

CHEM 0320 • Organic Chemistry 2 • Spring 2019
MWF 0900-0950, 152 Chevron Science Center
Recitation: T 1500-1550 152 Chevron Science Center

Instructor: Professor Yiming Wang
Office: 505 Chevron Science Center
Office hours (subject to revision): M 1000 – 1050, F 1000-1050
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Official course description: An introduction to theory and practice of organic chemistry through study of structural principles, reaction mechanisms, and synthesis leading toward end of second term, when complex molecules of biological interest are discussed. Basic goals of course are to develop appreciation and skill in methods of molecular analysis which have made organic chemistry such a powerful intellectual discipline. Course will prepare student for work in advanced topics of organic chemistry, biochemistry, chemical engineering and health related sciences.

Prerequisites: CHEM 0310, 0730, 0206, 0231 or instructor permission.

Basis for grades: Grades will be based on three midterms and the final exam. Weekly problem sets will be assigned and are essential practice but they will not count towards your grade in the class. Extra credit opportunities may be announced in class or appear on the exams (amounting to no more than 50 pts).

- Three midterm exams: $3 \times 200 \text{ pts.} = 600 \text{ pts.}$ (60%)
 - Final exam: 400 pts. (40%)
- $\Sigma = 1000 \text{ pts.}$ (100%)

Grading policy: Grades will be assigned using an absolute scale or according to the classroom distribution ("curve"), whichever results in a higher letter grade. In other words, any curve will only be to your advantage. Absolute scale: 800 pts.: A- or better, 650 pts.: B- or better, 500 pts.: C- or better, 350 pts.: D- or better.

Required textbook: Vollhardt and Schore, *Organic Chemistry: Structure and Function* (8th edition, W. H. Freeman, 2018) [ISBN: 978-1319079451].

Recommended resources: **I.** Molecular model set, HGS Maruzen 1013A *Student Organic Chemistry Set* [ISBN 978-0998549774], or equivalent. **II.** Solutions to problems in the textbook: Schore, *Study Guide and Solutions Manual for Organic Chemistry: Structure and Function* (8th ed., W. H. Freeman, 2018) [ISBN 978-1319195748]. **III.** Additional practice problems: Burgess, *Sophomore Organic Chemistry 2 by Inquisition* (By Inquisition Press, 2016) [ISBN: 978-0692782460] **IV.** A more advanced, supplementary textbook: Clayden J.; Greeves, N.; Warren, S. *Organic Chemistry* (2nd ed., Oxford University Press, 2012) [ISBN 978-0199270293]. **V.** For help with arrow-pushing and writing mechanisms: Weeks, *Pushing Electrons: A Guide for Students of Organic Chemistry* (4th ed., Cengage, 2013) [ISBN 978-1133951889].

Exams: The midterm exams will take place during a 50-minute class period. The exams (including the final) will be closed book, but you may prepare a single page (front and back) of *handwritten* notes on an 8.5 in. \times 11 in. piece of paper. The midterm exams will be tentatively scheduled for **30 January, 27 February, and 27 March 2019**. Make up exams will not be offered. For an excused absence, your final exam score will be scaled by $1/2$ to create a fictitious score for the missed exam. While each midterm examination will focus on the new course material introduced after the previous midterm, organic chemistry is cumulative, so you are still responsible for retaining earlier knowledge, including facts and concepts from Organic Chemistry I and General Chemistry. You will be held accountable for all the material introduced up to the Friday before each midterm. (You will not be held responsible for material not yet introduced if we fall behind schedule.) The final exam will be cumulative.

Exam regrades: Exam regrading is available if you believe a serious grading error was made, to your detriment. Regrading requests should be made in person during office hours within one week after the

exam is returned. To make exam scores fairer to students who do not request a regrade, all problems (not just the one that you feel was graded incorrectly) will be re-examined for grading errors.

Student Opinion of Teaching Surveys: Students in this class will be asked to complete a *Student Opinion of Teaching Survey* by the Office of Measurement & Evaluation of Teaching (OMET). Surveys will be sent via Pitt email and appear on your CourseWeb landing page during the last three weeks of class meeting days. Your responses are anonymous. Please take time to provide comments, suggestions, and criticisms for any aspect of the course, including format, content, policies, and overall effectiveness. This is my first year teaching CHEM 0320, so your feedback is especially valuable, and your responses will be taken into account in future iterations of this course.

University Policies on Academic Integrity: Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University's *Guidelines on Academic Integrity* (provost.pitt.edu/sites/default/files/academic_integrity_guidelines.pdf). In particular, please take note of the following University statement on academic integrity:

Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed.
— Academic Integrity Statement for Syllabi

University Policies on Disability Services: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS, www.studentaffairs.pitt.edu/drs/), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

Course schedule & outline (subject to change; check Blackboard for announcements):

Page numbers for assigned readings will be announced at the beginning of lecture and posted on Blackboard. You will be held responsible for the information contained within the assigned pages and any handouts that are posted in the Course Documents section of Blackboard.

Week 1: Delocalized π systems (Chapter 14)

Week 2: Benzene and aromaticity (Chapter 15)

Week 3-4: Electrophilic attack on derivatives of benzene (Chapter 16) [21 Jan: *MLK Jr Day* **No class**]

Midterm exam: Wed., 30 Jan 2019, 0900 to 0950

Week 5: Chemistry of benzene substituents (selected sections of Chapter 22)

Week 6: Aldehydes and ketones (Chapter 17)

Week 7: Carboxylic acids (Chapter 19)

Week 8: Carboxylic acid derivatives (Chapter 20)

Midterm exam: Wed., 27 Feb 2019, 0900 to 0950

Week 9: Enols, enolates, and the aldol condensation (Chapter 18) [10 – 17 Mar: Spring Break **No class**]

Week 10: Ester enolates and the Claisen condensation (Chapter 23)

Week 11: Amines and their derivatives (Chapter 21)

Midterm exam: Wed., 27 Mar 2019, 0900 to 0950

Week 12: Heterocycles (Chapter 25)

Week 13: Polyfunctional molecules of biological significance (selected sections of Chapters 24 & 26)

Week 14: Transition metals in organic chemistry (Handouts)

Final exam: Wed., 24 Apr 2019, 1600 to 1750