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CHMY 223.01: Organic Chemistry II

Orion B. Berryman

University of Montana, Missoula, orion.berryman@umontana.edu

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CHMY 223: ORGANIC CHEMISTRY II (Spring)

Instructor: Orion B. Berryman, Ph.D.

Office: Chem 207; office Phone: 243-4546

Email: orion.berryman@umontana.edu

Office hours: MWF 12:00 – 12:50 PM via zoom;

<https://umontana.zoom.us/j/98106403319?pwd=dDRwd2g4NDQwR1AwV0JHengrWm95QT09>

Passcode: 333910

T.A.: Allison Kelly Office hours: Wed 12-1 PM CHEM 116A; Email: allison1.kelly@umconnect.umt.edu

T.A.: Evelyn Schwartz Office hours: Wed 10-12 PM CHEM 107; Email: evelyn.schwartz@umconnect.umt.edu

Prerequisites: Passing grade in CHMY 123, 143 or the equivalent; CHMY 221 C- or better. Organic chemistry is cumulative! Material from CHMY 221 will show up in the quizzes and exams in this course.

Course description and objectives: This course is a continuation of CHMY 221 and is an intensive survey of the analysis, structure, reactions and synthesis of the main classes of organic compounds. The course will begin by introducing analytical techniques and instrumentation in the form of separations, UV-Vis spectroscopy, IR spectroscopy, NMR spectroscopy and mass spectrometry. The course will then transition to the nomenclature, properties, reactions, mechanisms and synthesis of carbonyl compounds.

This course will prepare you for upper division science and engineering programs. You will also come away with an appreciation for the role of organic chemistry in medicine, industry, and biology.

Specific objectives include:

- 1) Attain a molecular perspective that will enable a greater comprehension of how nature works.
- 2) Continue to familiarize yourself with organic chemistry and its language.
- 3) Acquire understanding and experience in spectroscopy to improve chemical problem solving
- 4) Be able to apply mechanism based solutions to synthesis

Lecture format: Lectures will be in-person Urey Lecture Hall 101

Text and study guides: Organic Chemistry, Jones & Fleming, 4th or 5th Ed. and the study guide (ISBN 978-0-393-93500-4) are *not required but recommended*. We follow the general outline of the textbook and it is a great resource for outside reading. The accompanying study guide gives the answers to all the problems in the book. If you already have access to another sophomore organic text then feel free to use that.

The ACS also publishes a study guide (<http://shopping.na1.netsuite.com/s.nl/c.3773982/sc.11/category.191/.f>) for the entire two semester sequence which *will be very useful for the final exam* as well as for the PCAT/MCAT etc.

We also recommend the Virtual Textbook of Organic Chemistry by William Reusch at Michigan State University (<http://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/intro1.htm>). This is an outstanding resource: an online, completely free, well written and organized set of course notes and practice problems for organic chemistry.

Homework: We believe the best way to succeed at organic chemistry is by completing as many practice problems as possible. There will be two *graded* mechanism problems due throughout the semester. *The due dates for these homework problems will be announced in class.*

We will also be setting frequent problems from the end of chapter problems in the Jones text. These problems will be assigned but not graded. If you can do these problems you will do fine on the quizzes and tests.

Another useful resource is the online problems available from the Virtual Online Organic Textbook website:

<http://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/Questions/problems/indexam.htm>

<http://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/Questions/problems.htm>

Molecular model kit: Available from the bookstore, former students, online or use your models from General Chemistry. We recommend building many of the molecules we talk about.

Online resources: We will be making extensive use of Moodle (<http://umonline.umt.edu>) to post lecture notes, additional material, take online quizzes and tests, post quiz and exam keys and grades for the course.

Quizzes & Exams: There will be 10 Moodle quizzes. Each quiz will open up on Fridays and must be completed before the day of your final examination. The best way to do these quizzes is to attempt them alone like an exam. You can take the quizzes as many times as you like and your best score will be graded.

On Fridays after lecture, I will hold a recitation where we will practice solving problems and drawing mechanisms. Given the heavy reliance on online content this semester I strongly encourage you to participate in these recitations.

There will be four, graded, examinations. These examinations will start at 3:00 PM. *No early or late exams will be given with the exception of student athletes and examinations taken at DSS.* These exceptions only exist as such exams are proctored by other faculty and staff of the University. Exams will emphasize the material given since the previous exam but recognize that some material given earlier in the course will be required. Graded exams will be returned in class and an answer key will be posted on Moodle. If the student requests a change in grading, the exam must be left with the instructor before the student leaves the classroom on the day that the exam is returned.

A comprehensive 110 minute final exam covering the whole year will be given (the standard American Chemical Society (ACS) exam for the two semester sequence). The exam is multiple choice - 70 questions. *Get the study guide for this.*

Lowest Exam Grades/Missed examinations: The lowest examination grade will not be included in your final point total. A missed exam counts as a zero. There will be no make-up exams for the first examination missed. Make-ups are permitted for the second missed examination solely at the discretion of the instructor. A make-up examination must be requested no later than the second lecture after the missed examination. The drop-lowest/make-up policy is designed for **emergencies and other infrequent, unplanned absences.** It is not designed for schedule conflicts. There will be no make-up exams for the ACS final, this exam will only be given during the assigned examination times.

Point Distribution and Grades:

Quizzes:	10 Moodle	All are counted	20 pts each	200 points (28.6%)
Exams:	4 in total	Best 3 are counted	100 points each	300 points (42.8%)
Final exam:	1	Score is included	<u>200 points</u>	<u>200 points (28.6%)</u>
			Total	700 points

There will be no chemistry questions answered during examinations or quizzes either by the instructor or the TA's.

The course will be graded using standard grades from A, A-, B+... D-, F. Grades will correspond to scores as follows:

	614	(93 %)		660	(100 %)	A
	594	(90 %)		614	(93 %)	A-
	574	(87 %)		594	(90 %)	B+
	548	(83 %)		574	(87 %)	B
	528	(80 %)		548	(83 %)	B-
Score greater	508	(77 %)	but less than	528	(80 %)	C+
than or equal to	482	(73 %)		508	(77 %)	C
	462	(70 %)		482	(73 %)	C-
	442	(67 %)		462	(70 %)	D+
	416	(63 %)		442	(67 %)	D
	363	(55 %)		416	(63 %)	D-
			Score less than	363	(55 %)	F

Attendance: Attendance is not mandatory but is strongly encouraged. You are responsible for all material presented in class whether you attend or not. Lecture notes/recordings will be posted online when possible following the class period.

Cheating: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code: <https://www.umt.edu/student-affairs/community-standards/student-code-of-conduct-2020-pdf>

All exams and quizzes are closed book. Looking at another student's exam or quiz is cheating. The penalty for cheating is an F for the course. The University may also level additional punishments.

Incomplete grades: Review the University "Incomplete" grade policy which includes the following: (a) factors beyond the student's control (and acceptable to the instructor) must make it impossible to complete the course on time, (b) the student should have been in attendance and passing through three weeks before the end of the semester, and (c) the instructor should believe that there is a reasonable probability the student can complete the course without repeating the entire course. Early travel before the final exam date is not sufficient reason for an "Incomplete."

Withdrawal/Other Change in Grading Option: After the 30th day of instruction, a grade of WF or WP will be assigned.

Turn Off Cell Phones. The use of cell phones in class, or during examinations, is not allowed.

Quiz and Exam Schedule / other notable events. The Moodle quizzes and exams will be opened on Fridays at 3:00 pm

CHMY223:

Wednesday, January 19	First lecture
Friday, January 28	Moodle Quiz #1
Friday, February 4	Moodle Quiz #2
Friday, February 11	No lecture - Examination #1
Friday, February 18	Moodle Quiz #3
Friday, February 25	Moodle Quiz #4
Monday, February 21	No class -President's day
Friday, March 4	No lecture - Examination #2
Friday, March 11	Moodle Quiz #5
Friday, March 18	Moodle Quiz #6
Monday, March 21 –	No class – spring break
Friday, March 25	
Friday, April 1	No lecture - Examination #3
Friday, April 8	Moodle Quiz #7
Friday, April 15	Moodle Quiz #8
Friday, April 22	No lecture - Examination #4
Friday, April 29	Moodle Quiz #9
Friday, May 6	Moodle Quiz #10
Tuesday, May 10	Final examination (3:20 – 5:20pm)

Additional policies:

Students with disabilities will receive reasonable modifications. Please request these from the instructor in advance and provide verification of the disability and its impact from Disability Services for Students (DSS; <http://www.umt.edu/disability>).

Safety: UM Covid-19 Website: <https://www.umt.edu/coronavirus>

Each student is provided with a cleaning kit. Please clean your personal work space when you arrive to class, and before you leave. Students should not congregating outside the lecture hall before and after class. Please remain vigilant outside the classroom in mitigating the spread of COVID-19

- Mask use is required within the classroom.
- If you feel sick and/or are exhibiting COVID symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress.
- UM recommends students get the COVID vaccine and booster. Please direct your questions or concerns about vaccines to the Curry Health Center.
- Drinking liquids and eating food is discouraged within the classroom.

*The syllabus may be changed at any time and it is your responsibility to learn of these changes should you miss class.