

# CHEM3331: FUNDAMENTALS OF ORGANIC CHEMISTRY I

Fall 2015 (August 24<sup>th</sup>–December 8<sup>th</sup> 2015)

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[www.chem3331.com](http://www.chem3331.com)

CHEM 3331 is an undergraduate introductory organic chemistry course. The course will cover three broad topics. We will first talk about the general concepts of organic chemistry: structure, stereochemistry, polarity, thermodynamics, and chemical kinetics. Central part of the course will deal with some important classes of organic compounds—alkyl halides, alkenes, alkynes, and alcohols—and their reactivity. In the final portion of the course, we will see how spectroscopic techniques—nuclear magnetic resonance, infrared spectroscopy, and mass spectrometry—are used to determine the structures of organic molecules.

<i>Prerequisites</i>	CHEM1331 + CHEM1332: FUNDAMENTALS OF CHEMISTRY
<i>Class Meetings</i>	<u>Lectures</u> <sup>†</sup> 4:00p–5:30p Mon/Wed, 117 S&R Building 1  <u>Review Sessions</u> 12:10p–1:00p Wed, 101 SEC  <u>Office Hours</u> 2:30p–3:30p Mon, 5028 SERC Bldg (or by appointment) 9:00p–10:30p Thu, N115 Cougar Village 1, open to all students  <u>Recitation Sections</u> , CHEM 3131—you have to register separately Tue 8:30a–11:00a (SEC 206)      Tue 4:00p–5:30p (SEC 206) Wed 5:30p–7:00p (SEC 205)      Thu 8:30a–11:00a (SEC 206)
<i>Exams and Grading</i>	<b>You are allowed—and encouraged—to use Internet during all exams.</b>  <u>Quizzes</u> count for 22% of the grade, lowest score dropped. <b>No makeups!</b> Quizzes will be given on Blackboard Learn immediately after each lecture.  <u>Midterms</u> count for 48% of the grade, lowest score dropped. <b>No makeups!</b> Friday, September 25 <sup>th</sup> 2015, 7:00p–8:30p, 100 SEC (room may change) Friday, October 23 <sup>th</sup> 2015, 7:00p–8:30p, 100 SEC (room may change) Friday, November 20 <sup>th</sup> 2015, 7:00p–8:30p, 100 SEC (room may change)  <u>Final Exam</u> counts for 30% of the grade. <b>No makeups!</b> Tuesday, December 8 <sup>th</sup> 2015, 8:00a–11:00a, location TBA  <b>Last day to drop the course without grade—Wednesday, September 9<sup>th</sup></b> Last day to drop the course—Friday, October 30 <sup>th</sup>
<i>Recommended</i>	Leroy G. Wade: <i>Organic Chemistry</i>

\* Prof. Miljanić's name is phonetically pronounced as: Ogg•nyen Meel•yan•ich.

<sup>†</sup> Students are responsible for being aware of the announcements that may be made during class or posted on class website.

<i>Books and Resources</i>	Course websites, lecture notes, and molecular models are very useful!		
<i>Topics and Timeline</i> —tentative—	<b>Date</b>	<b>Topic</b>	<b>Sections</b>
	Mon 08/24	Syllabus discussion. Introduction	1.1–1.6
	Wed 08/26	Concepts: resonance, structure, acidity	1.7–1.14
	Mon 08/31	Structures of organic molecules	2.1–2.8
	Wed 09/02	Polarity. Classes of organic compounds	2.9–2.14
	Mon 09/07	Labor Day—No Class!	
	Wed 09/09	Hydrocarbons. Alkanes—introduction	3.1–3.6
	Mon 09/14	Alkanes—conformational analysis	3.7–3.9
	Wed 09/16	Cycloalkanes	3.10–3.15
	Mon 09/21	Alkanes—thermodynamics of chlorination	4.1–4.7
	Wed 09/23	Alkanes—kinetics of chlorination	4.8–4.16
	<b>Fri 09/25</b>	<b>First midterm (7:00p–8:30p)</b>	<b>Chapters 1–4</b>
	Mon 09/28	Stereochemistry—introduction	5.1–5.5
	Wed 09/30	Stereochemistry, continued	5.6–5.10
	Mon 10/05	Molecules with multiple stereocenters	5.11–5.16
	Wed 10/07	Alkyl halides—introduction, S <sub>N</sub> 2 reaction	6.1–6.9
	Mon 10/12	Alkyl halides—S <sub>N</sub> 2 continued, S <sub>N</sub> 1 reaction	6.10–6.16
	Wed 10/14	Alkyl halides—elimination reactions	6.17–6.21
	Mon 10/19	Alkenes—intro, nomenclature, properties	7.1–7.8
	Wed 10/21	Alkenes—synthesis	7.9–7.11
	<b>Fri 10/23</b>	<b>Second midterm (7:00p–8:30p)</b>	<b>Chapters 5–7</b>
	Mon 10/26	Reactions of alkenes	8.1–8.9
	Wed 10/28	Reactions of alkenes, continued	8.10–8.17
	Mon 11/02	Alkynes—intro, properties, synthesis	9.1–9.8
	Wed 11/04	Reactions of alkynes. Multistep synthesis	9.9–9.10
	Mon 11/09	Alcohols—intro, properties, synthesis	10.1–10.7
	Wed 11/11	Alcohols—synthesis, continued	10.8–10.12
	Mon 11/16	Reactions of alcohols	11.1–11.7
	Wed 11/18	Reactions of alcohols, continued	11.8–11.14
	<b>Fri 11/20</b>	<b>Third midterm (7:00p–8:30p)</b>	<b>Chapters 8–11</b>
	Mon 11/23	Infrared spectroscopy. Mass spectrometry	12.1–12.15!
	Wed 11/25	Thanksgiving Wednesday—No Class	
	Mon 11/30	Nuclear magnetic resonance	13.1–13.9
	Wed 12/02	<sup>13</sup> C NMR. Class conclusion	13.12–13.14
	<b>Tue 12/08</b>	<b>Final exam (8:00a–11:00a)</b>	<b>Comprehensive</b>
<i>Miscellaneous Info</i>	Students with disabilities are entitled to additional time and/or alternative accommodations under the <i>Americans with Disabilities Act</i> . If you are one of them, please contact Dr. Miljanić as soon as possible to discuss arrangements.		