

Timothy J. Hagen Ph.D.
Chemistry 431/631
Organic Synthesis
Time: Tu, Th 6:00 - 7:15 PM
Room: Faraday West 201
Fall 2009
Office Address: FR 338
Phone: (815) 753-1131 and (630) 783-4631
Office Hours: Tu, Th 7:15 – 8:00 PM or appointment
email: thagen@niu.edu

Course Description: This course will focus on synthetic transformations of importance in modern organic synthesis. Reactions and reagents will also be discussed from the perspective of multistep synthesis.

Evaluation: Exams (70%), Homework (15%), Literature Project (15%),

Required text: Advanced Organic Chemistry Part B: Reactions and Synthesis, 5th edition, F.A. Carey and R.J. Sundberg, Springer, 2007.

Exams: There will be three exams worth 100 points each. The exams will cover recently presented material. Exam 1 will be given on September 17, exam 2 will be given on October 15, and Exam 3 will be given December 6.

Optional review sessions: Review sessions will be held prior to each exam. This is an opportunity to go over problems and ask questions. Pizza and refreshments will be provided.

Homework: There will be several problem sets that will be collected. Answers will be reviewed in class.

Literature project: The project with rubric will be distributed in October. You will find total synthesis article from the recent literature, summarize with a paper, and brief in class presentation. Each paper/presentation will consist of a brief introduction, summary of the retro-synthetic analysis and strategy, overview of the synthesis and conclusions. One class period will be reserved for the presentations. Pizza and refreshments will be provided.

Attendance and participation: Attendance will be taken each class. Class participation and in class discussion are strongly encouraged.

Tentative course outline
Organic Synthesis (431 / 631)
Fall 2009
Timothy J. Hagen Ph.D.

Week / date	Topics
1,2	Chapter 1: Alkylation of enolates and other carbon nucleophiles
2,3	Chapter 2: Reaction of carbon nucleophiles with carbonyl compounds
9/17/09	Exam 1
4	Chapter 3: Functional group interconversion
5	Chapter 4: Electrophilic additions to carbon-carbon multiple bonds
6	Chapter 5: Reductions
7	Chapter 6: Concerted cycloadditions, rearrangements and thermal eliminations
8	Chapter 7: Organometallic compounds of group I and II metals
10/15/09	Exam 2
9	Chapter 8: Reactions involving transition metals
10	Chapter 9: Carbon – carbon bond forming reactions of compounds of boron, silicon and tin
11	Chapter 10: Reactions involving carbocations, carbenes and radicals as reactive intermediates
12	Chapter 11: Aromatic substitution reactions
13	Chapter 12: Oxidations
14,15	Chapter 13: Multistep synthesis
12/3/09	Exam 3
12/8/09	Literature project presentations