

Chemistry 6226

Advanced Synthetic Organic Chemistry

Spring 2023

Instructor: Daniel Seidel, SFH 406-G, 352-294-7991, seidel@chem.ufl.edu

Lectures: Mondays, Wednesdays, and Fridays 12:50 – 1:40 p.m.

In person, Flint 109

Office Hours: By appointment as needed

Required Texts: *Classics in Stereoselective Synthesis*
by Erick M. Carreira and Lisbet Kvaerno ISBN 9783527299669

Advanced Organic Chemistry, Part B: Reactions and Synthesis, 5th Ed.

by Francis A. Carey and Richard J. Sundberg, ISBN 9780387683546

Available for free to UF students as an eBook:

<https://link.springer.com/book/10.1007%2F978-0-387-71481-3>

Reference Texts: *Strategic Applications of Named Reactions in Organic Synthesis*
by László Kürti and Barbara Czako

Modern Organic Synthesis, An Introduction, 2nd Edition

by George Zweifel, Michael Nantz, and Peter Somfai

Modern Methods of Organic Synthesis, 4th Edition

by William Carruthers and Iain Coldham

Modern Organic Synthesis

Dale L. Boger, TSRI press

Organic Synthesis, The Disconnection Approach

by Stuart Warren and Paul Wyatt

Organic Synthesis, Strategy and Control

by Paul Wyatt and Stuart Warren

Encyclopedia of Reagents for Organic Synthesis

Available in the Science Library Reference Section and online

Comprehensive Asymmetric Catalysis

by Jacobsen, Pfaltz, and Yamamoto eds.

Course Objective and Content: This course is intended to provide an overview of synthetic organic chemistry with an emphasis on carbon-carbon bond forming reactions. Understanding issues of chemo-, regio-, and stereoselectivity are central to developing synthetic strategies and therefore will be highlighted throughout. Portions of the course material were adopted from the classic Chem 206 course by Professor David A. Evans of Harvard University. The course consists of lectures and practice problems taken from the current literature when possible.

Tentative Course Outline:

1. Functional Group Interconversion

- Oxidation
- Reduction
- Protecting Groups
- Alkene Functionalization
- Miscellaneous

2. Structure and Reactivity

- Stereoelectronic Effects
- Conformational Analysis
- Acid-Base Properties

3. C-C and C-X Bond Forming Reactions

- Pericyclic Reactions
- Cycloaddition Reactions
- Enolates, formation/alkylation/aldol reactions
- Acyclic Stereocontrol
- Olefination
- Carbocations
- Carbenes
- Cross-coupling
- Intro Asymmetric Organocatalysis
- Intro Photoredox Chemistry

Grading:

Exam 1.....	100 pts
Exam 2.....	100 pts
Exam 3.....	100 pts
Homework	100 pts

Exam Dates:

Exam 1.....	February 13, 2023
Exam 2.....	March 22, 2023
Exam 3.....	April 26, 2023

Exams are scheduled 7:30–9:30 pm in SFH 221

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Information on current UF grading policies for assigning grade points:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>

Regrade requests must occur within 1 week of when the exam is returned. Note that grading for the entire exam will be checked for accuracy.

Grade disputes must be submitted within 3 weeks of the end of the semester.

Please note that you may not share any of the course materials with anyone.

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Monday	Wednesday	Friday
1/9-	1/11-	1/13-
1/16- No Class	1/18-	1/20-
1/23-	1/25-	1/27-
1/30-	2/1-	2/3-
2/6-	2/8-	2/10-
2/13- Exam 1	2/15-	2/17-
2/20-	2/22-	2/24-
2/27-	3/1-	3/3-
3/6-	3/8-	3/10-
3/13- No Class	3/15- No Class	3/17- No Class
3/20-	3/22- Exam 2	3/24-
3/27-	3/29-	3/31-
4/3-	4/5-	4/7-
4/10-	4/12-	4/14-
4/17-	4/19-	4/21-
4/24-	4/26- Exam 3	