

Spring 2019

CHEM 244-102: Organic Chemistry II

A Castro

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Organic Chemistry II
Spring 2019 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 course is a continuation of Organic Chemistry I (Chem 243). A study of the chemistry of several relevant functional groups and biomolecules, with emphasis on their reactivity. The study of reaction mechanisms and the examination of intermediates, such as carbocations is used extensively in order to explain reactivities. It also provides an introduction to modern spectroscopic analyses used for structure determination.

Number of Credits: 3

Prerequisites: Chem 243 with a grade of C or better.

Course-Section and Instructor

Chem 244-102 Dr. A. Castro

Lecture: Guttenber Information Technology Center (GITC 1100) T: 6-8:50 pm

Office: Tiernan (TIER) 323A Email: castroa@njit.edu

Office Hours: T: 5-6 pm. And by appointment.

Required Textbook: Organic Chemistry by Wade and Simek, 9th edition (2017); Pearson, Glenview, IL.

University-wide Withdrawal Date: The last day to withdraw with a **W** is Monday, April 8, 2019. It will be strictly enforced.

Learning Outcomes:

Upon completion of the course you should have a facility in accomplishing the following:

1. Assign IUPAC names to given structures and draw correct structures from given names.
2. Draw correct structures of products expected for a given set of reactants.
3. Draw resonance structures of conjugated systems including alkenes, aromatic compounds and carbonyl compounds and relate these structures to reactivity.
4. Write mechanisms for the reactions covered, including electrophilic aromatic substitution, nucleophilic addition to carbonyls, addition-elimination reactions of carboxylic acid derivatives, reactions at the alpha carbon of carbonyls, reactions of amines including the Hoffmann degradation.
5. Identify the structure and reactivity of biological molecules in terms of reactions studied in Organic Chemistry I and II.
6. Use spectroscopic data to determine the structure of 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: The final grade in this course will be determined as follows:

Exam 1 - 100 points

Exam 2 - 100 points

Exam 3 - 100 points

The lowest of the three exams will be dropped.

Final Exam - 100 points

The final exam will be partially cumulative with an emphasis on the understanding of fundamental concepts applied to a variety of systems. Specific questions on the chapters covered after Exam 3 will be emphasized.

Online Homework from www.masteringchemistry.com -100 points (Course ID: MCCAstro68878)

(In order to receive credit for their work, students must complete the assignments by the posted due date. Deadline extensions will only be given in case of documented medical reasons or emergency reasons approved by the Dean of Students. Extensions will not be granted because of website difficulties, internet being down, or your own computer problems)

The final grade will be calculated from a total of 400 points. The final exam and the online homework will not be dropped.

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

A (90-100%), B+ (85-89%), B (84-80%), C+ (79-75%), C (74-70%), D (69-65%), F (below 64%)

Attendance Policy: Attendance at classes will be recorded and is **mandatory**. Each class is a learning experience that cannot be replicated through simply “getting the notes.” Students are responsible for all the material covered and announcements made in class. All email communication should be done using the “njit.edu” domain.

Make-up Exam Policy: There will normally be **NO MAKE-UP EXAMS** during the semester. In the event that a student has a legitimate reason for missing an 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.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class periods. Such devices must be stowed in bags during exams.

ADDITIONAL RESOURCES

Chemistry Tutoring Center: Located in the Central King Building, Lower Level, Rm. G12. Hours of operation are Monday – Friday 10:00 am - 6:00 pm. For further information please click [here](#).

Accommodation of Disabilities: Office of **A**ccessibility **R**esources and **S**ervices (*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/>

Important Dates: <https://www.njit.edu/registrar/spring-2019-academic-calendar/>

Course Outline

Chapter 12, Infrared Spectroscopy and Mass Spectrometry.

Chapter 13, Nuclear Magnetic Resonance Spectroscopy.

Chapter 14, Ethers, Epoxides and Thioethers.

Exam 1

Chapter 15, Conjugated Systems, Orbital Symmetry and UltraViolet Spectroscopy

Chapter 16, Aromatic Compounds.

Chapter 17, Reactions of Aromatic Compounds.

Exam 2

Chapter 18, Ketones and Aldehydes.

Chapter 19, Amines.

Chapter 20, Carboxylic Acids.

Exam 3

Chapter 21, Carboxylic Acid Derivatives.

Chapter 22, Condensations and Alpha-Substitution of Carbonyl Compounds.

Chapter 23-26, Selected Topics. (If time permits)

Final Exam