

CHEM 571: Structure and Mechanism in Organic Chemistry

(Section 001, 3 Credit Hrs)

Fall, 2014

“[Reasoning by analogy] has long been the organic chemist’s most important tool.”
– Andrew Streitwieser (*Molecular Orbital Theory for Organic Chemists*)

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Office Phone: 323-4933
Office Hours: M 2:30 – 4:30 pm

To contact me outside of these hours, please feel free to e-mail or call to make an appointment. I check my email and phone messages periodically throughout the day.

Lecture: WF 8:00 am – 9:15 pm in Sims 111.

Required Materials:

Anslyn and Dougherty, *Modern Physical Organic Chemistry*

Other Useful Materials:

Smith and March, *March’s Advanced Organic Chemistry*, 5th Ed.

Carey and Sundberg, *Advanced Organic Chemistry Part A: Structure and Mechanism*, 4th Ed.

Jorgensen and Salem, *The Organic Chemist’s Book of Orbitals*

Course Goals and Learning Outcomes: The goals of this course align with *University Level Competency (ULC) #1* – “Winthrop graduates think critically and solve problems” and *ULC #4* “Winthrop graduates communicate effectively.” After completion of this course, the student will

- Understand, apply, and explain hybrid valence bond/molecular orbital methods (VB/MOT) with respect to problems of organic compound structure and reactions
- Understand, apply, and explain advanced principles of stereochemistry with respect to the study of organic reactions
- Understand and explain conformational, steric, and stereoelectronic effects and their relationship to organic compound structure and reactions
- Understand, apply, and explain methods for the study and description of organic reaction mechanisms
- Understand and generate detailed mechanistic descriptions of various organic reactions

Class Attendance and Conduct: It is to your benefit to attend all class meetings for the full scheduled time without any disruptions. Therefore, cell phones, computers, cameras, and other devices not required for the class discussion cannot be used during class time. Food and drink are not allowed in the classroom. Students are expected to adhere to the Winthrop Student Conduct

Code as outlined in the Student Handbook:

(<http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf>)

Homework: Most Fridays, a problem set will be assigned. On the following Wednesday, each student will present to the class their answer to at least two (2) of the problems. Class participation in these presentations will count for 25% of the final grade.

Student Presentation: Each student will choose a paper from a list provided by the instructor and give a 15 – 20 minute presentation on that paper to the class. The assignment and list of papers are described on a separate handout. The presentation assignment is worth 25% of the final grade.

Exams: There will be one take-home mid-term exam and one comprehensive final exam; both are worth 25% of the final grade. **The final exam will be given on Monday, December 15, 2014 at 8:00 am.**

Grading: Presentation of Homework	25%
Student Presentation	25%
Mid-Term Exam	25%
Final Exam	25%
	100%

Final Course Grade: The formula for determining the final grade is as follows:

The +/- system will be used for "A," "B," and "C" grades, according to the following ranges:

A = 90 – 100%, A⁻ = 85 – 89.99%

B⁺ = 82 – 84.99%, B = 77 – 81.99%, B⁻ = 75 – 76.99%

C⁺ = 72 – 74.99%, C = 65 – 71.99%

D = 55 – 64.99%

F = < 55%.

Additional Requirements for Graduate Credit: Students receiving graduate credit (both non-degree seeking and those working toward a degree) will be required to complete a 5-7 page paper on a controversial topic related to physical organic chemistry. This paper must cite at least 7 primary literature sources and must be submitted by the end of the last class period (December 5, 2014). Additionally, graduate students should be aware that Winthrop's +/- grading system is not applicable to courses taken for graduate credit.

Students with Disabilities: Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact Services for Students with Disabilities, at 323-3290. Once you have your official notice of accommodations from Services for Students with Disabilities, please inform me as early as possible in the semester.

Changes to Syllabus: Any changes to the syllabus or course schedule will be announced in class.