

Chemistry 2331H

Honors Elementary Organic Chemistry I

3 Credits

* * * **Fall, 2016** * * *

Lectures: MWF, 9:05 – 9:55 am, Smith 331

Website: <http://www1.chem.umn.edu/groups/hoye/teaching/Teaching2331HFall2016/>

Moodle Site: <https://ay16.moodle.umn.edu/course/view.php?id=6293>

Instructor: **Thomas R. Hoye**, 419 Smith Hall, 612-625-1891, hoye@umn.edu

Office Hours: Tuesdays noon-1:00, Thursdays 11:00-noon, and Fridays 2:30-3:30 in 122 Smith Hall

Text:

- *Organic Chemistry*, 9th ed., 2016, L. G. Wade, Jr., Pearson Education Inc.
- Access to *Solutions Manual for Organic Chemistry 9th Edition*, L. G. Wade, Jr. & J. W. Simek
- Access to a molecular model set (e.g., <https://www.andruseducation.com>; \$16 in Bookstore)

Exams: All exams will be closed-book and the use of models or electronic devices is not permitted.

• Midterm I	Friday	September 23	9:05–9:55 am	Chaps 1–3
• Midterm II	Friday	October 14	9:05–9:55 am	Chaps 4–6
• Midterm III	Friday	November 4	9:05–9:55 am	Chaps 7–9
• Midterm IV	Friday	December 2	9:05–9:55 am	Chaps 12-13,10
• Final Exam	Tuesday	December 20	1:30–4:30 pm	Chaps 1–13

Sample Exams: In advance of each Midterm Exam, I will post to the course website copies of selected examples of some previous exams (from 2301 and/or 2331H) as PDF files.

Grading: Course grades will be determined by performance on the following exams:

- 60% Best three hour exams (the lowest of the four exam scores will be dropped)
- 40% Final Exam

Examinations may be submitted for regrade *only* within the first week of being returned. Evidence of examinations that have been altered after having been graded and returned is a serious infraction that will result in a score of zero, which cannot be dropped, for that exam.

Absences: The first absence from an hour exam will be treated as the lowest exam score and dropped. If two or more hour exams are missed, you should consider withdrawing from the course. No make-up exams will be given. (If you can identify a conflict between one of the exam dates and your schedule now, contact me *within the first week of class* to make an alternative arrangement.) An unanticipated emergency or serious illness should be discussed with me as soon as is practicable.

If the final exam is missed, it can be made up only by taking the Chem 2331H final examination next fall semester. Missing of the final exam is the *only* circumstance under which the grade of I (Incomplete) will be considered, which is a department-wide policy.

Tips for Success:

- Read Ahead** Read the textbook reading assignment *before* coming to the lecture each class meeting.
- Keep Up** This course in organic chemistry will cover a lot of ground. To do well it is important that you stay on top of the material. Much of the content evolves in an interconnected fashion. As Professor William von Eggers Doering, a famous organic chemist, once said, "Organic chemistry is relentlessly cumulative."
- Attend Class** Some of the information we will discuss in lecture will not be in the text.
- Work Hard In Class** Be an active thinker during the lecture. Concentrate to follow what is being said in the lecture. If at the end of a lecture period all you have is a mechanical transcription of what was written on the board, you will have lost a major opportunity. I am convinced that with concentration and effort you can learn up to 50% of all that you will ever know about that day's topic by the end of the class period.
- Solve Many Problems** Working problems to reinforce the information you have seen in your reading and in the lecture is **the** best way to cement your learning of organic chemistry. Indeed, problem solving and logical thinking and analysis are the most valuable skills you will learn/sharpen through your study of organic chemistry. The textbook contains an excellent selection of problems for this purpose. I will assign those that I consider to be the most appropriate problems for each chapter. Your worked problem sets will *not* be collected or evaluated, but the importance of spending quality time, with pencil on paper (graphite on cellulose!), cannot be overstated. Don't fool yourself into thinking you know the answer in your head. Always write down your answers (graphite on cellulose!). Practice at quickly and accurately drawing structures is very important. You will get stuck on some problems; first look back to the chapter to see if you can find information to help you past the roadblock. If not, then consult a copy of the *Solutions Manual* (or an answer key from a practice exam) for help. A very common mistake is that a student will read a problem, read the answer, and convince yourself that you understand. Perhaps you do understand someone else's thinking, but that is a quite different matter from having arrived at a *de novo* solution to the problem on your own. Of course, you will be asked to solve problems, reasoning your way to the answers and on your own, on the exams.
- Minimize memorization. Maximize logical analysis.** Learning *how* molecules interact is far more powerful than learning *what* they do or *that* they do certain things. The *logic* of *mechanistic analysis* will serve you very well as your body of factual information grows. The material across the entire subject is highly interconnected when considered in a mechanistic framework. Understanding the basic concepts of molecular structure, movement of electrons, mechanisms, and energetics allows you to predict what new molecules will do under various reaction conditions. Learning the synthesis of one functional group is learning the reaction of another.

Course coverage: Our goals for coverage of material in the Wade textbook.

Chem 2331: Chapters 1-13

Chem 2332: The coverage and emphasis in 2332 will reflect the interests and philosophies of relative importance of topics by the instructor, Professor Joseph Topczewski.

University Grade Definitions:

- A achievement that is outstanding relative to the level necessary to meet course requirements.
- B achievement that is significantly above the level necessary to meet course requirements.
- C achievement that meets the course requirements in every respect.
- D achievement that is worthy of credit even though it fails to meet fully the course requirements.
- F Represents failure and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

Academic Integrity: The University has policies in place for fairly dealing with issues of suspected scholastic dishonesty. This can be found at <http://www.oscai.umn.edu/conduct/faculty/dishonesty.html>.

UHP Tutors: The University Honors Program (UHP) makes available, starting September 15, Study Session Tutors for Chem 2331 on Thursdays, 7–9 pm in Room 132 Middlebrook Hall. This year they are **Ben Henderson** (hende630@umn.edu) and **Jinbin Chen** (chen4251@umn.edu).

DOC Tutors: The Department of Chemistry (DOC) also provides tutoring, held in 124 Smith Hall and beginning September 12th according to the schedule posted on the door (*selected hours* M-Th, noon-7 pm and F, noon-3). It is important that your time is well spent in this room. Please inform me or the Head Organic TA (Sarah Wegwerth, wegw0013@umn.edu) if the tutors are absent at their scheduled time, are unhelpful, or leave for extended periods of time. The purpose of a tutor is to help you learn, not simply give you answers to questions or problems. The tutors are instructed to ask YOU questions that will help you understand a concept you may be missing and that they sense is preventing you from solving a particular problem. Self-discovery will enhance the depth and retention of your knowledge.

ChemFoundations Program: Another optional study group program offered by the DOC is ChemFoundations. This program enjoys the volunteer efforts of advanced undergraduate and graduate students (the ChemFoundations Leaders) who enjoy teaching and helping students to succeed in organic chemistry. Each Leader will meet at a designated time and place once a week with students to work problems and review difficult concepts. These sessions are designed to be a one to one and a half hour active-learning session—not a lecture, office hour, or private tutoring session. Please attend only if you are willing to participate and engage in group learning. You are free to “try-out” different Leaders and select one (or more) who best fits your learning style. However, Merrick Smela Pearson has been designated as the primary Leader for Chem 2331H. Beginning Thursday September 15th and weekly thereafter, he will be available in Smith Hall 111 from 5-6 pm.

Organic Chemistry Lecture *vis-a-vis* Laboratory Courses: FYI, most students take the organic laboratory course Chem 2311 (Organic Chemistry Lab), which is a one-semester long, 4-credit lab class that has a prerequisite of "completion of" or "concurrent enrollment in" the *second* semester lecture course (either Chem 2332, 2301, or 2304). The Honors Organic Chemistry Laboratory course, Chem 2312, which I teach, is offered only in the fall semester. This is an intense (but eminently doable), 5-credit course that is the equivalent of Chem 2311 and Chem 4311 (Advanced Organic Chemistry Laboratory). The prerequisite is "concurrent enrollment in" the *first* semester lecture course—i.e., if you are reading this, you are eligible to be taking this course right now.