



CHEM2440

Recitation for Organic Chemistry II

The University of Toledo

College of Natural Sciences and Mathematics

Department of Chemistry and Biochemistry

11115 - CHEM 2440 – 001; 11116 – CHEM 2440 – 003;

11117 – CHEM 2440 – 004; 11119 – CHEM 2440 – 007

TA/Instructor: Fenglang Wu

TA Email: Fenglang.Wu@rockets.utoledo.edu

Faculty Instructor: Dr. Emily Dzurka

Faculty Email: emily.dzurka@utoledo.edu

Instructor Phone: 419-530-4934

Instructor Office Location: WO2268B

Instructor Office Hours: Tues: 10 – 11 am &
Wed: 10 am – 12 pm (face-to-face)

Mon: 3 – 4 pm & Wed: 9 – 10 am (virtual)

Offered: Spring, 2022

Course Website: [Blackboard Learn](https://blackboard.utdl.edu/webapps/login/) or
<https://blackboard.utdl.edu/webapps/login/>

Class Day/Time:

001: 8:30-9:25am Thursday,
Memorial Field House 2620

003: 8:30-9:25am Thursday,
Memorial Field House 2620

004: 8:30-9:25am Thursday,
Memorial Field House 2620

007: 8:30-9:25am Thursday,
Memorial Field House 2620

Credit Hours: 1

CATALOG/COURSE DESCRIPTION

Recitation sections that discuss concepts and solve practice questions in CHEM2420.

COURSE OVERVIEW

In Organic Chemistry II Recitation, you will be improving your understanding of organic chemistry through practice problems and group discussion. This course is designed as a supplement to your lecture course to help you further grasp the material through problem solving and interaction with your fellow students. Attendance and participation will be documented in order to decide your receiving credit for this course.

PREREQUISITES AND COREQUISITES

Organic Chemistry II (CHEM 2420) is a corequisite for this course.

Prerequisites: CHEM 2410 with a minimum grade of C-.

TEXTS AND ANCILLARY MATERIALS

Required Materials: The same materials used in CHEM2420 will be used in this course. This includes:

- An electronic copy of the textbook, *Organic Chemistry: Structure and Function* (8th Edition) by Vollhardt and Schore. Published by W.H. Freeman/Macmillan, ISBN-10: 1-319-07945-8; ISBN-13: 978-1-319-07945-1;
- ACHIEVE online homework



TEACHING METHODOLOGY

Students will work in groups on the assigned problems from the textbook. This course is designed to stimulate students through active learning by participating in solving provided problems through a think, pair, share process. Discussion is highly encouraged.

TECHNOLOGY REQUIREMENTS

Access to a properly functioning computer with internet access in order to login to Blackboard (<https://blackboard.utdl.edu/webapps/login/>).

Updated versions of plug-ins, recent software and the necessary tools to be kept free of viruses and spyware. Updated software is available from UToledo's Online Learning Download center (<https://www.utoledo.edu/dl/main/downloads.html>).

COURSE EXPECTATIONS

Attend and participate in all recitation sections.

OVERVIEW OF COURSE GRADE ASSIGNMENT

The attendance will be taken in all classes during the semester. You will receive credit for this course if you miss the class no more than 3 times. Otherwise, you will receive no credit. STUDENTS MUST ACTIVELY PARTICIPATE to receive credit for each session.

Drop, Withdrawal and Incomplete Grades Course drop and withdrawal procedures have been set by the University. Dropped courses do not appear on your transcript. The deadline for dropping is February 1st. You may *withdraw* from the course and receive a grade of W. The deadline for withdrawal is March 25th. W's do not affect your GPA.

A course grade of **Incomplete** is given only to those who have completed all but a small percentage of course requirements for an acceptable reason. The **Incomplete** must be removed before you take organic chemistry.

Midterm Grading

Students will be notified of their up-to-date attendance record. Students with more than 3 absences will receive a grade of no credit.

Final Grading

Students who attend and participated in a minimum of 11 sessions will get credit for this course.

ACADEMIC POLICIES

Make-up sessions or work will not be given.

Undergraduate Policies: <http://www.utoledo.edu/policies/academic/undergraduate/>

Graduate Policies: <http://www.utoledo.edu/policies/academic/graduate/>

UNIVERSITY POLICIES

Institutional Classroom Attendance Policy

Please be aware that the university has implemented an attendance policy, which requires faculty to verify student participation in every class a student is registered at the start of each new semester/course. For this course, if you have not attended/participated in class (completed any course



activities or assignments) within the first 14 days, I am required by federal law to report you as not attended. Unfortunately, not attending/participating in class impacts your eligibility to receive financial aid, so it is VERY important that you attend class and complete course work in these first two weeks. Please contact me as soon as possible to discuss options and/or possible accommodations if you have any difficulty completing assignments within the first two weeks.

Policy Statement on Non-Discrimination on the Basis of Disability (ADA)

The University is an equal opportunity educational institution. Please read [The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance](#). Students can find this policy along with other university policies listed by audience on the [University Policy webpage](#) (<http://www.utoledo.edu/policies/audience.html/#students>).

Academic Accommodations

The University of Toledo embraces the inclusion of students with disabilities. We are committed to ensuring equal opportunity and seamless access for full participation in all courses. For students who have an accommodations memo from Office of Accessibility and Disability Resources, I invite you to correspond with me as soon as possible so that we can communicate confidentially about implementing accommodations in this course. For students who have not established affiliation with Office of Accessibility and Disability Resources and are experiencing disability access barriers or are interested in a referral to healthcare resources for a potential disability or would like information regarding eligibility for academic accommodations, please contact the [Office of Accessibility and Disability Resources Office](#) (<http://www.utoledo.edu/offices/student-disability-services/>) by calling 419.530.4981 or sending an email to StudentDisability@utoledo.edu.

ACADEMIC AND SUPPORT SERVICES

Please follow this link to view a comprehensive list of [Student Academic and Support Services](#) (<http://www.utoledo.edu/studentaffairs/departments.html>) available to you as a student

SAFETY AND HEALTH SERVICES FOR UT STUDENTS

Please use the following link to view a comprehensive list [Campus Health and Safety Services](#) available to you as a student.

INCLUSIVE CLASSROOM STATEMENT

In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, gender identity/expression, socioeconomic background, and a myriad of other social identities and life experiences. We will encourage and appreciate expressions of different ideas, opinions, and beliefs so that conversations and interactions that could potentially be divisive turn, instead, into opportunities for intellectual and personal development.

Course scheduling assistance: Chemistry Department Secretary, Ms. Samples, is in Room BO 2022, telephone 419-530-2698. If you have further questions or if you need assistance, please talk to her. She takes care of all scheduling changes.

Chemistry Help Center, Room BO 2043, is where the teaching assistants hold their office hours so it is a great place to receive assistance. It is generally open all day Monday through Friday & evenings Monday through Thursday. A schedule will be posted early in the term. No appointment is necessary.

Tutoring support for all UT students is available through the **Learning Enhancement Center** located in the Carlson Library.



Instructor Office Hours are times when you can stop by my office (no appointment needed) with questions about the course material, grades, and any concerns with the course. My office hour times and location are listed at the top of the syllabus. I will do my best to respond to email within 24 to 48 hours.

SAFETY AND HEALTH SERVICES FOR UT STUDENTS

Please use the following link to view a comprehensive list [Campus Health and Safety Services](#) available to you as a student

COURSE SCHEDULE

WEEK	DATES	TOPIC	LEARNING OUTCOMES (Listed p.8)
1	1/20	15: Benzene and Aromaticity	1-2
2	1/27	15: Benzene and Aromaticity 16: Electrophilic Attack on Derivatives of Benzene	1-3,5,6,12
3	2/3	16: Electrophilic Attack on Derivatives of Benzene 17: Aldehydes and Ketones	1,3-7,9
4	2/10	17: Aldehydes and Ketones	1,3,5-10,12
5	2/17	18: Enols, Enolates, and the Aldol Condensation	1,3-6
6	2/24	18: Enols, Enolates, and the Aldol Condensation 19: Carboxylic Acids	1,3-7,9
7	3/3	19: Carboxylic Acids 20: Carboxylic Acid Derivatives	1,3-7,9,12
3/7-3/11 Spring Break – No Classes			
8	3/17	20: Carboxylic Acid Derivatives 21: Amines and Their Derivatives	1,3-6,9,12
9	3/24	21: Amines and Their Derivatives	1,3-6,9
10	3/31	22: Chemistry of Benzene Substituents	1,3,5,6,9
11	4/7	23: Ester Enolates and the Claisen Condensation 25: Heterocycles	1,3,5,6,9,10
12	4/14	25: Heterocycles 10: Nuclear Magnetic Resonance (NMR)	1,3,5,6,9,11
13	4/21	10: Nuclear Magnetic Resonance (NMR) 11.8 – 11.10: IR Spectroscopy & Mass Spectrometry	1,11



WEEK	DATES	TOPIC	LEARNING OUTCOMES (Listed p.8)
14	4/28	11.8 – 11.10: IR Spectroscopy & Mass Spectrometry Review	1,11
Finals Week 5/2 – 5/6			

Chapter 15 – Benzene and Aromaticity

36(a-h), 38, 42(a-c), 47 – 49, 55, 56, 69-70

Chapter 16 – Electrophilic Attack on Derivatives of Benzene

30, 32 – 37, 40, 41, 43, 45, 57, 61, 64

Chapter 17 – Aldehydes and Ketones

27-28(a-e), 32-34, 36-37, 39, 48, 51, 55 and 56 (a-f,h,i), 57, 60, 68-69

Chapter 18 – Enols, Enolates, and the Aldol Condensation

32-33, 35, 37, 42-45, 47-52, 55(a-g)

Chapter 19 – Carboxylic Acids

27, 30, 33, 35-37, 40, 41, 45, 59-61

Chapter 20 – Carboxylic Acid Derivatives

30, 34, 36-37, 39-40, 42, 44, 45, 46(a-c), 49, 53, 68, 70, 71

Chapter 21 – Amines and their Derivatives

28, 35, 38(a-e), 39(a-b, d,g,h), 41, 43a, 44, 45, 63, 65, 66

Chapter 22 – Chemistry of Benzene Substituents

37-40, 42, 43(a,b), 46, 47, 53, 56, 57, 62, 68, 69(a-c), 76, 77

Chapter 23 – Ester Enolates and the Claisen Condensation

27, 28(a-g), 29, 30, 33, 37, 44, 53, 54

Chapter 25 – Heterocycles

31, 32(a,b), 35, 36a, 39(a-d), 40(a-c), 47, 53, 62, 63

Chapter 10 – Using NMR Spectroscopy to Deduce Structure

35, 37-39, 41-49, 58(a-c), 65-67

Chapter 11.8 – 11.10 – IR Spectroscopy and Mass Spectrometry

57, 59, 61-63,78



STUDENT LEARNING OUTCOMES Upon completion of this course, students will be able to:

1. Recognize chemical terminology specific to organic chemistry and describe and compare bonding in different types of organic substances.
2. Identify aromaticity by the criteria of structure, thermodynamics, molecular orbitals, and properties.
3. Predict the influence of functional groups on reactivity and the structure of products formed.
4. Identify acids and bases, predict pK_a , and apply pK_a to organic reactivity.
5. Explain fundamental chemical mechanisms, including reactions of ketones, aldehydes, carboxylic acids, carboxylic acid derivatives, benzene, benzene derivatives, and conjugated molecules.
6. Use curved arrow convention to convey organic reaction mechanisms.
7. Choose reaction products by comparing relative energies in the context of conformation and reaction coordinate diagrams.
8. Apply protecting groups in organic synthesis.
9. Develop multi-step synthesis to create complex molecules.
10. Predict product distributions of reactions based on kinetic and thermodynamic factors.
11. Predict the structure of organic molecules with use of proton NMR spectroscopy, carbon NMR spectroscopy, IR spectroscopy and mass spectrometry.
12. Identify and describe societal applications of organic chemistry.



SPECIAL COURSE EXPECTATIONS DURING COVID-19

Maintaining a safe campus during the ongoing COVID-19 pandemic remains a top priority. UToledo continues to follow the guidance of the U.S. Centers for Disease Control and Prevention and Ohio Department of Health to keep our campus safe.

ATTENDANCE

The University of Toledo has a missed class policy. It is important that students and instructors discuss attendance requirements for the course. Before coming to campus each day, students should take their temperature and complete a self-assessment for symptoms of COVID-19, such as cough, chills, fatigue or shortness of breath. Anyone with a temperature at or above 100.0 degrees Fahrenheit or who is experiencing symptoms consistent with COVID-19 should not come to campus and should contact their primary care physician or the Main Campus Health Center at 419.530.3451 or Health Science Campus Student Health and Wellness Center at 419.383.5000. For more information on the symptoms of COVID-19, please go to <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

COVID-19 testing for sick students is available on both Main Campus and Health Science Campus. Call 419.383.4545 for an appointment. Absences due to COVID-19 quarantine or isolation requirements **are** considered excused absences. Students should notify their instructors and follow the protocols summarized in this document on [Navigating COVID-Related Course Concerns](#).

In the event that you have tested positive for COVID-19 or have been diagnosed as a probable case, please review the [CDC guidance](#) on self-isolation and symptom monitoring, and report the disclosure to the Division of Student Affairs by emailing StudentAffairs@utoledo.edu or by connecting with their on-call representative at 419.343.9946. Disclosure is voluntary and will only be shared on a need to know basis with staff such as in the Office of Student Advocacy and Support, The Office of Residence Life, and/or the Office of Accessibility and Disability Resources to coordinate supportive measures and meet contact tracing requirements.

FACE COVERINGS

Face coverings are required while on campus, except while eating, alone in an enclosed space, or outdoors practicing social distancing. Students will not be permitted in class without a face covering. If you have a medical reason preventing you from wearing a face covering due to a health condition deemed high-risk by the CDC, submit an [online application](#) to request an accommodation through the Office of Accessibility and Disability Resources. Students will need to provide documentation that verifies their health condition or disability and supports the need for accommodations. Students already affiliated with the Office of Accessibility and Disability Resources who would like to request additional accommodations due to the impact of COVID-19, should contact their accessibility specialist to discuss their specific needs. You may connect with the office by calling 419.530.4981 or sending an email to StudentDisability@utoledo.edu.



VACCINATION

Doctors and other health care professionals agree that the best way to protect ourselves and each other is to get vaccinated. Case data clearly show that vaccines remain highly effective at preventing serious illness from COVID, including the highly contagious delta variant. If you have not yet received your COVID vaccine, the University encourages you do so as soon as possible. No appointment is needed to get the shot at the UTMC Outpatient Pharmacy, University Health Clinic or Main Campus Pharmacy. Once you receive the COVID vaccination, please register on the COVID Vaccine Registry site at:

<https://utvaccinereg.utoledo.edu/>.

SPECIAL NOTES

It's important to note, that based on the unpredictability of the COVID-19 virus, things can change at any time. So please be patient and understanding as we move through the semester. Please refer to <https://www.utoledo.edu/coronavirus/> on a regular basis for updates to current requirements or mandates. I also ask that you keep me informed of concerns you may have about class, completing course work/assignments timely and/or health concerns related to COVID.