Organic Chemistry III
CHEM 2453 - I
Spring Quarter 2022

Instructor: Brady Worrell
E-mail: brady.worrell@du.edu
Office: Seeley G. Mudd 130 (I am normally on campus M-F)
Lab: Seeley G. Mudd 239/243 (if not in office always check lab! Stop by for coffee)
Lecture: M W F 9:00 – 9:50 AM, Boettcher Center Auditorium 101
Recitation: T 9:00 – 9:50 AM, Boettcher Center Auditorium 103
Office Hours: M 10 – 11 AM, W 12:00 – 1:00 PM, Zoom (my personal meeting room
https://udenver.zoom.us/j/5664144546) If these office hours do not work for you, please email me at
least one day in advance and we can schedule a Zoom meeting.

by Marc Loudon and Jim Parise (recommended)

Course Objectives: This is the third and final section of a three-quarter series in organic chemistry.
The scope of this course broadly focuses on the chemistry of carbon and compounds derived
from this important element. In this final section we will be focusing on the chemistry and reactivity of: i.
carbonyl compounds, ii. amines, iii. carbohydrates (sugars), iv. activated esters (thio-, phosphate,
etc), v. aromatic heterocycles/nucleic acids, and vi. amino acids, peptides, and proteins. I hope from
this course you can obtain an understanding of chemical reactivity from the lens of an organic
chemist and develop an appreciation for how organic molecules assemble, interact, and react.
Ultimately from this course I hope to broaden your scientific literacy; this enhanced literacy will
benefit your life no matter what career direction you ultimately pursue.

Online Homework through Sapling: There will be weekly problem sets to be completed online
through the Sapling system consisting each of 10 problems. These online homework assignments
will be worth 100 points and there will be 7 in total. Your lowest problems set will be dropped with
the remaining 6 problem sets making up the total 100 points. The Sapling online homework will be
posted on Friday at 11 am and due Tuesday at 9 am. No Sapling online homework will be given
during weeks 4 and 8.

Please go to www.saplinglearning.com/login to register for an account.

Exams: There will be two 50-minute exams during the quarter worth 100 points each occurring
during weeks 4 and 8 of the class. All examinations will be open note and open book. These exams
will be “take home” format. Specifically, I will upload the examination to Canvas on Thursday (the
day before Friday lecture) on weeks 4 and 8 at 9 am. These exams will be due at 10 am on Friday.
No class will be held on these days. I will be available for questions or clarification, as needed,
Thursday 9 am – Friday 10.
**Final Examination:** A final exam covering all core concepts and materials from week 1 to 10 will be given in week 11 of this course (June 7th, 8 am – 9:50 am, Boettcher Center Auditorium 101). The student will find it most instructive to study materials covered on online homework, class notes, and previous test keys. *One of your scores on the previous two Exams can be dropped and the Final Exam can be doubled if this improves your overall score in the class.*

**Final Grade:** Your final grade will be determined out of the 400 available points obtained through online homework, exams, and the final exam. Although, in class/out of class engagement, attendance, and general participation *do not directly impact your final grade*, they will be considered in the case of borderline scenarios.

**Point Structure:**

*Online homework:* 100 points (7-8 total, 1 dropped)  
*Exams:* 200 points (2 total, 100 points each)  
*Final Exam:* 100 points (1 total)  
*Total points in course:* 400 points

**Lecture and testing accommodations:** I will make every effort to accommodate students with a learning disability. If you require special accommodations to be made, please email me at any time during the class (preferably within the first week). For further information, please see the University’s Disability Services’ website at: [http://www.du.edu/disability/dsp/index.html](http://www.du.edu/disability/dsp/index.html). I am a very slow test taker and found time provided for testing to be insufficient and stressful. Therefore, I will not put a strict time limits on examinations and will give you ~25 hours for each examination. You can take as long as you need and, within reason, you will be accommodated. All examinations will be open book, open note. I hope for examination components of this course to test your comprehension of the material not your test taking ability.

**Lectures:** I will cover most material via drawn structures using my tablet in Powerpoint which will be saved and uploaded to Canvas following the lecture. Lectures will be done live and depending on the lecture hall capabilities, I will record the lectures and upload to Canvas. If PowerPoint slides are periodically incorporated in lecture they will be posted afterwards on Canvas. *Although attendance to lecture is recommended, it is optional. No attendance will be taken, nor will attendance count towards your final grade.*

**Canvas:** The University of Denver uses Canvas as its learning management system. You may log in to [https://du.instructure.com](https://du.instructure.com) with your DU ID number and PioneerWeb password to access the course. Please ensure your settings allow for e-mail announcement notifications. Here are some helpful Canvas resources to get you started:

- **Canvas Student Quickstart Guide:** [http://guides.instructure.com/m/8470](http://guides.instructure.com/m/8470)  
- **Canvas Student Guide:** [http://guides.instructure.com/m/4212](http://guides.instructure.com/m/4212)

**Academic Integrity:** I advocate for collaborative learning and teamwork, but I hope that each student will maintain high ethical standards. As such, I will support and enforce the Honor Code of the University of Denver: [www.du.edu/honorcode](http://www.du.edu/honorcode)

**Read this syllabus?** Great. Email *brady.worrell@gmail.com* “4n+2” in the subject line and you’ll receive 5 bonus points for the course.

**My commitment:** It is my job to teach the students of this course the subject materials to the best of my ability. As such, *I am your employee*. Therefore, day or night, please contact me directly if you need help or need special accommodations. You are *never* bugging me.
**Topics to be covered:** this schedule is subject to change and any of the page numbers/topics covered are approximations. *The class schedule may go faster or slower but, it must be stressed, examinations will only cover materials presented in class.*

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Topics</th>
<th>Readings</th>
</tr>
</thead>
</table>
| 1    | 1 (3/28) | Chapter 19: Aldehydes & Ketones  
*Sapling #1 – Posted 4/1, due 4/5* | Pg 946 – 996 (19.1 – 19.15) |
|      | 2 (3/30) |         |          |
|      | 3 (4/1)  |         |          |
|      | 4 (4/4)  | Chapter 20: The Chemistry of  
Carboxylic Acid Derivatives  
*Sapling #2 – Posted 4/8, due 4/12* | Pg 1004 – 1035 (20.1 – 20.11) |
| 2    | 5 (4/6)  |         |          |
|      | 6 (4/8)  |         |          |
|      | 7 (4/11) | Chapter 21: The chemistry of  
Carboxylic Acid Derivatives  
*Sapling #3 – Posted 4/15, due 4/19* | Pg 1044 – 1092 (21.1 – 21.12) |
|      | 8 (4/13) |         |          |
|      | 9 (4/15) |         |          |
|      | 10 (4/18)| Chapter 22: The Chemistry of  
Enolates/Enols | Pg 1103 – 1170 (22.1 – 22.12) |
| 3    | 11 (4/20)|         |          |
|      |         | **Exam #1 (Covering Chapters 19 – 22) – Posted 4/21 @ 9 am, due 4/22 @10 am** |
|      | 12 (4/25)| *Finish Chapter 22* | Pg 1183 – 1222 (23.1 – 23.12) |
|      | 13 (4/27)| Chapter 23: The Chemistry of Amines  
*Sapling #4 – Posted 4/29, due 5/3* | Pg 1232 – 1275 (24.1 – 24.11) |
|      | 14 (4/29)|         |          |
|      | 15 (5/2) | *Finish Chapter 23*  
Chapter 24: Carbohydrates  
*Sapling #5 – Posted 5/6, due 5/10* | Pg 1283 – 1318 (25.1 – 25.8) |
| 6    | 16 (5/4) |         |          |
|      | 17 (5/6) |         |          |
|      | 18 (5/9) | *Finish Chapter 24*  
Chapter 25: The Chemistry of Activated  
Esters  
*Sapling #6 – Posted 5/13, due 5/17* | Pg 1327 – 1363 (26.4 – 26.6) |
|      | 19 (5/11)|         |          |
|      | 20 (5/13)|         |          |
|      | 21 (5/16)| Chapter 26: The Chemistry of Aromatic  
Heterocycles and Nucleic Acids | Pg 1373 -1399 (27.1 – 27.10) |
|      | 22 (5/18)|         |          |
|      |         | **Exam #2 (Covering Chapters 23 – 26) – Posted 5/19 @ 9 am, due 5/20 @ 10 am** |
| 8    | 23 (5/23)| Chapter 27: Amino Acids, Peptides,  
and Proteins  
*Sapling #7 – Posted 5/27, due 6/1* | Pg 1430 – 1462 (28.1 – 28.12) |
|      | 24 (5/25)|         |          |
|      | 25 (5/27)|         |          |
|      | 26 (5/30)| *Finish Chapter 27*  
Review session | Handouts |
| 9    | 27 (6/1) |         |          |
|      | 28 (6/3) |         |          |
|      | 29 (6/5) |         |          |
| 10   |          | **Memorial Day – 5/30, no class. Enjoy the day off!** |
| 11   |          | **Final Exam (Covering all material throughout the quarter) – In person test,  
Boettcher Auditorium 101, June 7th (6/7) @ 8 am – 9:50 am.** |