Chemistry 5326 Syllabus

Organic Reactions

Lecture: T/Th 8:00 – 9:15 am, C139 Pomerantz Center

Office Hours: By appointment (E557 CB, 5-3805, chris-pigge@uiowa.edu)


Other Useful References:


“Organotransition Metal Chemistry” by Hartwig, University Science Books, 2010 (Sciences Library course reserve FOLIO QD411.8.T73).

Course Administration

Handouts and other important information will be described in class and made available through ICON.

Course Description

This course will examine a variety of organic transformations (and their mechanisms) typically utilized in organic synthesis. Methods used for achieving control of stereochemistry (asymmetric synthesis) will be emphasized. This is a graduate-level course and it is expected that students enrolled in this course already have a firm grasp of fundamental aspects of organic chemistry. Should this not be the case, it is expected that you will take it upon yourself to review appropriate materials (such as introductory organic chemistry or intermediate organic chemistry texts) to correct any deficiencies.

Your performance in this class will be evaluated on the basis of two (2) mid-term examinations, one (1) in-class presentation (~30 minutes) with an accompanying extended abstract, weekly problem sets/participation in class discussion. Presentation topics will be assigned shortly after the beginning of the semester. Aside from problem sets there will be no homework assignments, however, I recommend that you complete the problems at the end of each chapter in Carey & Sundberg. For convenience the course is loosely organized around the content of the text (Carey & Sundberg, Part B), and a tentative lecture schedule appears below. Note that the text serves as a reference and a means of organizing the material, but information not contained in the text will also be included in lectures. PowerPoint slides will be provided.
Tentative Lecture Topics

Organometallic Chemistry (Chapters 7-9)
Reductions (Chapter 5)
Oxidations (Chapter 12)
Enolates and Enamines (Chapter 1 and part of Chapter 8)
Reactions of C-Nucleophiles with Carbonyl Groups (Chapter 2 and parts of Chapters 7 and 9)
Organocatalysis
Electrophilic Additions to C-C Multiple Bonds (Chapter 4)
Cycloadditions and Rearrangements (Chapter 6)
Functional Group Interconversion (Chapter 3)

Mid-Term Exam Schedule

The two mid-term exams will be administered on Saturday morning from 9:00 am – 1:00 pm. The dates for the exams are Saturday March 5th and Saturday April 30th. Please reserve these dates on your calendar. There will be no make-up examinations.

In-Class Presentations

The topics for these presentations will be assigned. You will be expected to prepare a ~30 minute oral presentation on your assigned topic using PowerPoint slides. In addition, you will be required to distribute a written extended abstract of your talk which summarizes and illustrates the main points and includes the most important literature references. The format for the extended abstract will be discussed in class. The presentations will be scheduled for the last 2-3 class periods and for the date and time slot allotted for the final exam.

Weekly Problem Sets

Problem sets will consist of two or three questions in which you are asked to provide products, reaction conditions, and/or mechanisms encountered in transformations taken from the chemical literature. Problem sets will be posted on ICON on Tuesdays and should be handed in to me no later than noon (12:00 pm) the Friday of the following week. You may work together to complete these problems and you may consult the textbook, other reference sources, and the chemical literature. However, under no circumstances should you attempt to locate the primary literature reference from which the problem is taken.

Final Grade

30% Midterm 1, 30% Midterm 2, 25% In-class presentation, 15% Weekly problem sets and class participation.
The College of Liberal Arts and Sciences

Administrative Home
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook.

Electronic Communication
University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (Operations Manual, III.15.2. Scroll down to k.11.)

Accommodations for Disabilities
A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/~sds/ for more information.

Academic Honesty
All CLAS students have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

CLAS Final Examination Policies
The date and time of every final examination is announced during the fifth week of the semester; each CLAS student will receive an email from the Registrar stating the dates and times of the student's final exams. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather
In severe weather, class members should seek appropriate shelter immediately, leaving the
classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety web site.