

Spring 2022

## **CHEM 244-102: Organic Chemistry II**

Alfredo Castro

Follow this and additional works at: <https://digitalcommons.njit.edu/chem-syllabi>

---

### **Recommended Citation**

Castro, Alfredo, "CHEM 244-102: Organic Chemistry II" (2022). *Chemistry, Environmental and Forensic Science Syllabi*. 419.

<https://digitalcommons.njit.edu/chem-syllabi/419>

This Syllabus is brought to you for free and open access by the NJIT Syllabi at Digital Commons @ NJIT. It has been accepted for inclusion in Chemistry, Environmental and Forensic Science Syllabi by an authorized administrator of Digital Commons @ NJIT. For more information, please contact [digitalcommons@njit.edu](mailto:digitalcommons@njit.edu).

**Organic Chemistry II**  
*Spring 2022 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: **In-person: Faculty Memorial Hall (FMH 110) T: 6-8:50 pm**

**Online: (same time as in-person but only when advised by the administration) via WebEx at:**  
<https://njit.webex.com/join/castroa>

Office: Tiernan (TIER) 110 Email: [castroa@njit.edu](mailto:castroa@njit.edu)

Office Hours: after the lecture as needed, and by appointment

**Required Text: (eBook included with OWLv2 access code):** Organic Chemistry, 9<sup>th</sup> Edition, John McMurry, CENGAGE Learning, Boston, MA, 2015.

All students must create an account and register for the two (2) online web-based learning courses below:

**Chapter Homework:**

<https://www.cengage.com/dashboard/#/course-confirmation/E-YQD9YW6LLBMZR/initial-course-confirmation>

**Chapter Exams:**

<https://www.cengage.com/dashboard/#/course-confirmation/E-YQD92SKXQRSFH/initial-course-confirmation>

**University-wide Withdrawal Date:** The last day to withdraw with a **W** is Monday, 4/4/22.

**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:

Online Homework and Exams from OWLv2 (Online Web-based Learning)

-Online Chapter Homework - 100 points

-Online Chapter Exams - 100 points

(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)

-Cumulative Final Exam - 100 points

The final exam will be cumulative with an emphasis on the understanding of fundamental concepts applied to a variety of systems.

The final grade will be calculated from a total of 300 points.

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 is **mandatory** and may be recorded. Each class is a learning experience that cannot be replicated through simply “getting the notes.” Students are responsible for all the material and announcements discussed in class. All email communication should be done using the “njit.edu” domain.

**Make-up Policy:** There will normally be **NO MAKE-UP HOMEWORKS/EXAMS** during the semester. In the event that a student has a legitimate reason for missing a due date or the final exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the homework/exams, 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 homework/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 lecture 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 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](mailto: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:

- <https://www.njit.edu/studentsuccess/accessibility>

**Important dates:** <https://www5.njit.edu/registrar/spring-2022-academic-calendar/>

---

## **Course Outline**

Chapter 12 (Structure Determination: Mass Spectroscopy and Infrared Spectroscopy)

Chapter 13 (Structure Determination: Nuclear Magnetic Resonance)

Chapter 15 (Benzene and Aromaticity)

Chapter 18 (Ethers and Epoxides; Thiols and Sulfides)

Chapter 19 (Aldehydes and Ketones: Nucleophilic Addition Reactions)

Chapter 20 (Carboxylic Acids and Nitriles)

Chapter 23 (Carbonyl Condensation Reactions)

Chapter 24 (Amines)

Chapter 25 (Biomolecules: Carbohydrates)

Chapter 26 (Biomolecules: Amino Acids, Peptides, and Proteins)