

**Organic Chemistry III - 1019
CHEM 2453 Section 1
Summer Quarter, 2020**



Instructor: Ogar Ichire (Leo) Ph.D.

E-mail: ogar.ichire@du.edu

Phone: 303.871.2985

Office: F.W Olin 205A

Lecture: MTWRF 9:00 – 10:50 a.m. (Online via Zoom)

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 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 the whole chapter before each class.
- Conduct searches to find applications of the chemistry covered in the slides
- Solve as many problems as possible instead of memorizing the information. 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. Lectures will be synchronous and video lectures will be uploaded to Canvas each week.

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 3 worksheets for the quarter. The worksheets are worth 100 points in total. **No credit will be awarded for late submissions.**

Exams: There will be two midterm exams and a final for this summer; 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 curve applied to 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 and 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 to earn a grade for this course.

Lecture and Testing Accommodations:

I will make every effort to accommodate students diagnosed with a learning disability. I do, however, request that any student requiring these accommodations inform me the first week of class and contact DSP. 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'18	Topic	Reading	Due
Wk1	8/03	Review of Reactions	Ch1-18	
		Aldehydes and Ketones	Ch 19	
		Carboxylic Acids	Ch 20	
		Carboxylic Acid Derivatives	Ch 21	
	Fri, 8/07	Exam 1		<i>WS1</i>
Wk2	Mon8/10	Carboxylic Acid Derivatives	Ch 21	
		Enolates, enols α,β-unsaturated compounds	Ch22	
		Amines	Ch23	
	8/14	Exam 2 (cumulative)		<i>WS2</i>
Wk3	8/17	Carbohydrates	Ch 24	
		Amino Acids, Peptides and Proteins	Ch 27	
	8/21	Final Exam (cumulative)		<i>WS3</i>

Canvas and Class Notes:

Both worksheet assignments and PowerPoint slides of the notes will be uploaded on Canvas. Also, zoom links and recorded lectures will be posted on the lecture homepage on Canvas.