

CHEMISTRY 144
M. E. Jung Fall 2005
Tu/Th 10am 4216 Young Hall

Practical and Theoretical Introductory Organic Synthesis

This course is divided into two parts: an 8-hour/week laboratory and a 2-hour/week lecture. The grading of the course will be evenly divided between the two sections of the course. The laboratory grade will be derived from a final report at quarter's end (written in the style of a research publication) on the projects investigated during the quarter, the amount and type of research accomplished, and the evaluation of your laboratory proficiency by the Teaching Assistant.

The lecture grade will be derived from a mid-term examination on Thursday, November 10th, and the final examination on Friday, December 16th (3-6 pm). Problem sets will be assigned at various intervals during the quarter to help you determine your progress. On exams, students will be required to propose syntheses of many compounds, including complex natural products, and will be graded on the soundness, originality, and probable success of these proposals.

REQUIRED TEXT: None

OTHER BOOKS ON SYNTHESIS

- 1) "Organic Synthesis" by Smith
- 2) "Modern Organic Synthesis: Lecture Notes" by Boger
- 2) "Organic Synthesis: The Disconnection Approach" by Warren
- 3) "Modern Synthetic Reactions" by House
- 4) "The Logic of Chemical Synthesis" by Corey and Cheng
- 5) "Stereoselective Synthesis" (2nd Ed.) by N6grádi
- 6) "Organic Synthesis" (2nd Ed.) by Fuhrhop and Penzlin
- 7) "Synthetic Approaches in Organic Chemistry" by Bansal
- 8) "Strategies and Tactics in Organic Synthesis" by Lindberg (ed.) (3 volumes)
- 9) "Total Synthesis of Natural Products: The Chiron Approach," by Hanessian
- 10) "Protective Groups in Organic Synthesis" (3rd Ed.) by Wuts and Greene
- 11) "Organic Synthesis" by Ireland
- 12) "Stereolectronic Effects in Organic Chemistry" by Deslongchamps
- 13) "The Total Synthesis of Natural Products" by ApSimon (ed.) (9 volumes)
- 14) "Some Modern Methods of Organic Synthesis" (3rd Ed.) by Carruthers
- 15) "Reactions of Organic Compounds" by Hickinbottom
- 16) "Organic Chemistry of Drug Synthesis" by Lednicer and Mitscher (6 volumes)
- 17) "Selected Organic Syntheses" by Fleming
- 18) "Carbanions in Organic Synthesis" by Stowell
- 19) "Stereoselectivity in Organic Synthesis" by Procter
- 20) "Organic Synthesis: Theory and Applications" (Vol. 5) by Hudlicky
- 21) "Classics in Total Synthesis," Nicolou and Sorenson, Eds.
- 22) "Advanced Organic Chemistry" by Carey and Sundberg

OTHER REFERENCE TEXTS

- 1) "Comprehensive Organic Transformations" by Larock (2nd Ed.)
- 2) "Comprehensive Organic Synthesis," (9 volumes) many authors (Pergamon Press)
- 3) "Compendium of Organic Synthetic Methods" various authors (7 volumes)
- 4) "Reagents for Organic Synthesis" by Fieser and Fieser (17 volumes and counting)
- 5) "Organic Reactions" and "Organic Syntheses"
- 6) "Asymmetric Synthesis" by Morrison (5 volumes)
- 7) "Advanced Organic Chemistry" (4th edition) by March
- 8) "Survey of Organic Syntheses" by Buehler and Pearson (2 volumes)
- 9) "Synthetic Methods of Organic Chemistry" by Theilheimer

- 10) "Name Reactions & Reagents in Organic Synthesis" by Mundy and Ellerd
- 11) "Annual Reports in Organic Synthesis" by various authors and others (annual)
- 12) "Stereochemistry of Organic Compounds," by Eliel
- 13) "Encyclopedia of Reagents for Organic Synthesis," by Paquette (ed.) (8 volumes)

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The following schedule for covering material in the course will be followed - more or less - throughout the quarter.

<u>WEEK</u>	<u>DATES</u>	<u>SUBJECT</u>
1	9/29	General & Reduction
2	10/4 10/6	Reduction & Oxidation
3	10/11 10/13	Oxidation
4	10/18 10/20	C-C Bond Formation: Alkylation
5	10/25 10/27	Alkylation & Condensation
6	11/1 11/3	Condensation & Alkenylation
7	11/8 11/10	Cycloadditions & HOUR EXAM
8	11/15 11/17	Organometallics & Cycloadditions
9	11/22 11/24	Protecting Groups & Thanksgiving
10	11/29 12/1	Protecting Groups/Rearrangements
11	12/6 12/8	Rearrangements & Catch-up

Final Exam Friday, December 16th: 3:00 - 6:00 pm