

# Chemistry 366: Topics in Organic Synthesis

Fall 2025

WF 1:00-2:15 PM SCCT G042

<b>Instructor</b>	Ian J. Rosenstein, Science Center 1074
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<b>Office Hours</b>	Mondays 2-4 PM, Tuesdays 2-4 PM, Wednesdays 2:30-4:30 PM and by appointment
<b>Grading</b>	Exams 40% Problem Sets: 30% Participation: 30%
<b>Textbook</b>	There is no required textbook for this class. Readings will be taken primarily from the primary literature and copies of papers will be posted on Blackboard. You may find it helpful to consult <i>Advanced Organic Chemistry</i> , Part B by Carey and Sundberg, a textbook, available electronically through the <a href="#">library</a> .

## Course Goals

Organic synthesis is a huge topic, much too big to be covered comprehensively in a single half-credit course. The goal of this course, then, is to give you an appreciation of the scope and power of organic synthesis and to give you the tools to continue to expand your knowledge of the field after completion of the course. More specifically, by completing this course you should:

- Expand your knowledge of methods that are used in modern organic synthesis
- Gain an appreciation for the complexities of organic synthesis and the creativity that is possible in designing synthetic routes
- Develop a detailed understanding of how stereochemistry can be controlled in a few example reactions as models for broader understanding of strategies for stereochemical control
- Become more confident and skilled at reading and interpreting papers from the primary chemical literature
- Gain confidence in learning independently about new reactions

## Exams

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There will be two exams, the first due on Wednesday September 17<sup>th</sup> and the second due on Wednesday October 22nd. The exams will be open-book, with limits on the sources outside of direct class material that can be consulted. Exams will be take-home and you will have at least a week to complete each exam.

## Problem Sets and In-Class Problems

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There will be two problem sets, the first due on Wednesday September 10<sup>th</sup> and the second due on Friday October 3<sup>rd</sup>. Collaboration will be allowed on the problem sets but I encourage you to do as much of the work on your own.

## In-Class Paper Discussions

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To give you some experience reading and interpreting synthetic papers, we will read and discuss as a group four papers. The dates for these are provided in the schedule below and the papers themselves will be available on Blackboard. You are expected to read these papers carefully before class and work to understand the reactions involved. This may require that you consult the references provided in the papers or that you find additional outside sources. In addition, you will each be assigned to research and present at the board the details of a reaction from one of the papers. More details will be provided in class.

## Approximate Schedule

<u>Date</u>	<u>Topic</u>
Friday 8/29	Transition Metal-Catalyzed Reactions
Wednesday 9/3	Transition Metal-Catalyzed Reactions
Friday 9/5	Paper Discussion 1 Transition Metal-Catalyzed Reactions
Wednesday 9/10	Transition Metal-Catalyzed Reactions <i>Problem Set 1 due</i>
Friday 9/12	Stereoselective Aldol Reactions
Wednesday 9/17	Stereoselective Aldol Reactions <i>Exam 1 due</i>
Friday 9/19	Stereoselective Aldol Reactions
Wednesday 9/24	Stereoselective Aldol Reactions Paper Discussion 2

Friday 9/26	Stereoselective Aldol Reactions
Wednesday 10/1	Paper Discussion 3 Stereoselective Aldol Reactions
Friday 10/3	Pericyclic Reactions <i>Problem Set 2 due</i>
Wednesday 10/8	Pericyclic Reactions
Friday 10/10	Paper Discussion 4 Pericyclic Reactions
Wednesday 10/15	Pericyclic Reactions
Wednesday 10/22	<i>Exam 2 due</i>