NJIT New Jersey Institute of Technology

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE

Organic Chemistry II:
Spring 2025 Course
Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: This intermediate organic chemistry course focuses on advanced principles of organic reaction mechanisms, and methods used for the synthesis of organic compounds.

Number of Credits: 3

Prerequisites: General Chemistry and Organic Chemistry I

Course-Section and Instructors

Course-Section	Instructor
CHEM 244 - 002	Yuanwei Zhang

Class Schedule: Mondays, Thursdays 2:30 – 03:50 PM
Face-to-Face
KUPF 103

Office Hours: Thursdays, 10:00 – 11:30 am

Required Textbook:

Title	Organic Chemistry A Tenth Edition
Author	John McMurry
Edition	10th edition
Publisher	OpenStax
ISBN #	978-1-951693-98-5

Aktiv Learning subscription: The Aktiv learning app (https://account.aktiv.com), which can be access from a mobile device or computer, will be used for homework and graded quizzes. A subscription fee for the semester is required to access the material. You need to pair the app with the course in order to sync your grades. The code to access the course and the guideline to pair it can be found on the Canvas page.

Learning Outcomes:

1. Know the nomenclature of alkyne, ethers, conjugated and aromatic systems, ketones, aldehydes and derivatives thereof, amines, carboxylic acids and derivatives,

2. Construct molecular orbital pictures for conjugated and aromatic systems and explain the reactivity patterns of conjugated and aromatic systems,

3. Use Hückel's rule to determine if compounds are aromatic or anti-aromatic,

4. Predict the products of reactions involving or forming alkyne, ethers, conjugated systems, aromatic compounds, ketones and aldehydes, amines, and carboxylic acids and derivatives,

5. Devise synthesis of complex molecules from simpler reactants by using retrosynthetic analysis,

6. Propose plausible mechanisms for complex multi-step reactions involving cationic or anionic intermediates,

7. Explain the relative acidity and basicity of organic molecules, and rank functional groups in order of their acidity/basicity,

8. Understand how the concept of resonance explains reactivity, acidity, basicity, stability, structure, and hybridization of organic molecules.

POLICIES

All CES students must familiarize themselves with, and adhere to, all official university-wide student policies. CES takes these policies very seriously and enforces them strictly.

Grading Policy: For each chapter, a set of homework questions will be posted on the Aktiv learning app. Completing the homework before the due date will provide full credit, regardless of correctness. The Aktiv learning homework will be worth 50 points. Additional practice problems will be provided on Canvas. These will not be collected or graded, but serve as great practice for the exams. In addition, there will be five graded quizzes throughout the semester, also in Aktiv learning. These can be completed within a period pre-determined by the instructor. In total, quizzes will be worth 50 points. These will be two exams, on midterm and on final, each covering 6 chapters. Each exam will worth 100 points. Makeup exam are not encouraged. If you must miss an exam contact the instructor before the exam or immediately after. Makeup should be taken within the first week of the exam and before exams are given back. You must have valid excuse and a doctor note.

The final grade in this course will be determined as follows:

Aktiv learning homework	50
Aktiv learning quizzes	50
Midterm Exam	100
Final Exam	100
Total Points	300

Your final letter grade in percentage in this course will be based on the following tentative curve:

A	90 – 100	**C**	70 – 74.9
B+	85 – 89.9	**D**	60 - 70
B	80 – 84.9	**F**	< 60
C+	75 – 79.9		

Attendance Policy: Each class is a learning experience that cannot be replicated through simply "getting the notes." Slides will be accessible on Canvas prior to beginning each new chapter. However, they are templates and will be expanded during lectures. Therefore, only attendance will provide you with the full notes, worked problems and announcements regarding covered material.

Exams: There will be two exams held in class during the semester. The following exam periods are tentative and therefore possibly subject to change:

Midterm Exam	March 10
Final Exam Period	May 12-16

Makeup Exam Policy: There will normally be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed so that appropriate steps can be taken to make up the grade.

ADDITIONAL RESOURCES

Chemistry Tutoring Center: Located in the Central King Building, Lower Level, Rm. G12.

Accommodation of Disabilities: Office of Accessibility Resources and Services (***formerly known as Disability Support Services***) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director at the Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation and additional support services provided please visit the Accessibility Resources and Services (OARS) website at:

- http://www5.njit.edu/studentsuccess/disability-support-services/

Course Outline

Lecture	Chapters	Topic	Assignment
1-2	11	Alkynes	
3-4	12	Structure and Synthesis of Alcohols	
5-6	13	Reactions of Alcohols	
7-8	14	Ethers, Epoxides and Thioethers	
9-10	15	Conjugated Systems, Orbital Symmetry and UltraViolet	
11-12	16	Aromatic Compounds	
13-14	17	Reactions of Aromatic Compounds	
15-16	18	Ketones and Aldehydes	
17-18	19	Amines	
19-20	20	Carboxylic Acids	
21-22	21	Carboxylic Acid Derivatives	
23-24	22	Condensations and Alpha-Substitution of Carbonyl	