

The University of Texas at Tyler  
**ORGANIC SYNTHESIS**  
**CHEM 5341.001**  
Fall 2023 Syllabus

• **INSTRUCTOR CONTACT INFORMATION AND OFFICE HOURS**

**Sean C. Butler, Ph.D.**

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*Best method of contact is email.*

**Office Hours:**

**MW** 10:00 – 11:30 am

**T** 1:30 – 3:30 pm

It is my policy to be available anytime I am at the University. Please stop by anytime you have questions, and I will do my best to assist you whenever possible. If I am unable to help you outside of office hours, we can set up a time that works.

• **COURSE MEETING TIMES**

<u>Day</u>	<u>Time</u>	<u>Location</u>
R	6:00 – 8:45pm	RBS 2019

• **PREREQUISITES**

- CHEM 3344 or instructor approval.

• **COURSE DESCRIPTION**

Application of organic reactions to the synthesis of complex organic molecules. Study includes synthesis design and methodology, scope and limitations of reactions, and experimental design.

• **CENSUS DATE AND LAST DAY TO WITHDRAW**

Deadline for all registrations, schedule changes, and section changes is **September 1, 2023**. Last day to withdraw is **October 30, 2023**.

- **COURSE GRADE**

Your course grade will be based on the following:

**Problem Sets (PROB) – 40%**

Four problem sets will be assigned so that you may have practice with the reactions and concepts we are covering in the course. These may consist of predict-the-product, predict-the-reactant, provide-the-reagents, provide-the-mechanism, explanatory/reasoning, and/or synthesis-type questions, etc.

**Literature Reports (LITR) – 35%**

Seven articles of relevance to this course will be distributed for you to read and analyze (see course schedule for dates). The first part of your literature report should be a one-page summary of the article and the second part should be a one-page summary (1.5 spacing with appropriately sized font face) of an article of your choice from the recent (2020–2023) organic literature (*J. Am. Chem. Soc.*; *J. Org. Chem.*; *Org. Lett.*; *Angew. Chem. Int. Ed.*; *Eur. J. Org. Chem.*; *Tetrahedron*; *Tet. Lett.*; etc.). Your description should discuss the problem, the results, and the significance/conclusions. Do not photocopy or copy-and-paste schemes and/or tables from the article into your summary as these should be redrawn/remade by you. Represent the conclusions in your own words. Reports must be typewritten and the original article you have chosen must be attached.

**Exams (EXAM) – 25%**

Two exams will be given in class. The exams will cover the material previously discussed in the course to that point. Course notes may be used during the exam, but no external internet sources may be accessed (other than Canvas).

**Grades will tentatively be based on the 90/80/70/60 scale but may be adjusted due to my evaluation of class as a whole.**

• **TENTATIVE LIST OF COURSE TOPICS AND IMPORTANT DATES (Subject to Adjustment)**

<b>Week</b>	<b>Date</b>	<b>Tentative Lecture Topics</b>	<b>Assigned</b>	<b>Due</b>
1	Aug. 24	Advanced Stereochemistry I	LITR-1 PROB-1	
2	Aug. 31	Advanced Stereochemistry II		LITR-1
3	Sept. 7	Conformational Analysis	LITR-2	
4	Sept. 14	Arrows in Organic Chemistry; Retrosynthetic Analysis; Intro. to Asymmetric Synthesis	PROB-2	LITR-2 PROB-2
5	Sept. 21	Kinetics and Thermodynamics; Reaction Mechanisms and Conformational Effects on Reactivity	LITR-3	
6	Sept. 28	Oxidation Reactions I		LITR-3
7	Oct. 5	Oxidation Reactions II	LITR-4	PROB-2
8	Oct. 12	EXAM-1		LITR-4
9	Oct. 19	Reduction Reactions	LITR-5 PROB-3	
10	Oct. 26	Enols & Enolates I		LITR-5
11	Nov. 2	Ring-Forming Reactions I	LITR-6	
12	Nov. 9	Ring-Forming Reactions II	PROB-4	LITR-6 PROB-3
13	Nov. 16	Olefin (Alkene) Synthesis	LITR-7	
14	Nov. 23	No Class – Thanksgiving Break		
15	Nov. 30	Selected Topics		LITR-7 PROB-4
16	Dec. 7	EXAM-2		

## • COURSE MATERIALS

**Textbook:** No required textbook. Notes will be made available on Canvas.

**Recommended Materials:** Molecular Modeling Kit

## • STUDENT LEARNING OUTCOMES

By the end of this course, you should:

1. Have a greater understanding of organic reactions and mechanisms.
2. Make reasonable chemical predictions about the reactivity of certain organic molecules based on conformation, stereochemistry and/or electronic reasons.
3. Be able to analyze a compound retrosynthetically and put together a method of synthesis using reactions from this course and the organic literature.
4. Read, analyze, and information from the organic literature in a way that other chemists may understand.

## • STUDENT ACADEMIC CONDUCT STATEMENT (*see also University Policies*)

In this course, students are encouraged to study and to prepare for exams with one another. ***However, during exams, students are to work alone. Cheating will not be tolerated.*** The University regulations are very explicit about academic misconduct, and these regulations will be fully enforced. ***During exams, a code of honor will apply under which students are to work alone and neither give help to others nor receive help from any sources.*** Students also are expected to help enforce this code. The minimum penalty for cheating will be a zero on the exam or assignment in question. **Maximum penalties, up to university expulsion, will be pursued in extreme or repeat cases.**

## • UT TYLER HONOR CODE

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

## • CONDUCT TOWARD OTHERS

As you know, this is a chemistry course. Chemists come from all walks of life (e.g. varying ethnicities, different religious beliefs, gender, etc.) and it is important as scientists to be able to work professionally with others in different environments. Under **no circumstances** will **any** derogatory remarks or actions toward race, gender, religion, or the like be tolerated in this course.

## • MOBILE DEVICE POLICY

The use of mobile devices is strictly prohibited unless consent is given in writing by the instructor. This includes: texting, photography, videography, voice recordings, searching/browsing the internet, listening to music, and things like these. These actions can lead to distractions so please be courteous to your fellow classmates by silencing and refraining from using your mobile devices during the allotted class-meeting time. You get out of class what you put into it – limit your distractions and you will be better off in the course.

## • UNIVERSITY POLICIES (also listed on Canvas with hyperlinks)

- **Withdrawing from Class** - Students are allowed to withdraw (drop) from a course through the University's Withdrawal Portal. Texas law prohibits students who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. The number includes courses dropped at other 2-year or 4-year Texas public colleges and universities. Make sure to consider the impact withdrawing from any course has on your academic progress as well as the financial implications. We encourage you to consult your advisor(s) and financial aid for additional guidance. CAUTION #1: Withdrawing before census day does not mean students receive a full refund. Please see the Tuition and Fee Refund Schedule. CAUTION #2: All international students must check with the Office of International Programs before withdrawing. All international students are required to enroll full-time for fall and spring terms.
- **Final Exam Policy:** Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members are required to maintain student final examination papers for a minimum of three months following the examination date.
- **Incomplete Grade Policy:** If a student, because of extenuating circumstances, is unable to complete course requirements by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in lieu of a grade only when all of the following conditions are met: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all course work or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor; and (c) the student presents these reasons prior to the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average for a student.

The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to complete the work for the course within the time limit, the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has not been assigned within one year, then the Incomplete will be changed to an F or to NC, if the course was initially taken under the CR/NC grading basis.

- **Grade Appeal Policy:** - UT Tyler's Grade Appeal policy requires the completion of a Grade Appeal form for this action to take place. The grade appeal begins with the instructor of the course. If a student does not agree with the decision of the instructor, the student may then move the appeal to the department chair/school director for that course. If the student is still dissatisfied with the decision of the chair/director, the appeal moves to the Dean of the College offering that course, who has the final decision. Grade appeals must be initiated within sixty (60) days from the date of receiving the final course grade. The Grade Appeal form is found on the Registrar's Form Library.
- **Disability/Accessibility Services:** In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA), The University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If a student has a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or a history of modifications or accommodations in a previous educational environment, the student is encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact the student when the application has been submitted and

schedule an appointment with the Assistant Director Student Accessibility and Resources/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.”

- **Military Affiliated Students:** UT Tyler honors the service and sacrifices of our military-affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with your faculty member if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make your faculty member aware of any complications as far in advance as possible. Your faculty member is willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. Campus resources for military-affiliated students are in the Military and Veterans Success Center (MVSC). The MVSC can be reached at [MVSC@uttyler.edu](mailto:MVSC@uttyler.edu) or via phone at 903.565.5972.
- **Academic Honesty and Academic Misconduct:** The UT Tyler community comes together to pledge that “Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.” Therefore, we enforce the Student Conduct and Discipline policy in the Student Manual of Operating Procedures (Section 8).
- **FERPA** - UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in University Policy 5.2.3. The course instructor will follow all requirements in protecting your confidential information.
- **Recording of Class Sessions:** Class sessions may be recorded by the instructor for use by students enrolled in the course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in the course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.
- **Absence for Official University Events or Activities:** All courses follow the practices related to approved absences as noted by the Student Manual of Operating Procedures (Sec. 1 -501).
- **Absence for Religious Holidays:** Students who anticipate being absent from class due to a religious holiday are requested to inform the instructor by the second class meeting of the semester.
- **Campus Carry:** We respect the right and privacy of students who are duly licensed to carry concealed weapons in all courses. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.