer with the internet is required for this course. The WileyPLUS system will be used both inside the classroom and outside the classroom. You are expected to have a wireless internet capable laptop computer or tablet to access WileyPLUS during the class period.

- Electronic Devices Policy

Use of cell phones is prohibited during class and lab time. Students using phones for unapproved purposes during lab will be asked to leave lab and will earn a grade of zero on material for that lab period.

Wearing headphones during class, lab, or an exam is not allowed. Use of listening devices will earn the student a zero on work for that class session.

Students are not to be in possession of electronic devices (phones, music players, watches, etc) during an exam. Student found with devices other than scientific calculators during an exam will earn a grade of zero on that exam.

- Laboratory Experiments

There will be virtual and online experiments performed during the laboratory periods over the course of the term. Any experiments not completed and turned in will receive a grade of zero. Any student earning a zero grade on two or more lab activities will earn a grade of "F" in this course. A schedule of experiments will be provided as a separate handout. It is the responsibility of the student to arrive to lab prepared for the correct scheduled experiment.

- Laboratory Conduct and Attire

Students are expected to adhere to the guidelines set forth in the "Commitment to Laboratory Safety Pledge" and in the safety video. In addition, students must wear long pants covering their ankles (leggings are unacceptable), closed shoes (no exposed skin or sock), and shirts that cover their shoulders. Approved safety glasses/goggles at all times in the lab. Students who wear corrective-vision glasses must have elastic-strap safety goggles that cover the entire glasses and seal against the forehead. Long hair should be pulled back. Failure to follow laboratory safety protocols could result in injury to yourself or others and will result in reduction of your laboratory grade. Students not dressed appropriately for lab will be asked to leave and will earn a grade of zero on that experiment.

All laboratory activities will be conducted virtually this semester. Students should conduct themselves virtually as they would in-person; however, proper lab attire and PPE will not be necessary.

- Laboratory Evaluation/Grading Policy
  - *The laboratory portion of the course counts towards 25% of your overall course grade.*
  - Specific experimental and report details and due dates are listed on the course Blackboard page, and it is the students' responsibility to check for current requirements and due dates.
  - All laboratory assignments will be submitted electronically through Blackboard assignments.
  - 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) or instructor may earn a grade of zero on that experiment.
- Withdrawal Date (Drop Date)  
**Tuesday, November 17** is the last day to withdraw from the course with a grade of "W". If you stop attending class and fail to officially withdraw, expect to earn a grade of "F" in the course.

**Tentative Course Timeline (\*note\* instructor reserves the right to make adjustments to this timeline at any point in the term):**

We will cover most of the material in Chapters 1-10, 14, 15, and portions of 16 in the Klein text, additional material may be included if time permits. More detail can be found by examining the Table of Contents in the text and the "Topical Course Outline" posted on Blackboard.

Week 1	Review of General Chemistry; Molecular Representations
Week 2	Resonance Structures; Infrared Spectroscopy
Week 3	Acids and Bases; Infrared Spectroscopy
Week 4	Acids and Bases; Alkanes – EXAM 1
Week 5	Conformations; Cycloalkanes; Enantiomers
Week 6	Molecular Relationships; Optical Activity; Mass Spectrometry
Week 7	Chemical Reactivity; Mechanisms
Week 8	MIDTERM EXAM 2 – Substitution and Elimination
Week 9	Substitution and Elimination – EXAM 3
Week 10	<sup>1</sup> H-NMR
Week 11	<sup>13</sup> C-NMR; Addition Reactions – EXAM 4
Week 12	Addition Reactions; UV-Vis Spectroscopy
Week 13	Addition Reactions; Alkynes
Week 14	MIDTERM EXAM 5 – Thanksgiving Break
Week 15	Radical Reactions and Mechanisms
Week 16	ACS FINAL EXAM

NTCC Fall Graduation – Friday, December 11

**Student Responsibilities/Expectations:**

This course covers a lot of material and moves rapidly, so do not fall behind. If you do not understand Chapter 1, you will probably not understand Chapter 2 either, because the material for this course is cumulative.

**The only way to learn chemistry is through practice.** You must be willing to spend time working problems from the textbook to be successful. If you are having problems with a particular topic, it may even be necessary to work problems from the textbook that are not assigned.

At the first sign of trouble you should seek help immediately. I am happy to help you with any of your chemistry coursework. However, if you wait too long to seek help, there is a point where there is nothing I can do to help you.

Work with a classmate on the homework, but do not just copy answers that you do not understand. There is a difference between working together and cheating. If it feels like cheating, then it is cheating. Assignments that appear to be copies of each other will earn grades of zero. Students caught cheating will earn a zero on that quiz, lab, or any non-exam assignment and may earn a grade of "F" in the course for such actions. Students caught cheating on an exam, midterm exam, or final exam will earn an "F" in the course. Students with multiple instances academic dishonesty will earn a grade of "F" in this course.

Do not wait until the night before a test to study. Almost everything we cover will come up again later in the class. If you learn the material only long enough to take an exam, you will not recognize it when we encounter it again. This will cause you to struggle through the entire course and to struggle through future chemistry courses.

Questions and/or observations are encouraged during the class period. Courteous and attentive behavior is always expected. Students who consistently misbehave can expect to have their grade lowered. Like all colleges, Northeast Texas Community College strives to be a "community of scholars." Please remember that you and all of the students in this class are pursuing very important goals in your lives. As human beings and as scholars, I expect every student to be courteous and considerate toward other students throughout the lecture and laboratory portions of this course.

**Course Student Learning Outcomes:** Upon successful completion of this course, students will...

1. Classify organic compounds by structure, molecular orbitals, hybridization, resonance, tautomerism, polarity, chirality, conformation, and functionality.
2. Demonstrate a basic understanding of stereochemistry.
3. Identify organic molecules using appropriate organic nomenclature.
4. Describe the principle reactions for syntheses of molecules, ions, and radicals; and describe organic reactions in terms of radical and ionic mechanisms.
5. Describe the use of spectroscopic data to determine the structure of organic molecules.
6. Formulate appropriate reaction conditions for the synthesis of simple organic molecules.
7. Perform chemical experiments, analysis procedures, and waste disposal in a safe and responsible manner; identify and utilize appropriate separation techniques such as distillation, extraction, and chromatography to purify organic compounds.
8. Utilize scientific tools such as glassware and analytical instruments to collect and analyze data.
9. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
10. Classify organic compounds by structure, molecular orbitals, hybridization, resonance, tautomerism, polarity, chirality, conformation, and functionality in laboratory reports.
11. Perform organic syntheses of molecules, and describe organic reactions in terms of radical and ionic mechanisms in laboratory reports.
12. Use spectroscopic data to determine the structure of organic molecules in a laboratory setting.

**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.

**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.

**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.