Chemistry 5640: Organic Synthetic Methods
Instructor: Prof. Hong Wang, hong.wang@unt.edu, 940-369-8238
Term: Spring, 2022
Start Date: Jan 18, 2022   End Date: May 13, 2022
Days: TuTh   Time: 11:00 am - 12:20 pm
Building: Gab  310
Office hour: Thursdays 2:00-3:00 pm or by appointment, Chemistry Building room 357

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation.

Course Description: This course is designed for graduate students in Organic Chemistry, Materials Chemistry and Chemical Biology. This course will focus on introducing fundamental methods used in organic synthesis with an emphasis on synthetic strategies and technologies to construct complex molecule. This course will also cover mechanistic understanding of the organic reactions and rationales for observed selectivity where it applies.


Course Objectives: Through this course, students are expected to: 1) gain a good knowledge of some important modern synthetic methods, relevant mechanisms and stereochemical implications; 2) be able to design synthetic routes for target molecules; 3) be able to identify and analyze synthetic problems, and provide a viable synthetic solution using the knowledge learned for known chemical transformations.

General References:

Note: these references are not reading assignments. They will be helpful in clarifying some lecture topics.

Course Outline:
1. Stereochemical considerations in planning synthesis
2. Retrosynthetic analysis: concepts and strategies.
3. Selected functional group transformation reactions
4. Protective functional groups
5. Functional group transformation reactions: formation of C-C single bonds
6. Functional group transformation reactions: formation of C-C double bonds
7. Synthesis of carbocycles and heterocycles

Requirements for CHEM 5640:
1) Oral presentations in groups (15%).
   Instructions for oral presentation: form a group of two people, choose a related recent research topic in organic synthesis, study background, evaluate their work, and present in class.
2) Two term-time exams (25% each).
3) Final exam (35%).
Homework problems will not be graded or collected, but will provide the background for tests and serve to stimulate student-led discussion.
Grading: A $\geq$ 85%, B $\geq$ 70%, C $\geq$ 50%. Plus/minus grades may be given in borderline cases.

Examination dates (tentative, subject to occasional schedule changes)

Midterm 1: Feb. 24, 2022
Midterm 2: April 5, 2022
Final: May 7, 2022 (take home exam)

Oral presentations will be at the end of the semester. Students will also be involved in the evaluation of oral presentation. Critiques will be provided to you in due course.

- Oral Presentation: May 5 (topic title due Apr. 23).

No class dates:

- March 14-18, Spring Break

COVID-19 IMPACT ON ATTENDANCE

While attendance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact Dr. Wang if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. It is important that you communicate with me prior to being absent so I may make a decision about accommodating your request to be excused from class. If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html), please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

UNT POLICIES

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester
and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

Emergency Notification & Procedures
UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Acceptable Student Behavior
Student behavior that interferes with an instructor’s ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

Student Evaluation Administration Dates
Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website (http://spot.unt.edu/) or email spot@unt.edu.

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)
The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

DISCLAIMER: The professors of this course reserve the right to alter at any time any of the information presented on this syllabus at his discretion.