



WISCONSIN

UNIVERSITY OF WISCONSIN-MADISON

COURSE SYLLABUS

Chemistry 841: Advanced Organic Chemistry – Organic Synthesis, Spring 2018 (3 credits)

Meeting Time and Location: MWF 11:00–11:50 am, Room 1315 Chemistry

Instructional Mode:

- Part 1 (Yoon): Three 50-minute face-to-face lecture periods per week; one problem set per week (ca. 3–5 hours)
- Part 2 (Burke): Three or two 50-minute face-to-face lecture periods per week; group presentations on some Fridays (ca. 3-5 hours)

Canvas Course URL: <https://canvas.wisc.edu/courses/76307>

Official Course Description: Synthesis of simple and complex organic compounds.

Course Designations, Prerequisites, and Attributes:

- Chem 641, or permission of the instructor
- Requires graduate or professional standing, or permission of the instructor
- Counts towards 50% graduate coursework requirement

Instructors:

Prof. Tehshik Yoon (Part 1: January 24 – March 9)
Office Hours: Monday, 2–4pm, 5317 Chemistry, or by appointment
Email: tyoon@chem.wisc.edu

Prof. Steve Burke (Part 2: March 12 – May 4)
Office Hours: Monday, 2–4pm, 8132 Chemistry, or by appointment
Email: burke@chem.wisc.edu

There is no TA for this course

Course Learning Outcomes:

This course will prepare students to:

- Understand and properly use the concepts, models, and terminology common in contemporary organic synthesis;
- Use retrosynthetic logic in planning synthetic routes;
- Plan logical, stereocontrolled syntheses of complex polyketide-type structures;
- Develop understanding and utility of major catalytic organometallic synthetic methods;

- Develop understanding and utility of pericyclic reactions, including cycloadditions, sigmatropic rearrangements, and electrocyclic reactions;
- Develop understanding and utility of organocatalytic and biocatalytic reactions;
- Develop skills to survey, compile, and present assigned topics of current interest in synthetic organic chemistry as a group exercise.

Grading:

Scores for Part 1 (Yoon) will be determined as follows:

Problem Sets (6 x 25 points)	150 points
Midterm Examination	100 points
Participation (2 pts ea)	20 points
<i>Total</i>	270 points

- Problem Sets will be assigned and collected weekly in class during Part 1. These are open-note, and collaboration is encouraged. Looking up solutions by using online databases such as Reaxys and SciFinder, however, defeats the purpose of the problem sets and is off-limits.
- The midterm exam for Part 1 will be given during a two-hour block outside of normal class hours (tentatively, late afternoon on Friday March 9).
- A maximum of 20 participation points will be awarded to incentivize asking and answering questions in class.

Scores for Part 2 (Burke) will be determined as follows:

Powerpoint presentations	120 points
2 nd Midterm Examination	150 points
<i>Total</i>	270 points

Texts and Other Course Materials:

There is no required textbook. Readings and other supplementary material will be posted on Learn@UW.

The following books are excellent references for background reading.

Loudon, *Organic Chemistry* (textbook for Chem 345)
 Carey and Sundberg, *Advanced Organic Chemistry*, Part B
 March, *Advanced Organic Chemistry*
 Nicolaou and Sorensen, *Classics in Total Synthesis*
 Kurti, *Strategic Applications of Named Reactions in Organic Synthesis*