

Chemistry 727. Special Topics in Organic Chemistry: Asymmetric Synthesis

Fall 2006

Instructor: Dr. Rodrigo B. Andrade
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Office Hours: by appointment or just come by my office

Text (recommended not required): *Principles and Applications of Asymmetric Synthesis*

Authors: Guo-Qiang Lin, Yue-Ming Li, Albert S. C. Chan

Publisher: Wiley-Interscience, New York (2001)

Course Requirements: 2 exams (60%), quizzes (10%), 1 final paper (30%)

Course Description: The course is designed to introduce and familiarize the student with the principles and applications of asymmetric synthesis. The course will survey a variety of asymmetric chemical transformations (C-C bond formation, oxidation, reduction) as they pertain to organic synthesis (academic and industrial).

Course Schedule (Tentative):

Aug. 28	Lecture 1: Review of Stereochemistry. Introduction to Asymmetric Synthesis (pp. 1-13;16-32;40-64)
Sept. 4	No Lecture (Labor Day)
Sept. 11	Lecture 2: α -Substitution of Carbonyl Compounds (pp. 71-103)
Sept. 18	Lecture 3: Aldol (pp. 135-167)
Sept. 25	Lecture 4: Allylation/Crotylation (pp. 167-179)
Oct. 2	Lecture 5: Conjugate Additions
Oct. 9	Exam 1
Oct. 16	Lecture 6: Oxidation (Chapter 4)
Oct. 23	Lecture 7: Oxidation Continued; Hydroboration
Oct. 30	Lecture 8: Diels-Alder & Cyclopropanation (pp. 267-306; 313-319)
Nov. 6	Lecture 9: Hydrogenation and C=O Reduction (pp. 331-372)
Nov. 13	Lecture 10: Enantioselective Additions to C=O (pp. 107-123) and Additions to C=N (pp. 181-186, 373-377)
Nov. 20	EXAM 2
Nov. 27	Lecture 12: Olefination/Metathesis
Dec. 4	Lecture 13: Enzymatic Reactions (Read pp. 451-458)
Dec. 11	FINAL (Present Paper to Class)