WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

COURSE SYLLABUS

Chemistry 841: Advanced Organic Chemistry – Organic Synthesis, Spring 2019 (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)

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 23 – March 11)
Office Hours: Monday, 2–4pm, 5317 Chemistry, or by appointment
Email: tyoon@chem.wisc.edu

Prof. Steve Burke (Part 2: March 13 – May 3)
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 analysis to plan logical, stereocontrolled syntheses of complex organic structures;
- Rationalize and predict the stereochemical outcome of common organic reactions using three-dimensional transition state models;
- Develop understanding and utility of major catalytic organometallic synthetic methods;

- Develop understanding and utility of pericyclic reactions, inclucing 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
Total	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 Monday March 11).

• 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
2nd Midterm Examination	150 points
Total	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*