CHEM 542 Advanced Organic Chemistry
Fall 2017

Instructors:
Dr. Rob Ronald, Fulmer 415A, 509-335-3364, rwr@wsu.edu
Dr. Amy Nielsen, Fulmer 313, 335-1923, amy.nielsen@wsu.edu

Class Meeting: MWF 10:10-11:00 PM, Fulmer 432

Required Textbooks:
Organic Reaction Mechanisms, an Introduction, Breslow, R., W. A. Benjamin Inc., New York Amsterdam 1965
The Art of Writing Reasonable Reaction Mechanisms, Grossman, R. B., Springer-Verlag New York
2003 (ISBN: 978-0-387-95468-4).

Course Description: This course is designed to provide students with foundational knowledge of advanced organic chemistry and prepare students for more advanced coursework and research needs. The course is taught as both lecture and problem solving/special topics. Graded quizzes will be given regularly at the discretion of the instructors. When possible, relevant papers from the literature will be used to illustrate specific concepts.

Course Objective:
To provide advanced undergraduates and first-year graduate students with a working knowledge of graduate level organic chemistry

Learning Outcomes

1. Describe chemical reactivity in terms of organic functional group chemistry, including functional group transformation.
2. Interpret structural changes within a chemical framework considering bond making and bond breaking.
3. Propose reasonable mechanisms that convert starting materials to product, including both polar and radical pathways.
4. Interpret stereochemical data that informs a mechanistic hypothesis.
5. Plan an organic synthesis using a retrosynthetic approach based on known chemical reactions.

Grading Scheme: This course will be graded on the basis of the two halves of the course, each with 1 exam, with the second exam weighted more heavily. Your grade will be based on the combination of quizzes (50%) and 2 exams (50%). Homework and/or recommended problems are a non-graded element of this class. However, the quizzes will sometimes cover material from the homework/recommended assignments, so students are VERY STRONGLY encouraged to complete the homework in a timely manner in order to prepare for the quizzes. The scores on the quizzes and exams will be used to assign letter grades based on the following scale:

A	90-100	B	80-83	C	70-73	D	60-63
A-	87-89	B-	77-79	C-	67-69	F	<60
B+	84-86	C+	74-76	D+	64-66		

Tentative Lecture Schedule

Week 1-2: Review of O. Chem., Week 1 - Prof. Ronald, Week 2 - Prof. Nielsen

Week 3: (Sept. 4-8) No class on M Nomenclature - Prof. Ronald

Week 4: (Sept. 11-15) Orbitals and Bonding - Prof. Nielsen

Week 5: (Sept. 18-22) Conformational Analysis - Prof. Ronald

Week 6: (Sept. 25-29) Reaction mechanisms and Basic Kinetics - Prof. Nielsen

Week 7: (Oct. -2-6) Reaction mechanisms and Basic Kinetics - Prof. Nielsen

Week 8: (Oct. 9-13) Aromatic Substitution Reactions - Prof. Ronald

Week 9: (Oct. 16-20) Aromatic Substitution Reactions - Prof. Ronald

EXAM 1

Week 10: (Oct. 23-27) Free Radical Reactions - Prof. Nielsen

Week 11: (Oct. 30-Nov. 3) Free Radical Reactions - Prof. Nielsen

Week 12: (Nov. 6-10) No class on F Carbonyl Reactions - Prof. Ronald

Week 13: (Nov. 13-17) Carbonyl Reactions - Prof. Ronald

Week 14: Thanksgiving Break

Week 15: (Nov. 26 – Dec. 1) Pericyclic Reactions - Prof. Nielsen

Week 16: (Dec. 4-6) Pericyclic Reactions - Prof. Nielsen

EXAM 2

Students with Disabilities:

Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

Academic Integrity:

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions: http://conduct.wsu.edu/default.asp?PageID=338

Safety Statement:

The following websites detail the WSU Safety policy and plan. The content of these sites will be discussed on the first day of the term

- http://safetyplan.wsu.edu
- http://alert.wsu.edu
- http://oem.wsu.edu