

CHEM 3720 - Organic Chemistry II - Fall Semester 2020 - CRN: 41391

Dates, Time, Location: Live online via Webex - T, Th, 5:10-6:25 PM

Instructor: Dr. John A. Jackson

Office: 5022 Ward Beecher Hall

Office Hours: M, W: 2:00-4:00 PM; F: 2-3 PM. Office hours will be conducted exclusively online via Webex and by email. I will answer the Webex requests in the order they are received.

Email: jajackson@ysu.edu **Phone:** (330) 941-1551

Course Website: <http://jajackson.people.ysu.edu/CHEM3720/index.html>

Course Description & Prerequisites: CHEM 3720 Organic Chemistry 2 - 4 s.h.

Organic compounds, reactions and theories. Typical preparations and procedures of analysis. Three hours lecture, three hours lab-discussion. Prereq.: "C" or better in CHEM 3719.

Required Course Material: Textbook - Organic Chemistry, 3rd Edition, David R. Klein, ISBN: 978-1-119-35160-3

Class Format: CHEM 3720 will be entirely online only. Lectures will be delivered live online via Webex. The class notes will be saved as a pdf and sent by email after each class.

Tentative Lecture Schedule:

Chapter 12. Alcohols and Phenols. Week(s) 1-2.

Chapter 13. Ethers and Epoxides; Thiols and Sulfides. Week(s) 3.

Chapter 14. Infrared Spectroscopy and Mass Spectrometry. Week(s) 4.

Chapter 15. Nuclear Magnetic Resonance Spectroscopy. Week(s) 5-6.

Chapter 16. Conjugated Pi Systems and Pericyclic Reactions. Week(s) 6.

Chapter 17. Aromatic Compounds. Week(s) 7.

Chapter 18. Aromatic Substitution Reactions. Week(s) 8-9.

Chapter 19. Aldehydes and Ketones. Week(s) 10.

Chapter 20. Carboxylic Acids and Their Derivatives. Week (s) 10-11.

Chapter 21. Alpha Carbon Chemistry: Enols and Enolates. Week(s) 12-13.

Chapter 22. Amines. Week (s) 13-14.

Chapter 23. Organometallic Reactions. Week (s) 14-15.

Course Objectives: The focus of this course will be to help the students understand the underlying principles of Organic Chemistry. The students will be able to appreciate the relationship between the structure of an organic compound or intermediate, and its physical, chemical, and/or spectroscopic properties. The material presented in this course provides the necessary foundation for continued studies in Organic Chemistry, including the mechanisms of organic reactions, organic synthesis, bioorganic chemistry, and other related fields that involve organic molecules.

Ohio Higher Ed. - CHEM 3720 - Student Learning Outcomes. Students must be proficient in all of the following core competencies:

1. Chemistry of aromatic compounds (including aromaticity, electrophilic aromatic substitution, and nucleophilic aromatic substitution).
2. Chemistry of alcohols, ethers, alkyl halides and epoxides.
3. Chemistry of aldehydes and ketones – addition reactions.

4. Chemistry of carboxylic acids and derivatives – nucleophilic acyl substitution.
5. Enol and enolate chemistry, condensation reactions.
6. Chemistry of dienes, including Diels-Alder reaction.
7. Chemistry of amines.
8. Spectroscopy and its use in the structural elucidation of organic compounds (including ^1H and ^{13}C NMR, IR, and mass spectrometry).

Ohio Higher Ed. - CHEM 3720 - Student Learning Outcomes. Students must have developed:

9. Familiarity with IUPAC nomenclature
10. An ability to propose reaction mechanisms and associated energy vs. reaction coordinate diagrams, using structural representations and curved arrows representing electron movement, with application of these skills to new situations.
11. An ability to design syntheses, use of retro-synthetic analysis.
12. An understanding of stereochemical implications in organic reactions and mechanisms
13. An appreciation for a variety of applications of organic chemistry in society, including biological and synthetic polymers and biologically/medicinally relevant organic chemistry

<https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/transfer/documents/TAG/FINAL%20Learning%20Outcomes%20for%20Organic%20Chemistry%20TAG%20Course%20Sequence%202012-12-16.pdf>

Grading Policies: There will be four 75 minute exams worth 100 points each. The exams will be administered via Blackboard and Examity. The lowest exam of the four will be dropped. The laboratory portion of the course will be worth 100 points, for a course total of 400 points. Letter grades will be assigned by the following:

A (400 - 360 pts.); **B** (359 – 320 pts.); **C** (319 - 260 pts.); **D** (259 - 200 pts.); **F** below 200 pts.

Exam 1 - Thursday 09/10/2020; **Exam 2** - Tuesday 10/06/2020; **Exam 3** - Tuesday 11/03/2020;
Exam 4 Thursday 12/03/2020. **Makeup Exams:** Tuesday 12/08/2020.

Last Day for Withdrawing with a Grade of "W": Thursday, October 22, 2020.

Attendance & Make-up Policy: Students will be held responsible for any information, material, and announcements made in lecture.

The responsibility for work missed during absence rests with the student. The instructor has no obligation to give make-up graded coursework or to review other class work missed by a student as a result of absence except under those specific conditions cited below:

1. Participation in University-sponsored activities. University-sponsored activities are those that are scheduled by academic, student affairs, and athletic units. They include, but are not limited to: intercollegiate athletic competitions activities approved by academic units, including artistic performances; R.O.T.C. functions; academic field trips; professional conferences; and special events connected with coursework.
2. Government-required activities, such as military assignments, jury duty, or court appearances.
3. Religious observances that prevent the student from attending class.
4. Death of an immediate family member, including father, mother, sister, brother, spouse, children, step-children, step-parent, parent-in-laws, sons-in-law, daughters-in-law, brothers-in-law, sisters-in-law,

grandparents, foster parents, foster children, legal guardians, any person who stands in the place of a parent (loco parentis), or a domestic partner.

5. Documented personal illness.

Incomplete Grade: An incomplete grade of **I** may be given to a student who has been doing satisfactory work in a course but, for reasons beyond the control of the student and deemed justifiable by the instructor, had not completed all requirements for a course when grades were submitted.

<https://catalog.yzu.edu/undergraduate/general-information/academic-policies-procedures/grading-system/>

Laboratory, CHEM 3720L: The laboratory schedule will be passed out during the first scheduled lab meeting.

Recitation Sections, CHEM 3720R: There are recitation sections for CHEM 3720. These sections are graded separately from the class. The purpose of the recitation section is discussion of CHEM 3720 material and approaches to problem solving. The Recitation Sections are required for chemistry majors, although, anyone is welcome to register for them.

Honors contracts: Option 1 – Contract Option Available Honors students may contract this course for honors credit. Notify your instructor of your interest to discuss options, complete required paperwork, and submit to instructor by the semester deadline.

Mandatory Statement of Non-Discrimination from the University:

Youngstown State University does not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender identity and/or expression, disability, age, religion or veteran/military status in its programs or activities. Please visit www.yzu.edu/ada-accessibility for contact information for persons designated to handle questions about this policy.”

Statement for students with disabilities:

In accordance with University procedures, if you have a documented disability and require accommodations to obtain equal access in this course; please contact me privately to discuss your specific needs. You must be registered with the Center for Student Progress Disability Services, located at located at Kilcawley Center – RM 2082, and provide a letter of accommodation to coordinate reasonable accommodations. You can reach CSP Disability Services at 330-941-1372.

Academic Integrity:

As outlined in The Student Code of Conduct, all forms of academic dishonesty are prohibited at Youngstown State. This includes plagiarism, the unauthorized use of tools or notes in taking tests or completing assignments, fabrication of data or information used for an assignment, working with others without permission from the instructor, and more. A student who is believed to have violated the academic integrity policy will meet with the instructor to discuss the allegations. The student may accept responsibility for the violation and any sanctions selected by the instructor, or they have the right to ask for a hearing before a hearing panel. The full Academic Integrity policy can be found in Article V of The Student Code of Conduct, while further information on University procedures for alleged academic integrity violations can be found in Article V.

YSU Mandatory COVID 19 STATEMENT

The following policy applies and shall be enforced during the current coronavirus pandemic as recognized by the State of Ohio. As a consequence of the current coronavirus pandemic, students are expected to abide by all safety and health policies implemented by the University's Office of Environmental Occupational Health and Safety as well as all applicable local, state, and federal mandates. Currently, the City of Youngstown and the State of Ohio mandates a face covering/mask in public spaces. Consistent with federal, state and local guidelines, University Health Guidelines require that all individuals within campus buildings, including students, properly wear face coverings except when working alone within an enclosed area. Face coverings are in addition to maintaining appropriate social distancing when possible. Exceptions to wearing a face covering in a classroom or laboratory must be for justifiable reasons as approved by the Office of Disability Services (<https://ysu.edu/center-for-student-progress/disability-services>). Repeated violations of any coronavirus safety and health policy shall be handled in accord with The Student Code of Conduct (<https://ysu.edu/student-conduct/code-conduct>).

Travel and Return to Campus:

Students, employees and others returning to Ohio after travel to states reporting positive COVID-19 test rates of 15 percent or higher must stay home and self-quarantine for 14 days. The list of hot spot states is available on the Ohio Department of Health website and is updated every Wednesday. It is the responsibility of the person traveling to determine upon their return if their destination is on the hot spot list. If you have traveled internationally, you must stay home and self-quarantine for 14 days.