CHEM 224 Organic Chemistry 2 (Day), Spring 2021

READ ME

Lecturer/Recitation: Philip R. Hamann, PhD

Lecture Times: Tuesday and Friday, 1:10-3:00 via Blackboard Collaborate

Recitation: REQUIRED, check the Bb page for your section for information

Learning Support: Post all content related questions on the Blackboard Discussion Board Forums

Office Hours: Request a time via email

Email: Via Blackboard (Bb) or Philip.Hamann@hunter.cuny.edu.

Course Description A 4-credit continuation of CHEM 222, Organic Chemistry 1. Introductory organic chemistry is a cumulative learning progression, and students are expected to be knowledgeable of the material taught at Hunter in Orgo I in Chapters 1-12 and 15 of the Klein textbook. This course will expand on that knowledge and go on to cover the chemistry of alcohols and phenols, ethers and epoxides, reduced sulfur compounds, amines, NMR spectroscopy, reactions of dienes including pericyclic reactions, aromatic compounds and their chemistry, and the chemistry of aldehydes, ketones, and carboxylic acids and their derivatives, including enolate chemistry.

Overall, the study of organic chemistry teaches a skill set and a logical pattern of thinking that is prized in many fields, especially medicine.

Textbook David Klein, *Organic Chemistry*, 3rd Ed., Wiley (2nd Ed. OK, other comparable textbooks may be OK)

Molecular Models are very helpful for the 3D visualization of molecules. If you survived Orgo I without them, congratulations, as Orgo is much easier when you have them available. As needed, I can build models and share them via Blackboard Collaborate, although they will be hard to see.

Course Requirements

Grade Calculation The final grade for each student will be their percent of the **800 points possible**. Standard Hunter cutoffs will be used to assign letter grades: 90-100% = A, 80-90% = B, 70-80% = C, 60-70% = D

Exams and Final Exam Exams will be written and submitted electronically. The 4 regular exams are worth 100 points each (times 4 = **400 points**) and the final comprehensive exam is worth **200 points**. All exams are essentially cumulative, but will focus on recent topics. This is partly the nature of the material, but some questions from previous exams, perhaps modified, *will be repeated* on all exams. NO EXAM GRADES WILL BE AUTOMATICALLY DROPPED - THEY ALL COUNT.

Exams will be submitted as a single pdf file with the file name (not the name you enter during the submission!) of [Last Name] [First Name] [Assignment ID].pdf, for example, Smith John Exam 1.pdf (note the spaces and lack of punctuation). Please follow this format strictly for the sake of my sanity.

Exams may have scores adjusted using a power function: (points earned/total points possible)^X times 100, where $X < 1$. E.g., if 90 points are earned out of 125 points, and the adjustment used, X, is 0.7, the points for a regular exam would be $(90/125)^{0.7}$ X 100 = $(0.72)^{0.7}$ X 100 = 80 points. (Note that a power of X= 0.5 is the square root.)

Participation in recitation is worth 100 points of your final grade. You should start your recitation worksheet BEFORE your recitation period so that you can get help on whatever you are struggling with. Students are certainly allowed to help each other on their worksheets, but the work submitted must represent the final answers of each individual student. Check with the individual recitation leaders for more information.

Written Homework is also worth 100 points of your final grade. Homework assignments will be posted on Blackboard (Bb). You are required to answer the questions to the best of your ability using only simple resources, such as the textbook and lecture slides, or internet sites (with the usual precautions) that explain similar material. However, you are not allowed to look up specific answers on the internet and copy them. When the answer key is posted, you will self-correct (*not* grade) with annotations (in essence, notes to yourself, not to me) as to why your first answer was wrong and the answer key is correct, i.e., what you learned. (When an answer key contains the inevitable mistake, note that you believe this to be the case in your assignment.) If you show minimal effort in your

initial answers, or do not correct mistakes well, there will be rapidly increasing deductions. If it is clear that you used the answer key to arrive at your answers, there will be very significant deductions. An strong student is expected to have fewer and higher quality corrections, while a weaker student will be given more latitude to earn the same credit. In essence, you are being graded on apparent intent to learn.

Suggestions for Studying Organic Chemistry

1. Do an initial reading of each chapter before the lecture. Knowing what to expect in class based on this reading and, if possible, on doing the practice problems within each chapter means you can take fewer notes and spend more time listening and thinking during the lecture. WHEN I WRITE AN EXAM, I ASSUME THAT ALL STUDENTS CAN EASILY DO PROBLEMS SIMILAR TO THOSE WITHIN THE CHAPTERS COVERED.

2. Look through the PowerPoint slides before lecture. These will be made available via Bb prior to each lecture, and printing them will allow you take well organized notes, to take fewer notes, and to spend more of the lecture time thinking with a more active mind. My goal is not to just teach you to *do* Orgo, but to *think* Orgo.

3. After the lecture(s) on a particular chapter, review the slides and your notes and reread the chapter in earnest. Do the homework for the material covered ASAP. For material you are unsure of, the textbook offers more practice problems. And don't use HW as your initial learning, but as a way to check and improve your learning

4. If you are confused about something, get help ASAP (visit your instructor during office hours or, especially, recitation, consult a tutor, ask a fellow student, etc.) and certainly before you fall behind. Catching up is a huge challenge in a cumulative class like this, especially in the summer. Bring any attempted solutions to problems with you to recitation or to office hours to share with the class/show your instructor where you are having trouble. It is very unlikely you are struggling with a problem that no one else is having trouble with-someone needs to be brave enough to ask. If no one asks questions, I will assume you know the material well enough to pass a challenging exam.

5. Studying for the first exam, as well as the final exam for the semester, starts the first day of class. To review for the exam, use the PowerPoint slides, the textbook, your notes, *and* the corresponding problems you worked out for each section. Each section in the chapters conveys a concept; make sure that every section is clear to you. You may end up needing to study for many hours the night before an exam, but this is an indication that you are not keeping up with the class on a daily basis.

6. You can’t learn Orgo by reading the textbook, listening to the lectures, and looking at example problems, although that is a good start if you are doing it with an active mind. To really learn Orgo you need to figure out problems by yourself, often with significant struggle. Just like all skills, you get better with practice. Working with a study group is also helpful, but everyone should do each problem alone, using the other participants only for hints as to approach, and then compare answers only after everyone has a possible solution of their own. You can, of course, solve more problems in a group, but if you aren’t learning more than you could alone, the group ends up being more social time than learning time.

7. AND TAKE CARE OF YOURSELF - Live a balanced, disciplined life. Eat healthy, get regular exercise, and get plenty of regular sleep. Also, taking a little time each day just for yourself, whenever possible, will help you deal with the stresses in your life. This is especially difficult in a rapid-paced summer session, but is still important. (A disciplined life will give you more free time, not less.) AND DON'T LET SOCIAL MEDIA BE A TIME SINK-use with moderation (or not at all for 8 weeks).

A Note on the Internet

If not used wisely, the internet can be the ultimate time sink, but it can, of course, be useful. Just remind yourself regularly that not all content can be trusted. I've seen Orgo information from good universities that was pretty bad, probably because much of what you find is from graduate students who are teaching recitations, and not all of

them know Orgo well enough. Kahn Academy has Orgo videos that are okay, but not as good as their original math content. Also, do not look for answers to problems, look for info that will help *you* solve the problem and learn more. Shortcuts = less learning = lower grades

Hunter Policies

An Incomplete Grade is given if a student has a reasonable chance of passing the course but cannot complete it because of a valid reason. In order to be considered for the INC grade, a student needs to present verifiable proof of their reason, and must complete the course work by the end of the next semester. Based on past experience, incomplete grades are very often not completed satisfactorily and should be avoided, if possible.

Policy on CR/NC Grade The CR/NC request must be brought to the final exam for signature, as NC implies that the student completed the course, including taking the final exam.

Academic Dishonesty "Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures."

Note that allowing a fellow student to copy your work is as much academic dishonesty as it is to do the copying.

Chegg and the like Two reasons not to use Chegg or anything like it: 1) It is overt cheating and will be dealt with severely, as I did on my exams last semester; 2) Half the Orgo answers I have seen on Chegg are just plain wrong. Enough said?

Sexual Harassment "In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).

All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf"

COURSE SCHEDULE (Subject to change if necessary)

#	Day	Date	Chapter	Topic
1	F	Jan 29	Chap 1-12	Review
2	Tu	Feb 2	Chapter 15	NMR Spectroscopy
3	F	Feb 5		
4	Tu	Feb 9		
-	*F*	*Feb 12*	**No Classes** (Lincoln's Birthday)	
5	Tu	Feb 16	Chapter 12	Alcohols and Phenols
6	F	Feb 19		
7	Tu	Feb 23		
8	F	**Feb 26**	**Exam 1**	**Chapters 15 & 12** (plus previous material)
9	Tu	Mar 2	Chapter 13	Ethers and Epoxides; Thiols and Sulfides
10	F	Mar 5		
11	Tu	Mar 9	Chapter 16	Conjugate Pi Systems and Pericyclic Reactions
12	F	Mar 12		
13	Tu	Mar 16	Chapter 17	Aromaticity
14	F	**Mar 19**	**Exam 2**	**Chapters 13, 16-17** (plus previous material)
15	Tu	Mar 23	Chapter 18	Aromatic Substitution Reactions
16	F	Mar 26		
-	*Tu*	*Mar 30*	**No Classes** (Spring Break)	
-	*F*	*Apr 2*		
17	Tu	Apr 6	Chap 18 cont.	Aromatic Substitution Reactions
18	F	Apr 9	Chapter 19 (Chap 22)	Aldehydes and Ketones (Amines)
19	Tu	Apr 13		
20	F	Apr 16		
21	Tu	**Apr 20**	**Exam 3**	**Chapters 18-19 (22**) (plus previous material)
22	F	Apr 23	Chapter 20	Carboxylic Acids and Their Derivatives
23	Tu	Apr 27		
24	F	Apr 30	Chapter 21	Alpha Carbon Chemistry: Enols and Enolates
25	Tu	May 4		
26	F	May 7		
27	Tu	**May 11**	**Exam 4**	**Chap 20-21** (plus previous material)
28	F	May 14	Review	Semester Highlights
-	*Tues*	*May 18*	**Hunter Reading Day**	
-			**Final Exam**	**Comprehensive**

For practical reasons, some topics may extend into the next period,
while others may start on the day the previous topic ends.