

**Organic Chemistry III – 2994
CHEM 2453 Section 2
Spring Quarter, 2020**



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Lecture: TR 8:00 – 9:50 a.m. (Sturm 253) **Now Online**

Office Hours: by appointment (email)

Required Text: *Organic Chemistry, Sixth Edition*, by Marc Loudon and *Study Guide and Solutions Manual to Accompany Organic Chemistry, 6th Edition*, by Marc Loudon and Joseph G. Stowell

Recommended Model Kit: Molymod #62053 Organic Chemistry Molecular Model Set by Indigo Instruments or other similar kit (typically available on Amazon)

Course Objective: This course is a continuation of organic chemistry I & II and it is an intensive survey of certain organic functional groups and compounds: their structures, reactions, mechanisms, syntheses, and applications. The objective of the course is to expose you to more organic functionalities, new reactions and to help you transition to biochemistry. The course will also give you basic information on how macromolecules are synthesized and some common reactions in biological systems – the goal here is to prepare you for upper-division chemistry classes. Also, like in any other chemistry class, I hope to pique your interest in scientific research and to introduce you to how scientists create and discover new knowledge. The course begins with a review of Electrophilic Aromatic Substitutions, which is where we stopped in organic chemistry II and then we will move on to a couple of Nobel prize-winning carbon-carbon coupling reactions. The major part of our time this quarter will be spent learning about the chemistry of carbonyl compounds, carboxylic acid, and carboxylic acid derivatives, this is because these class of compounds find useful applications in biology, medicine, energy, and engineering. We will conclude our study this quarter surveying selected topics in biological organic chemistry including the chemistry of carbohydrate and amino acids – one of nature's magnificent building blocks for proteins that give structure and function to living organisms.

In order to get the most out of this course, I would recommend you:

- Review your organic chemistry I & II notes the first week of class and take the class reading seriously. Preferable, read a whole chapter each week.
- Conduct searches to find applications of the chemistry covered in the slides
- Solve as many problems as possible instead of memorizing. This means that consistent work is required and will pay off much more than cramming for an exam at the last minute. A good rule of thumb is to ***spend at least 9 hours a week outside of class*** on organic chemistry.

Lectures: The lectures will generally follow the progression of the textbook with a lot of other materials added to each chapter. Video lectures based on the notes will be uploaded to Canvas each week and the class time will be used to answer questions or as recitation sessions. I expect you to watch the videos, make your own notes and join the recitation sections if you can each week. The secret to learning organic chemistry is to solve as many problems as possible, and so the recitation will involve working through difficult problems in addition to reviewing lecture note materials.

Problems You should work as many problems from the Loudon textbook as possible. The exams will focus on problems involving reactions, mechanisms, and synthesis. **My exam questions are mostly applied problems:** you must learn and know the material first and then apply your knowledge to solve practical problems. The only way to prepare for the exams is to study a functional group, its reactions, the reagents involved in its transformation, and how you can apply these techniques to build other functional groups or to make useful compounds. All of this is possible if you practice, practice, and practice. The recommended problems can be found in your text, and additional problems will be presented during recitation. **The key is to solve ten problems for every concept covered in class.** Remember solving problems is key to your success in organic chemistry.

Worksheets (WS): Worksheets are designed to help you practice standardized questions. It is essential that you complete the WS assignments to evaluate your understanding of the class material and to apply your knowledge to solve challenging problems. Worksheets are due each week as indicated in the schedule. There are 8 worksheets for the quarter. The worksheets are worth 50 points in total. **No credit will be awarded for late submissions.**

Sapling Online Homework (SOH): the sapling homework will count for 50 points just like the worksheets. Follow the step below to login or register with sapling learning.

Step 1

Go to www.saplinglearning.com/login to create an account. If you already have a Macmillan Learning account you can log in with your existing credentials and skip to step 3.

- Create your password and set all three security questions.

- Start typing in your institution to select from the options that appear in the Primary Institution or School name field. If your institution does not appear you can add it by typing in the full name.
- Accept: the terms of use and click “Sign Up”.
- Check your email for the confirmation link to complete your registration and return to the login page.

Step 2. Set your institution by searching using your institution’s full name and selecting the appropriate option from the menu that appears.

Step 3. Under Enroll in a new course, you should see Courses at [Your College]. Click to expand this list and see courses arranged by subjects. Click on a subject to see the terms that courses are available.

Step 4. Click on the term to expand the menu further (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the school year).

Step 5. Once the menus are fully expanded, you’ll see a link to a specific course. If this is indeed the course you’d like to register for, click the link.

Step 6. If applicable, to access your ebook click on the image of the cover on the right sidebar of your course site. Create an account or log in with an existing Macmillan Learning eBook account.

Step 7. Need Help? Our technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support please open a service request by filling out the webform:
<https://macmillan.force.com/macmillanlearning/s/>

The following link includes more detailed instructions on how to register for your course:
<https://macmillan.force.com/macmillanlearning/s/article/Sapling-Learning-Registering-for-courses>

Exams: There will be two midterm exams and a final for this quarter; each exam is worth 100 points and the final exam is also worth 100 points. If your final exam score is higher than your midterm score, the lowest midterm score will be dropped and replaced with your final score. There will be no curving of grades (or grading on a curve) for either the midterms or final exam. We will have the option of take-home midterms or timed exams.

Final Grade: Your final grade will be determined out of the 400 available points based on the exams, worksheets, online homework and plus all earned points during the quarter. **There will be no makeup exams.** If you miss an exam for any reason, that exam will be dropped and replaced with your final exam score. The final exam is not optional – you must take the final exam.

Lecture and Testing Accommodations:

I will make every effort to accommodate students diagnosed with a learning disability. I will do this in complete confidence. I do, however, request that any student requiring these accommodations inform me the first week of class. For further information, please see the University Disability Services' website at <http://www.du.edu/disability/dsp/index.html>.

Note: testing accommodation will not apply for take-home exams.

Academic Integrity:

While I advocate collaborative learning and teamwork, I also firmly believe that each individual should maintain the highest ethical standards. As such, I support and will strictly enforce the Honor Code of the University of Denver. www.du.edu/honorcode.

Honor Code Statement.

All members of the University of Denver are expected to uphold the values of *Integrity*, *Respect*, and *Responsibility*. These values embody the standards of conduct for students, staff, faculty, and administrators as members of the University community. These values are defined as:

Integrity: acting in an honest and ethical manner;

Respect: honoring differences in people, ideas, and opinions;

Responsibility: accepting ownership for one's own conduct.

Pioneer Pledge.

As a University of Denver Pioneer, I pledge...

- to act with INTEGRITY and pursue academic excellence;
 - to RESPECT differences in people, ideas, and opinions and;
 - to accept my RESPONSIBILITY as a local and global citizen;
- Because I take pride in the University of Denver I will uphold the *Honor Code* and encourage others to follow my example.

Topics to be covered: Tentative Course Schedule – Subject to Change

	Date'20	Topic	Reading	Due
Wk1	3/30	Chapter 18: Aryl Halide Reaction	Ch18	
		Chapter 18: Transition Metal Catalysis		
		Chapter 18: <i>Continue</i>		
Wk2	4/6	Chapter 19: Aldehydes and Ketones	Ch19	WS1&HW1
		Chapter 19: <i>Continued</i>		
		Chapter 19: <i>Continued</i>		
Wk3	4/13	Chapter 20: Carboxylic Acid	Ch20	WS2&HW2
		Chapter 20: <i>Continued</i>		
		Chapter 20: <i>Continued</i>		
Wk4	4/20	Exam I Due		WS3&HW3
		Chapter 21: Carboxylic Acid Derivatives (CAD)	Ch21	
		Chapter 21: <i>Continued</i>		
Wk5	4/27			WS4&HW4
		Chapter 22: Enolates, enols, α,β -unsaturated compounds	Ch22	
		Chapter 22: <i>Continued</i>		
Wk6	5/4	Chapter 22: <i>Continued</i>	Ch23	WS5&HW5
		Chapter 23: Amines		
		Chapter 23: <i>Continued</i>		
Wk7	5/11	Chapter 23: <i>Continued</i>	Ch23	WS6&HW6
		Exam II Due		
		Chapter 24: Carbohydrates	Ch24	
Wk8	5/18	Chapter 24: <i>Continued</i>		WS7&HW7
		Chapter 24: <i>Continued</i>		
		Chapter 24: <i>Continued</i>	Ch 26/27	
Wk9	5/25	Chapter 26 or 27: Amino Acids (Selected sections)		WS8&HW8
		Chapter 26 or 27: <i>Continued</i>	Ch 26/27	
Wk10	6/1	Chapter 26 or 27: <i>Continued</i>	Ch 26/27	
		Chapter 26 or 27: <i>Continued</i>	Ch 26/27	
		Final Review/Catch up		
	6/11 (Thursday)	Final Exam (8:00 – 9:50 am) Due 10:00 PM		

Canvas and Class Notes:

Both worksheet assignments and PowerPoint slides of the notes will be uploaded on Canvas. For the Sapling homework, login to Sapling Learning to complete the assigned homework each week.