

CHEM 4430/6430 Advanced Synthesis and Mechanistic Organic Chemistry
Spring 2012
Monday/Wednesday 3 PM-4:30 PM; Petit Science Center 303

Instructors: Professor Hao Xu: hxu@gsu.edu office hour: immediately after the lecture
Professor Zhen Huang: huang@gsu.edu (office hour: immediately after the lecture)

Textbook and Course Materials:

Advanced Organic Chemistry, 4th Edition, Part B; Carey and Sundberg
Myers Organic Synthesis Note: to be distributed

Course Content: Various advanced synthetic organic chemistry topics will be covered, including modern oxidation, reduction methods, protective group, modern enolate chemistry, metallation reactions, modern olefin synthesis, and synthetic plan and strategy of complex molecules.

Tentative Syllabus:

Week 1 (January 9): HX: Oxidation Reactions 1: Alcohol Oxidation

Week 2: HX: Oxidation Reactions 2

Week 3: HX: Reduction Methods and Birch Reduction

Week 4: HX: Protecting Group

Week 5: (February 6): HX: Enolate Chemistry 1

Week 6: HX: Enolate Chemistry 2

Week 7: HX: Olefin Synthesis 1 and Midterm (February 22)

Week 8: Spring Break

Week 9 (March 5): ZH: Chemical Synthesis of Nucleic Acids (DNA and RNA)

Week 10: ZH: Biochemical and Biological Synthesis of Nucleic Acids

Week 11: ZH: Nucleic Acid Modification and Therapeutic Applications

Week 12 (March 26): HX: Olefin Synthesis 2

Week 13 (April 2): HX: Transition Metal Chemistry 1

Week 14: HX: Transition Metal Chemistry 2

Week 15: ZH: Chemical Synthesis Strategies

Week 16: ZH: Chemical Synthesis

Week 17 (April 30) Final Exam

Proposed Grading:

Final grade: 70% grade by Professor Xu and 30% grade by Professor Huang

Grading by Professor Xu: total 300 points

1. 10 weekly problem sets: 100 points
2. 10 weekly quiz: 100 points
3. midterm: 50 points
4. assignment of analysis of a recent total synthesis: 50 points

Grading by Professor Huang:

Tentative Cutoffs

A+ \geq 95%; A \geq 90%; A- \geq 88%; B+ \geq 84%; B \geq 79%;

B- \geq 76%; C+ \geq 70%; C \geq 69%; C- \geq 65%

