Chemistry 5500
Physical Organic Chemistry
Fall, 2023
Start Date: August 21st, 2023  End Date: December 15th, 2023
Days: TuTH, Time: 1:30pm – 1:50 pm
Building: CHEM 253

COVID-19 is no longer a public health emergency, however, if you test positive for COVID, please check the guidelines at https://www.cdc.gov/coronavirus/2019-ncov/index.html

Course Outline: “Physical Organic Chemistry”


General References:
   Note: This reference is not a reading assignment. It will be helpful in clarifying and gaining better understanding of lecture topics.

Objectives: This course will be focused on the principles and techniques of modern physical organic chemistry and their applications in the elucidation of reaction mechanisms.

Homework problems
• Selected problems from Chapters 1–12 of the textbook will be assigned. These homework problems will not be graded or collected but will provide the background for tests and serve to stimulate student-led discussion. Please note, exams will draw heavily from these problems. Students are strongly encouraged to do them all. Some problems will be selected and discussed in class and students may be asked to share their answers with the rest of other students.
• Team Groups will be formed to create problem sets (2-3 questions) for each chapter based on literature papers or class materials. For each chapter, one group will be assigned to create the problem set and provide solutions to Hong Wang. These problem sets will be distributed to other groups. The other groups of students will submit their answers (as a group) to Dr. Wang. Missing one problem set will deduct 25 points from your total score. Please note that these problem sets will be discussed in class and one group will be asked to present their solutions to the problem sets.

Office Hr: Wednesday 2:00-3:00pm

Exams
1. Three 60-min exams in class (20% each, 60% total).
   These exams will cover the material presented in lecture and in the assigned reading.
   Tentative Dates: 09/14, 10/19, 11/16
2. Final exam will be a 2-hr long exam (25%).
   The final exam will cover materials in the whole semester.
   Date, 12/15 (10:30 am-12:30 pm) (tentative)
3. Homework problem sets created by students (8 problem sets total, 15% total)
Note: the exam dates are tentative and are subject to occasional schedule changes
Group 1: Cha 3, 6, 10; Group 2: Cha 4, 7, 11; Group 3, Cha 6, 9, 12

**Grading:** A ≥ 85%, B ≥ 70%, C ≥ 50%. Since this is a graduate course, students are expected to earn grades of A or B. A grade of C or less will only be given for an unsatisfactory performance.

**Topics to be covered**
1. Cha 3: Solution and Non-Covalent Binding Forces
2. Cha 4: Molecular Recognition and Supramolecular Chemistry
3. Cha 5: Acid-Base Chemistry
4. Cha 6: Stereochemistry
5. Cha 7: Energy Surfaces and Kinetic Analyses
6. Cha 9: Catalysis
9. Cha 12: Organotransition Metal Reaction Mechanisms and Catalysis

Note: Topics are tentative and are subject to occasional changes

**No class dates**
- September 4, Labor Day
- November 20-24, Thanksgiving break

**Academic Dishonesty:** [https://policy.unt.edu/policy/06-003](https://policy.unt.edu/policy/06-003)

**Drops:** [http://essc.unt.edu/registrar/schedule/scheduleclass.html](http://essc.unt.edu/registrar/schedule/scheduleclass.html)

**Students with Disabilities**
While there is no requirement that I should be notified of any disability, the university and I will make reasonable accommodations for persons with documented disabilities to provide equal access and opportunity following the university policy established under section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (1990). All disabilities will be kept strictly confidential between you and me/my graduate assistants. Students should register with the office of Disability Accommodation (ODA, Room 318A, Union, 565-4323; [http://www.unt.edu/oda](http://www.unt.edu/oda)) or with the Chemistry Department. Please notify me as soon as possible but no later than one week before you will require a special accommodation, so that appropriate arrangements can be made.

**How to Succeed in this Course**
Have good attitude to learn, actively participate class discussions, put efforts to do homework.