

Chemistry
Organic Chemistry I
Section 2

M W F: 10:10 – 11:00 PM

Instructor: Professor

Office:

Phone:

Email:

Website:

Prof. Office Hours: Mondays 4:30-5:30 PM, Tuesdays 9:30-10:30 AM, Friday 8-9 AM

TA Office Hours/Tutor room: times below, Starts 9/13

Monday & Wednesday	Tuesday & Thursday	Friday
11AM–1PM, 2PM–5PM, & 6PM–9PM	8AM–10AM 11AM–1PM, 2PM–5PM, & 6PM–9PM	11AM–1PM, 2PM–5PM,

Course Materials: Required: L. G. Wade, *Organic Chemistry* (7th Edition) G.R. Gray *Flash Cards of Organic Chemistry I* (Kendall/Hunt, 2007) found at Bookstore, Darling Modeling Kit, (Bookstore) Optional: *Solutions Manual* for textbook, alternate model kits: Prentice Hall Molecular Model Set for Organic Chemistry (not at Bookstore available new and used at Amazon.com at a price range of 58-29\$)

Coverage: The goal of this course is to provide an introduction to organic chemistry. The Department of Chemistry mandates that we cover the first 13 chapters of the textbook (~620 pages). This translates into an average of 45 pages of reading per week. We will skip certain sections: see the “Course Plan” handout.

Class Time: It is my intention to make some substantial changes to the structure of this course relative to the second time I taught it in Spring 2010. Several “milestone-type” graded activities (quizzes and assessments) will be incorporated. These are designed to encourage students to keep up with the material.

Email: I receive lots of email (up to 100 emails per day). I will do my best to reply to all email messages in 24 hours from the time I receive them. Please understand that it is particularly difficult to reply to all emails the evening before exams as the number of emails can be quite high at that time. Please try not to wait until the last minute to ask questions.

Exams: Three 50-minute exams will be given in-class throughout the semester, not including the Final Exam. Student ID must be presented to the proctor when you turn in your exam. Notes, model kits, textbooks, and calculators are not allowed during exams. From the in-class exams, the low score will drop.

Exam 1: In class, Monday, October 4th, 2010

Exam 2: In class, Monday, October 25th, 2010

Exam 3: In class, Monday, November 15th, 2010

Final Exam: Saturday, December 18th, 2010

Additional exam rule: turn off and stow all electronic devices during exams (phones, ipods, etc.).

Quizzes: We will have in-class quizzes, they will be **Pop Quizzes**, taken individually. These quizzes will be 5-15 minutes depending upon the difficulty level of the quiz. The content of the quiz will be on

the reading assignment for the day, so you must read ahead before you come to class. There will be no make up quizzes if you miss one.

Online Assessments: Required, graded, online homework will be assigned. You must do these individually. They are due on a weekly basis, every Tuesday at midnight.

Textbook Homework: Problems from the textbook are assigned in the Textbook Homework handout. Do the assigned problems for the chapters as we discuss these chapters in class. These will not be collected or graded, but are assigned to give you practice for the exams. Note: some exam questions will be taken either directly, or with only minor modification, from the assigned problems out of the textbook.

Grading Structure:	In-class exams (2 out of 3):	50%	(100 pts each)
	Final Exam:	35%	(140 pts)
	Pop Quizzes	10%	(40 pts)
	Online Assessment (WebCT):	5%	(20 pts)
			(300 pts max)

Exams will cover all of the material from the beginning of the course, with an emphasis on material since the previous exam. The final is comprehensive. If all in-class exams are taken, the low score will drop. **All exams must be taken at the times indicated above. Absolutely no make-up exams will be given.**

Grading: This course will be graded on a curve. Across the history of this course, multiple sections and instructors, typical ranges are as follows: **A:** 100-80%, **B:** 79-65%, **C:** 64-50%, **D:** 49-45%, **F:** 44-0%; Plus and Minus modifiers will be assigned near the high and low end of each range, excepting grades A and F that cannot be assigned a “+” modifier and D, which cannot be assigned a “-“ modifier. For students taking this class S/N, a grade of C- is the minimum to earn “S”.

Policy on Additional Time or Special Needs for Exams: If you have a *documented* condition that allows additional time for exams or need other special assistance, you are responsible for contacting with Disability Services immediately and schedule to take your exams with a proctor at their office. Exam dates are above, so get started right away. and the proctors are NOT responsible for students who fail to adequately prepare to use or schedule use of disability services. Neither the TAs nor I are certified to proctor exams for students with additional needs. If you do not prepare adequately, you’ll be treated like everyone else – no exceptions.

Policy on Re-grades: 1) To qualify for a re-grade, you must take the exam in ink and *not* use white-out. 2) Re-grades must be submitted 48 hours after the exams are handed back. 3) If you want a re-grade, you must submit *in writing* your argument for what you feel was graded incorrectly. Feel free to draw pictures and refer to the class textbooks, handouts, or notes. If you do refer to the textbook or solution guide, give the relevant pages. 4) I reserve the right to re-grade the entire exam if you ask for a re-grade. 5) One exception to all of the above. If an arithmetic error in your point tally has occurred, affix a cover note with the words “tally error” on it and the re-grade will be accepted as is.

Scholastic Dishonesty: Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.

Within this course, a student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course. At a minimum, a student found guilty of scholastic dishonesty on an exam will be awarded a grade of zero (0) for the exam and that score will not drop in calculation of the

final grade. The situation will be reported to the Office for Student Academic Integrity and the college the student is enrolled.

If you have any questions regarding the expectations for a specific assignment or exam, ask.

Policy on Absences: If a student misses one exam, the first absence is treated as the low score and dropped. If a student misses a second exam, a score of zero (0) is recorded, unless the student drops the class. The Final Exam can only be missed due to illness or a family emergency, and documentation must be provided. These are not my rules, they are Chemistry Department Policy for teaching O-Chem. There are no make-ups for quizzes and late homework submissions will not be graded.

Policy on "I" Grade: Departmental policy is that a student may request an **Incomplete** grade only when (a) he or she has a University-sanctioned excuse for missing the final exam **and** (b) he or she is passing the course based on all other graded components. Assignment of an **I** requires that the instructor and student sign a contract, available in the Departmental undergraduate office, stipulating the procedure by which the **I** grade will be made up (e.g., taking a final exam from another instructor in the next semester). Failure to successfully complete the procedure outlined in the contract will result in the **I** being administratively changed by the University Registrar to an **F** or **N** (depending on the grade base) one calendar year from the end of the semester for which the **I** grade was granted.

How to Do Well in This Class: See the . I suggest here that you **do lots of practice problems and don't look at the answer while you're working the problems.** If you really have to, just look at one, and then do similar problems without looking.

I also strongly suggest to do the problems embedded in the reading (at the end of chapter sections) while you do the reading. Then do the assigned end-of-chapter problems a day or two later. Doing problems on the same concepts a day or two apart can dramatically enhance your memory and skill development.

Peer advising/tutoring. See the course website for more information.

Peer-Assisted Learning (PAL) Program: Similar to the course website for more information.

FERPA: (Family Educational Rights and Privacy Act) In this class, our use of technology (website: threaded discussions, chats, and other interactive functions of Webvista) will sometimes make students' names and internet IDs visible within the course website, but only to other students in the same class. Since we are using a secure, password-protected course website, this will not increase the risk of identity theft or spamming for anyone in the class. If you have concerns about the visibility of your Internet ID, please contact me for further info.

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What's New, What's Different: Many students approach Chemistry ██████████ with trepidation. O-Chem has a reputation as “one of college’s toughest courses”¹, and some of that reputation is deserved. Many students struggle. A part of the problem is confused expectations that originate from changes in the format and content, which differ greatly from Gen-Chem.

- 1) Substantial portions, if not all, of the exams are not multiple choice or scan-tron. Exams are hand-written and hand graded. On exams, you’ll be asked to draw chemical structures, fill in blanks (sometimes with structures), draw mechanisms using the “curved arrow formalism”, draw diagrams, reactions, and the like.
- 2) “Math”, as in “here is a word problem with a series of known values, here are lot of equations, pick the right set of equations, solve them, then plug and chug” is not a routine part of O-Chem. Gen-Chem is often quantitative; O-Chem is often much more qualitative.
Note: Qualitative ≠ Easy
- 3) Explosive demonstrations in lecture are largely out. I know, I’m bummed too.

Grading and content are the biggest changes. A team, consisting of ██████████ and 6-8 graduate students and/or senior undergraduates, grades the exams. The easier your work is to follow, the more likely you will earn partial credit for your answer. Many students loose points for garbled, incoherent, or nonsensical answers. This essentially means there are “points for neatness” or clarity in your drawings of molecules.

“Concepts” vs. “Memorization” vs. “Problem Solving Skills”: Many students would prefer that coursework and exams be “all about the concepts”. Fewer, but still many, would like exams to focus on “memorization”. Very few would like to focus on “Problem Solving Skills”. However, all three are required to do well in O-Chem.

Some students read Wade’s textbook and get the impression they should not memorize things. Perhaps that is because Wade says,

*“Don’t try to memorize your way through this course.”*² (emphasis added by me)

So, is memorization *passé* or even perhaps even counterproductive? Wade continues and says, “Also, don’t think that you can get by without memorizing any *anything*.”² (emphasis in original).

A lot of people miss that 2nd part.


Your performance (and letter grade) in this course will be built upon a three-fold foundation:

- 1) MEMORIZE KEY MATERIAL There is a fair amount you need to memorize.³ I assign “knowledge-base building homework” (those without red stars) and require Prof. Gray’s Flash Cards to help you identify what you need to memorize.

¹ Quote from anonymous Spring 2009 ██████████. Full quote “Solid 1st year of teaching one of college’s toughest courses.” Not posting that to boast – full disclosure, I had evaluation statements range from “Best professor I’ve had all year!” to “██████████ should be fired!”

² L. G. Wade *Organic Chemistry* 6th Ed. “Preface to the Student” pg xxiii.

³ I’m trying to give you straight advice here. Some instructors attempt to “de-emphasize” memorization, but we need to get real. On an in-class exam, regardless of instructor, either you know what enantiomers are, or you don’t. You’ll either know what product you get when OsO₄ reacts with cyclohexene, or you won’t. Try working from “first principles” for everything on an exam, you’ll just run out of time. Example: in Calculus, you *could* derive the Power Rule on the exam, but if you have to do that, *you’re screwed*. Just memorize that if $f(x) = x^n$, then $f(x)/dx = nx^{n-1}$ and get on to the more difficult problems.

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- 2) Learn the CONCEPTS, also need to know “how and when” they apply.
 - 3) DEVELOP PROBLEM SOLVING SKILLS by working advanced, especially “red star” problems and tough questions from old tests. It is difficult to develop O-Chem problem solving skills without first learning the concepts and memorizing key facts.

“Sine Qua Non” – “without which not”

If one leg of this tripod falls, you could fail this course!!!

The Language Barrier: O-Chem has many terms that are specific to the subject. Often these are terms that are used to “sum up” an entire concept. This is much like the terms “democratic republic” and “the Power Rule” sum up key concepts in political science and mathematics, respectively. At the end of each chapter in Wade, there is a glossary. To do well in this course, you need to MEMORIZE the terms and master the CONCEPTS they represent. Do the reading, defining the terms as you go, listen to their use in lecture, use the flash cards, and work the “easier” problems in the text/end of chapters to master these.

Important Concepts Often Not Mastered in Gen-Chem: In my opinion, three Gen-Chem concepts are critical to O-Chem success, and are often not mastered in Gen-Chem. These are the following:

- 1) Acid/Base Chemistry (*not* the equations, the concepts): We will be discussing both Brønsted and Lewis Acids & Bases in great detail. Most of the reactions we will cover require you to *quickly* identify and *qualitatively* assess Brønsted or Lewis Acidity/Basicity strength.
- 2) Lewis Structures & Formal Charge Assignment: The successful O-Chem student can rapidly draw Lewis structures and assign formal charges to each atom. Preferably on day one.
- 3) Resonance Structures & the Curved Arrow Formalism: These concepts are often introduced in Gen-Chem, but not mastered. We will spend time early in the course building these skills.

“Pyramiding”: Concepts and terms in O-Chem build on one another like a pyramid. If the skills above from Gen-Chem are not there, we must quickly build them as the foundation. If you are lost early or fall behind midway through the course, you will likely find later material incomprehensible. A key to the success is to consistently work on your homework and reading several days per week so you don’t fall behind. Seek help (office hours, tutor room, ChemFoundations) early and often if you struggle. We are here to help, but you must take responsibility for getting it if you need it.

“Stepping Up on the Pyramid”: If you’re one of the lucky ones and the early material seems easy, don’t be lulled into a false sense of security. Many students feel the course gets noticeably more challenging as we “step up” in Ch 6 and again in Ch 8.

Advice from Past Students: From the Spring 2009 “Student Rating of Teaching”, question to students: “What could you have done to be a better learner?”

Top 4 replies are paraphrased:

- 1) Worked more problems/old exams *without looking at the solution guide/key*.⁴
- 2) Read the book *before coming to class*.
- 3) Attended every lecture.
- 4) Gone to office hours and/or tutor room.

I fully endorse your peers’ advice.

⁴ I added and emphasized the “without the key” part. I worked with some students in S09 and S10 on an individual basis at office hours. Those who adapted their study methods to avoid looking at the key while working homework problems and old exams showed the most substantial improvement in their exam scores.