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### CHMY 223.01: Organic Chemistry II

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#### Recommended Citation

Berryman, Orion B., "CHMY 223.01: Organic Chemistry II" (2015). *Syllabi*. 2650.

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## CHMY 223: ORGANIC CHEMISTRY II (Spring)

Instructor: Orion B. Berryman, Ph.D.

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Office hours: MWF 12:10 – 1:00 PM; Rm Chem 009

T.A.: Asia Riel Office hours: T, Th 9:10-10 AM; Rm Chem 107 (computer lab) and recitation Th 5:10-6 PM; Chem 212  
Email: asiamarie.riel@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

**Text and study guides:** Organic Chemistry, Jones & Fleming, 5<sup>th</sup> 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. If you already have access to another sophomore organic text then feel free to use that.

The study guide gives the answers to all the problems in the book. The ACS also publishes a study guide ([http://examsinstitute.3dcartstores.com/Organic-Chemistry-Study-Guide\\_p\\_9.html](http://examsinstitute.3dcartstores.com/Organic-Chemistry-Study-Guide_p_9.html)) 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. We will be setting frequent problem 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, post quiz and exam keys and grades for the course.

**Quizzes & Exams:** There will be five in-class quizzes every other week and only three will count towards your grade. On the other Fridays after lecture, we will still be giving quizzes or doing problems in class but they will not be graded and we will go over the answers to the quizzes or problems immediately after.

In addition, there will be five Moodle quizzes. You can complete them at any time during the semester. They must all be completed prior to the date 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.

There will be four, graded, hour long examinations. These examinations will start at 4:00 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 much 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. *We recommend getting the study guide for this.*

**Lowest Exam Grades/Missed examinations:** The lowest examination grade will not be included in the 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. No make-up will be given before the regularly scheduled quiz/examination. 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:	5 Moodle/5 in-class	Best 3 in-class are counted	20 pts/20 pts each	160 points (24.2%)
Exams:	4 in total	Best 3 are counted	100 points each	300 points (45.5%)
Final exam:	1	Score is included	<u>200 points</u>	<u>200 points (30.3%)</u>
			Total	660 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 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 (see below) and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code: [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php)

All exams and quizzes are closed book. Looking at another student's exam or quiz is cheating as is altering exams for re-grading. 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 30<sup>th</sup> 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 quizzes and exams will be given on Fridays at 4:00 pm

#### **CHMY223:**

Monday, January 26	First lecture
Friday, January 30	In-class Quiz #1
Friday, February 6	Moodle Quiz #1
<b>Friday, February 13</b>	<b>Examination #1</b>
Monday, February 16	No class -President's day
Friday, February 20	In-class Quiz #2
Friday, February 27	Moodle Quiz #2
<b>Friday, March 6</b>	<b>Examination #2</b>
Friday, March 13	In-class Quiz #3
Friday, March 20	Moodle Quiz #3
<b>Friday, March 27</b>	<b>Examination #3</b>
Monday, March 30 –	No class – spring break
Friday, April 3	
Friday, April 10	In-class Quiz #4
Friday, April 17	Moodle Quiz #4
<b>Friday, April 24</b>	<b>Examination #4</b>
Friday, May 1	In-class Quiz #5
Friday, May 8	Moodle Quiz #5
<b>Thursday, May 14</b>	<b>Final examination (3:20 – 5:20pm)</b>

#### **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>).

#### **Changes to syllabus:**

We reserve the right to change any or all of the syllabus at any time. It is the responsibility of the student to learn of these changes should they miss class.