

Organic Chemistry I (CHM 355-201): Spring 2010

Course description: A systematic study of organic chemistry including modern structural theory... and stereochemistry; application of these topics to the study of reactions and their mechanisms and applications to synthesis. [Note: Organic Chemistry II (CHM 356), which includes spectroscopy, is a continuation of this.]

Credit: 3.00 hours

Prerequisite: C or better in CHM 212 or equivalent

Instructor: John L. Hubbard, Ph.D.; Science 484; 696-3136; hubbard@marshall.edu

Hours (subject to change): MW 8-9, 10-12; TR 12-2; or by appointment

LECTURE SCHEDULE

<u>Date</u>	<u>Chapter</u>	<u>Topic</u>
Jan 11,13,15,20	1	The Structures of Organic Molecules
22,25,27,29	2	Bonding in Organic Molecules
Feb 1,3,5	3	The Conformations of Organic Molecules
8	1-3	EXAM I
10,12,15	4	The Stereochemistry of Organic Molecules
17,19,22	5	Chemical Reactions and Mechanisms
24,26		
Mar 1	6	Substitution Reactions of Alkyl Halides
3	1-6	EXAM II
5,8,10	7	Substitution Reactions of Alcohols and Related Compounds
12,15,17	8	Elimination Reactions of Alkyl Halides, Alcohols, and Related Compounds
19,29,31	9	Addition Reactions of Alkenes and Alkynes
Apr 2	1-9	EXAM III
5,9,12	10	Addition Reactions of Conjugated Dienes
14,16,19	11	Oxidation and Reduction Reactions
21,23,26	12	Free Radical Reactions
28	1-12	EXAM IV
30	--	Review
May 1	1-12	FINAL EXAM (Saturday, 9:00 am, location TBA)

[NOTE: Class will not be held on Assessment Day 2010, Wednesday April 7. A list of activities in which students may participate is available from one's Department Chair or College Dean's Office.]

Required text: Sorrell, *Organic Chemistry*, 2nd ed., University Science Books, 2006 (solutions manual available) Also required: WebAssign Access Code (via scratch card or internet); molecular models

Attendance Policy Attending all class sessions is expected. For the policy concerning excused absences, see the online catalog, pp 121-122, at <http://www.marshall.edu/ucomm/catalog/interim.htm>.

Electronic Devices Mobile telephones and other electronic devices must be turned off while in the classroom.

Course Performance Grades are determined by means of hour exams and a final exam. The final numerical grade is computed by two methods: A) Exams (top 3 of 4) 60%, Final Exam 40% ; B) Exams (all 4) 80%, Final Exam 20%. The higher percentage is used to determine the letter grade. Since the lowest of the four hour exams may be dropped, **no make-up exams are administered**: an exam missed for any reason is considered "lowest". If an excused absence due to a university-sponsored activity or a religious holiday occurs when an exam is scheduled, the exam may be taken in advance (pre-approval required). Minimum final letter grades of A, B, C, and D will be assigned for numerical grades 90-100, 80-89, 70-79, and 60-69, respectively.

NOTE: Exams are not returned, but are available for review at any time (appointment advised) after being graded until Friday April 30 at 2:00 pm.

Policy for Students with Disabilities Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Weather If the University is closed due to inclement weather or other emergency, or if there is a 2-hour delay, this class will not meet.

Problems Working problems is an essential part of the process of studying organic chemistry. Work all the problems that are within the text material since these are designed to allow testing yourself on understanding of the section(s) just before these problems. Try to work all problems at the ends of chapters: this is time-consuming, but it is of great benefit since the major objective of the course is learning to solve various types of problems. Due to time limitations, sections of text and problems pertaining to biological systems will receive minimal attention.

Many of the questions on exams will be similar in nature to the problems in the text. Bear in mind that one must avoid memorizing specific answers to specific problems: the point is to be able to use information that was learned or that was given to solve any example of a particular type of problem. There is a certain body of information (facts, rules, etc.) that must be learned (i.e., memorized) in order to be able to solve problems. One of the keys to success is realizing what should be memorized and what should not.

Additional problems may be found by consulting other textbooks or using the Internet. Also, to encourage practice in solving problems, WebAssign will be used. Twelve assignments will be available at appropriate times during the semester. Satisfactory completion of all assignments will result in addition of 1.2 points to one's final total, while failure to complete any assignments will result in a deduction of 1.2 points. Thus, one starts at -1.2 and builds in increments of 0.2 per assignment completed. It is expected that the main benefit of using WebAssign will be realized in improved performance on exams. Visit <http://www.webassign.net> and log on: username is the part of your Marshall email address before @; institution is marshall; temporary password is orgchem1j1h (this is 7 letters, a number, and 3 letters). First assignment will appear 1/20 at 2:00 pm.

Learning Objectives (1) Know the common organic functional groups; be able to provide the name if given a structure or the structure if given a name. (2) Know the systematic (IUPAC) rules for naming organic compounds; be able to write names corresponding to structures and structures corresponding to names. (3) Know the terms used to specify structural relationships among organic compounds; given a pair of structures, be able to specify their relationship. (4) Understand the different types of organic reactions; given the structure of an organic compound and a set of reaction conditions, be able to predict the structure of the principal organic product. (5) Know the common reagents used to transform one organic compound (the reactant) into a different organic compound (the product); given structures of a reactant and a product, be able to specify the conditions necessary to effect the transformation. (6) Understand how to write mechanisms for organic reactions.

Three Strike Rule Effective January 2005 the Department of Chemistry's policy (approved by the University Curriculum Committee and the Faculty Senate) is that no one may take CHM 355 a third time without successfully completing CHM 254. A withdrawal counts as an attempt. No student will be permitted more than two attempts to pass CHM 254. This policy includes a "three strike" rule for CHM 355. After successful completion of CHM 254, a student will have one final chance at CHM 355, but no one will be allowed more than three total attempts at CHM 355 at Marshall University. [NOTE: CHM 254 is not currently available. Until it becomes available again, presumably online, the Three Strike Rule is waived.]

Advice Do not get behind. Avoid unnecessary distractions. Organize/Join a study group. Get additional help if it is needed (i.e., take advantage of office hours). Constantly bear in mind that the material is cumulative, so that one must master each part to be successful with the next; continual review is a must.