



Organic Chemistry II

CHEM 2425.001

Course Syllabus: Spring 2019

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

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	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Office Hours	700-750	700-750	700-750 1100-1220	700-750 930-1220	700-750	via NTCC email

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.

Course Description:

Continuation of CHEM 2423. Advanced principles of organic chemistry will be studied. Topics include: spectroscopy and the reactions of alcohols, ethers, conjugated systems, aromatic compounds, carbonyl containing compounds, and amines, with emphasis on synthesis and mechanisms.

Prerequisite: CHEM 2423

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

Required Textbooks:

Organic Chemistry – Klein; 3rd Edition with WileyPLUS

Digital Version with Access Code (ISBN # 9781119340515)

Publisher: Wiley

Macroscale and Microscale Organic Experiments – Williamson & Masters; 6th Edition

(ISBN # 0538733330)

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.

Lab Safety Glasses/Goggles:

Approved safety glasses are available in the college store, and many safety glasses and safety goggles are also available from online retailers. **Always check with your instructor before purchasing eye protection from somewhere other than the college store.**

Safety glasses may be rented from the instructor for the cost of five (5) points deducted from the behavior, safety, and teamwork (BST) grade. **Beginning Monday, February 4, students arriving to lab without proper safety glasses will not be allowed to participate in the experiment and will receive a grade of zero for that experiment.**

Student Learning Outcomes: Students will...

1. Correlate molecular structure with physical and chemical properties of organic molecules, and predict the chirality of reaction products based on enantiomeric and diastereomeric relationships.

- Predict the mechanism and outcome of reactions, given the conditions and starting materials.
- Describe reaction mechanisms in terms of energetics, reaction kinetics, and thermodynamics.
- Use spectroscopic techniques to characterize organic molecules and subgroups.
- Perform chemical experiments, analysis procedures, and waste disposal in a safe and responsible manner; utilize scientific tools such as glassware and analytical instruments to collect and analyze data; and identify and utilize appropriate separation techniques such as distillation, extraction, and chromatography to purify organic compounds.
- Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
- Correlate molecular structure with physical and chemical properties of organic molecules; predict the mechanism and outcome of reactions, given the conditions and starting materials; and describe reaction mechanisms in terms of energetics, reaction kinetics, and thermodynamics, in conjunction with laboratory experiments.
- Use spectroscopic techniques to characterize organic molecules and subgroups, in conjunction with laboratory experiments

Lectures & Discussions:

We will cover most of the material in Chapters 11-22 in the Klein text, additional material may be included if time permits.

Week 1	MLK HOLIDAY
Week 2	Organic Synthesis
Week 3	Chromatography, Mass Spectrometry, & Nuclear Magnetic Resonance Spectroscopy
Week 4	Gas Chromatography & ¹ H-NMR
Week 5	¹³ C-NMR
Week 6	Alcohols
Week 7	Ethers & Epoxides
Week 8	SPRING BREAK
Week 9	Dienes & Pericyclic Reactions
Week 10	Pericyclic Reactions & UV-Vis Spectroscopy
Week 11	Aromatic Compounds
Week 12	Electrophilic Aromatic Substitution
Week 13	Aldehydes & Ketones
Week 14	Enolate Ions
Week 15	Carboxylic Acids & Derivatives
Week 16	Carboxylic Acid Derivatives & Amines
Week 17	FINAL EXAM

More detail can be found by examining the Table of Contents in the text and the "Topical Course Outline" posted on Blackboard. You should bring a reliable scientific calculator to class every day. Programmable calculators, graphing calculators, and cell phone calculators are not allowed on exams. Sharing calculators will not be permitted.

Evaluation/Grading Policy:

		<u>Grading Scale</u>
Regular Exams	40%	A = 100 – 90%
Laboratory	30%	B = 89 – 80%
Final Exam	16%	C = 79 – 70%
WileyPLUS	7%	D = 69 – 60%
<u>Attendance & Assignments*</u>	<u>7%</u>	F = <59%
Total	100%	

* Assignments include anything assigned by me including, but not limited to quizzes, homework, problem sets, and challenge problems.

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

Exams:

Most exams will be administered during the laboratory period beginning at 7am. This is necessary to allow for completion of an experiment at the end of the exam.

Some exams may be administered in the NTCC Testing Center. There is no time limit for the exam other than the Testing Center's hours of operation. The Testing Center is located in the Student Services Building and operates on the following schedule:

Monday through Thursday: 8:00 a.m. to 6:00 p.m.

Friday: 8:00 a.m. to 12:00 noon

Student(s) arriving after 5:00 p.m. (11:00 a.m. Fridays) will not be allowed to test.

Be sure to give yourself enough time spend at least two hours on those exams.

Six regular exams will be given during the term on the following dates:

Exam 1 – Mon, Feb 25 (9am start in class; MS 106) – Synthesis, Chromatography, Spectroscopy

Exam 2 – Tues, March 5 – Thurs, March 7 (in Testing Center) – Synthesis, Alcohols, Ethers, Epoxides

Exam 3 – Mon, April 1 (7am start in class; MS 106) – Dienes, Pericyclic Reactions, UV-Vis

Exam 4 – Mon, April 15 (7am start in class; MS 106) – Aromatic Compounds & Reactions

Exam 5 – Mon, April 29 (7am start in class; MS 106) – Aldehydes & Ketones

Exam 6 – Tues, May 7 – Thurs, May 9 (in Testing Center) – Carboxylic Acids & Amines

On the first class meeting, students will have the opportunity to collectively decide on a separate 90 minute session in which exams will be held. Every exam must meet at the same scheduled time in the same week as the original exam schedule, and the decision must be unanimous among all students. If no consensus can be achieved, the above exam schedule will be enforced for the duration of the semester.

There will be a **comprehensive Final Exam** held according to the announced final exam schedule. The final exam will be administered in MS 124 and will be limited to the scheduled day and time:

Monday, May 13: 130-420pm

Exam dates are subject to change, if circumstances dictate it. Ample notice will be given verbally during class, in such instances. Under some circumstances exams may be taken 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.*

You will be allowed to use your model kit on exams, if you choose to. You may need a reliable scientific calculator for exams and quizzes. Programmable calculators, graphing calculators, and cell phone calculators are not allowed. Sharing calculators and/or model kits will not be permitted.

Quizzes and Assignments:

Assignments throughout this course include anything assigned by the instructor and collected for a grade, excluding exams and laboratory work. This includes, but is not limited to, problems from the text, WileyPLUS online homework, and handouts from class. **Students should expect 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.

A quiz will be given during all lectures. Students who are absent from class will earn a zero on the quiz, and makeup quizzes will not be given. In-class quizzes are due by the end of the lecture period; in-class quizzes that are not in the instructor's possession when he/she returns to his/her office are late. Take-home quizzes are due at the beginning of the next lecture period; take-home quizzes that are not in the instructor's possession when the lecture begins are late. **Late quizzes are not accepted; you will earn a grade of zero and be marked as absent from class.** In special cases, outside-of-class paper assignments may be accepted late; this requires prior authorization in advance of the due date. Every in-class quiz includes attendance points for that class period. Excused absences refund the missing attendance points, but do not award quiz grades.

This course will be using 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 laptop computer, tablet, cell phone, or similar device to access WileyPLUS during the class period. This course will be a *partially flipped classroom*, which means you will be required to read material from the text (or etext) and answer some questions/problems before coming to class. During class, it will be expected that you have a baseline knowledge of the topic of the day from completing the reading assignment before class, and more in-class time will be devoted to discussions and problem solving rather than purely lecture. You will be working in groups during lecture.

Attendance is mandatory for this course and is worth approximately 2-3% of your overall course grade. A grade of zero on an in-class quiz counts as being absent from class that day. In rare cases, you may be excused from a class period; proof of a legitimate reason for being absent is required, and the instructor is the final judge of what constitutes a legitimate reason.

Presenting problems to the class and participation in class activities is a requirement for this course.

Laboratory Experiments:

Laboratory attendance is mandatory. There will be approximately 12 experiments performed during the laboratory periods over the course of the term. Some experiments may span more than one laboratory period. There will be no make up lab sessions. Any experiments not completed and turned in will receive a grade of zero. A list of experiments will be provided as a separate handout. A total of 9 experiments must be completed and receive a non-zero grade in order to pass this course. Additionally, a laboratory practical exam will be given at the end of the semester.

Due to scheduling issues, some weeks lecture will be conducted during the laboratory time and an experiment will be performed during the lecture time. Students are expected to know what is happening when and where and what assignments are due for each class or lab meeting. This will be clearly outlined on the first day of class, posted on the course blackboard page, and indicated on schedule handouts.

Laboratory Conduct and Attire:

Students are expected to adhere to the guidelines set forth in the safety video and in the lab safety handout. In addition, students must wear long pants covering their ankles (leggings are unacceptable), closed shoes (no exposed skin or sock), shirts that cover their shoulders, and approved safety glasses/goggles at all times in the lab. Long hair should be pulled back. Lab coats are available for additional protection of your person and clothing; they are not a substitute for proper lab attire. Failure to follow laboratory safety protocols could result in injury to yourself or others and in reduction of your laboratory grade. Students not dressed appropriately for lab may be asked to leave. If asked to leave, students will earn a grade of zero on material for that lab period.

Laboratory Evaluation/Grading Policy:

The laboratory portion of the course counts towards 30% of your overall course grade.

Experiments	75%
Lab Practical	15%
Behavior, Safety, & Teamwork	10%
Total	100%

Prelaboratory Assignments must be completed prior to the laboratory period. Prelaboratory Assignments are due at 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. Unless otherwise stated, Lab Notebook Pages are due at the end of the laboratory period, and the typed Written Report and Questions are due the following laboratory period. 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.

You 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.

Laboratory Practical Exam:

There will be a Laboratory Practical Exam held **Monday, May 13 at 800-1150am**. This exam will be worth 15% of the laboratory grade and will consist of hands-on laboratory work related to one of the experiments performed during the semester.

Student Responsibilities/Expectations:

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 and will show up on exams.

Use of cell phones is prohibited during class and lab time. Students using phones during class will lose his/her attendance points for the day and will have his/her phone confiscated or be asked to leave class. 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.

This course covers a lot of material and moves rapidly, so do not fall behind.

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.

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. Your classmate will not be able to help you on the exam.

Do not fall behind in the class. If you do not understand Chapter 1, you will probably not understand Chapter 2 either, because the material for this course is cumulative.

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.

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.

Tuesday, April 11 is the last day to withdraw from the course with a grade of "W". Students who withdraw from the lecture must also withdraw from the lab. If you stop attending class and fail to officially withdraw, expect to earn a grade of "F" in the course.

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.

As your instructor, I will attend all classes on time and prepared to teach what you are expected to learn each day. I will make a conscientious effort each class period to teach to the best of my ability and to provide you with clear, well-organized explanations of class material. I care deeply about your learning experience and your success in this course. However, that ultimate success does depend largely on you. Your success can be maximized and your potential achieved by making a commitment to meet the following classroom expectations:

- a) Attend ALL classes – physically and mentally. Wherever you are, be all there.
- b) Be on time for class. Attitude is not everything but it is very important. Remain in class for the entire instructional period.
- c) Be an active learner – participate in class. Be attentive, answer questions, and ask questions. Smile, be interested, and act as if you care. (OK, I'll admit that occasionally things get a little boring; work through that boredom by participating!)
- d) Read ahead. This will help make the next lecture much more effective.
- e) A good student acts like a good student, which includes not sleeping in class, not talking in class, and not reading unrelated material or doing other work in class. All cellular phones must be turned off during class time.
- f) Realize that I do not GIVE grades. You EARN grades based upon your performance. That performance includes turning all assignments in on time. You shouldn't expect less of me because of my other commitments. I don't expect less of

- you because of your other commitments.
- g) Be respectful of yourself, your classmates, and your instructors.
 - h) Learning is hard work but it is also invigorating and fun. Work hard and have fun doing so.

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 arrange an appointment with a college counselor to obtain a Request for Accommodations form. For more information, please refer to the NTCC Catalog or Student Handbook.

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.