Syllabus for CHM 2430-001 Survey of Organic Chemistry Fall Semester, 2009

Course Description: CHM 2430 is an overview of organic chemistry. The structure and reactions of the major functional groups will be introduced, along with the physical properties and mechanisms that explain these properties and reactions. The course is assigned 3 hours of credit. Prerequisite: CHM (1410C, 1415C) or (1510, 1515C).

**** NOTE** that if you are <u>a CHEMISTRY MAJOR, a TRACK II CHEMISTRY MINOR, a PREDENTISTRY,</u> <u>PREPHARMACY or PREMEDICINE student</u>, a <u>PREVETERINARY</u> student, or <u>if you EVER PLAN TO TAKE CHM</u> <u>2840</u>, you should be enrolled in CHM 2440 and not this course.

Course Goals: (1) Learn the basic principles of organic chemistry, and develop critical thinking methods for evaluation of organic reactions and compounds.

- (2) Encourage awareness of the role of organic chemistry in everyday life.
- (3) Encourage independent learning and interest in organic chemistry.

Lectures:	Time: 11:00 – 11:50 A. M. Days: Monday, Wednesday, Friday Place: Physical Sciences Building R	Room 4157
Instructor:	Dr. Ed Treadwell Phone: 581-6229 Office Hours: Mon 10:00-10:50 Other hours as available or by a	Office: Physical Sciences Building Room 4450 E-mail: emtreadwell@eiu.edu Weds. 8:00-9:00, 10:00-10:50 ppointment.
Materials:	Textbook: "Organic Chemistry, a Study Guide: "Study Guide and Sol	a Short Course" (12 th Edition) by Hart, Craine, Hart, & Hadad utions Manual" (12 th Edition) by Hart, Craine, Hart, & Hadad

WebCT will be used for this course (CRN 91401) and you should view this site regularly.

Optional review session: Monday nights at 7 pm

Course Policies:

- (1) Textbook reading assignments and homework problems are listed on page 4 of this syllabus. Although homework will not be collected or graded, the homework is important to your understanding and mastery of the material. Quizzes and tests will contain problems that are similar to homework material.
- (2) Attendance is not recorded or evaluated for grading purposes, but you are strongly encouraged to attend all classes.
- (3) You are responsible for all announcements made during class, whether you are present or not.
- (4) Absences and Makeup Exams
 - A. Absences for Medical Reasons

If you are absent for a quiz or exam because you were sick, you may take a makeup quiz or exam if you provide an excuse that is *written* and *signed* by a medical official.

- B. Absences for Athletic Reasons If you must be absent for a quiz or exam because of required travel with an university athletic team, contact me in advance and plan to take the quiz or exam at a suitable time.
- Other Absences Absences due to emergency reasons will be judged on a case-by-case basis, though only rarely will an absence be excused if it does not fall under one of the two above criteria. Lack of a valid reason for an absence will result in a zero score on the quiz or exam that was missed.
- (5) Quizzes will be given roughly every week. Only your best 10 quiz scores will be used to calculate your quiz total.
- (6) Please note that collectively the quiz grade is equal to an exam grade, or worth 15% of your course grade.
- (7) On every exam, you are responsible for all material covered previously in the course.
- (8) There is final exam is comprehensive that counts for 25% of your course grade.
- (9) If you have a documented disability and wish to discuss academic accommodations, please contact Dr. Treadwell as soon as possible.
- (10) All aspects of the student conduct code are expected to be followed.

Possible Points:

Source	Points
10 Quizzes @ 10 points each	100
4 Exams @ 100 points each	400
Comprehensive Final Exam	150
Total Points	650

Grades:

Initially, the normal grading scale (A = 90%+, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F = >60%) will be employed. If necessary, a curve will be applied relative to the overall class performance where the minimum percentage for an A is less than 90%, and the remaining grade percentages are adjusted downward to maintain a 10% range between each letter grade. Only the total points will be curved, so that individual quizzes and exams will not receive a letter grade. The curve will be recalculated after every exam, and will be posted outside my office. After the fourth exam but before the final exam, the curve will be adjusted for the last time, so that you will know exactly how many points are needed to obtain your desired grade.

Succeeding:

This material will most likely seem very strange to you at the beginning (it did to me when I first took organic chemistry), but hopefully as the course progresses you will come to understand and appreciate the material. After the first two weeks, it will be very different from your general chemistry courses – and it will be nearly impossible to do well by "coasting by". The material will change quite a bit from exam to exam, so just because you did well on the first exam does not necessarily mean you will do well on the remaining exams. This course will move at a **fairly rapid pac**e, and it is important that you keep up with the material as much as you can. To get the most out of the course, it is necessary for you to read the material before the lectures and don't be afraid to ask questions. I encourage you not to simply memorize the material, but to understand it and see how it relates to what we've already learned – believe it or not, there are only a few underlying principles you need to understand to do well in organic chemistry. Do not be afraid to ask questions in class or to stop by my office – I enjoy it when visitors come to my office (unless they are with the IRS). Don't get frustrated or stuck over certain points – be sure to ask for help when needed. I want to see all of you do well in this course. GOOD LUCK!!

Suggestions for doing well in CHM 2430:

- 1. Keep up with the material as much as possible. Falling behind can be fatal to your grade.
- 2. Read the chapters with no distractions (TV, radio, iPod, etc..), concentrating on the text and concepts.
- 3. Work out the homework problems assigned. If you do not have time to work all the problems assigned, try one of each type of question.
- 4. When working the homework problems, *first*, try to solve the problems WITHOUT looking at the solutions guide. *Then* compare your answers to the solution guide, and make sure you understand any mistakes you made. You will not really be helping yourself any by "doing the problems along with the study guide".
- 5. For understanding stereochemistry, a molecular model set will be extremely helpful.
- 6. When we get to discussing reactions, flash cards with the starting materials on the front side and the products on the back side can be helpful.
- 7. When a quiz is returned to you, look to see where you lost points and review those items that you missed. Ask if you are unsure of why credit was lost on a question. If you can do well on the quizzes, you will do well on the exams.
- 8. When studying for an exam, review the quizzes leading up to the exam including the questions that you did not answer. Print out or copy the <u>blank</u> practice exams and try them, and then compare your answers to the answers posted in the keys. Study the things you did not do well on, and then retake the practice exam.
- 9. Seek help when you don't understand a concept this can be from the tutoring service or from me either during office hours or at other arranged times. I want you to do well in this course.

Aug	24	26	28
	1.1-1.7 Bonding	1.8-1.11 Isomers, formulas	1.12-1.15 Resonance,
		Ouiz 1	hybridization $3.4, 3.10$ π Bonds
	(31)	2	3.4, 3.13 <i>h</i> bolids
	1.17-1.18 Classifications	2.4-2.6 Nomenclature, source	2.7-2.8 Physical properties of
	2.1-2.3 Alkanes,	of alkanes	alkanes
	nomenclatures	Quiz 2	Conformational analysis
	7	9	11
		2.9-2.11 Cycloalkanes	2.12 Reactions of alkanes
Sont	14	Quiz 3	18
Sept	3.1-3.5 Intro to Alkenes	10	3.6-3.8 Additions to Alkenes
	5.4 E/Z nomenclature	EXAM I	
	Quiz 4		
	21	23	25
	3.9-3.10 Mechanism of	3.13-3.16 Hydrogenation,	3.17 Oxidation of
	addition	polymerization	alkenes
	thermodynamics	Quiz 5	5.16-5.20 Alkylies
	28	30	2
	4.1-4.7 Intro to aromatics	4.8-4.9 Aromatic substitution	4.10-4.11 Effects of
		Quiz 6	substituents
	5	7	9
	5.1-5.3 Stereoisomers		5.7 Fischer projections
	Ouiz 7	ЕХАМ П	5.8-5.10 Diastereomers
	12	14	16
	5.11-5.12 Stereoselectivity,	6.1-6.5 Alkyl halides:	6.6-6.7 Alkyl halides:
	resolution	substitutions	eliminations
		Quiz 8	
Oct	19	21	23
	0.8-0.9 Alkyl halides:	7.1-7.7 Intro to alconois Ouiz 9	
	26	28	30
	7.8-7.11 Conversion of ROH	7.12 Oxidation of alcohols	9.1-9.5 Intro to aldehydes and
	to RX	Quiz 10	ketones
	2	4	6
	9.6-9.8 Additions to		9.9-9.12 Addition to
	carbonyis	EXAWI III	carbonyis (cont u)
Nov	9	11	13
1101	9.11 Addition to carbonyls	9.14-9.15 Keto/enol tautomers	9.17-9.19 α-Hydrogens
	(cont'd)		
	1.	Quiz 11	
	10 1 10 5 Intro to carbovylic	10.6.10.7 Propp of acids	20 10.8.10.11 Propp of asters
	acids	Ouiz 12	
	(30)	2	4
	10.12-10.17 Rxns of esters	10.18-10.21 Other carboxylic	EXAM IV
		acid derivatives	
		Quiz 13	
Dec	7	9 11 A-11 7 Resignity and propp	11 118-1113 Pype of aminos
		of amines	Oniz 14

Final exam: Wednesday December 16, 2002 10:15 a.m. – 12:15 p.m.

Reading and Homework Problems from "Introduction to Organic Chemistry" CHM 2430-001 Fall 2009

Chapter	Reading *	Homework	
1	1.1 - 1.18	1.1, 1.2, 1.3, 1.4, 1.8, 1.9, 1.10, 1.12, 1.14, 1.15, 1.20, 1.21, 1.22, 1.24,	
		1.25, 1.27, 1.28	
		1.32, 1.34, 1.35 (a,b,d,e), 1.37 (a,b,f,h), 1.37, 1.38 (b,c,g), 1.40 (a,c,f),	
		1.41 (a,c,e), 1.42, 1.45, 1.48, 1.49, 1.50, 1.51, 1.58, 1.59	
3	3.4, 3.19	3.37b	
2	2.1 - 2.12	2.2, 2.3, 2.5, 2.6, 2.8, 2.9, 2.11, 2.12, 2.15, 2.16, 2.18, 2.20, 2.24, 2.25	
		2.26 (a,c,d,g,i), 2.27 (a,b,d,e), 2.28 (b,d,f), 2.29, 2.31 (b,d,e), 2.34, 2.35,	
		2.36, 2.37, 2.38, 2.40, 2.45, 2.48	
3	3.1 - 3.20	3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15,	
		3.19, 3.23, 3.24, 3.28, 3.29, 3.31	
		3.34 (a,b,c,d,f,g,h), 3.35 (c,d,f,i,j), 3.36 , 3.38 , 3.40 , 3.41 (a,c,d,f), 3.42 ,	
		3.44, 3.45, 3.48, 3.52, 3.56, 3.57, 3.59, 3.60	
5	5.4	5.12, 5.13	
	<u> </u>	5.39	
4	4.1 - 4.11	4.5, 4.0, 4.7, 4.0, 4.10, 4.15, 4.14, 4.15, 4.17	
		4.20 (a,c,c,i,g,K,i,0), 4.21 (a,0,u,c,g), 4.24 , 4.26 , 4.29 , 4.50 , 4.55 , 4.50 ,	
		4.57, 4.56, 4.59, 4.41	
5	51-53	51 52 53 54 58 59 510 511 516 519 524	
5	56-512	5.27, 5.28 (a c d) $5.31, 5.32$ (a b) $5.33, 5.34, 5.35, 5.36, 5.42$ (h c)	
	5.0 5.12	5.43, 5.45, 5.49, 5.55	
6	6.1 - 6.9	6.1, 6.2, 6.4, 6.5, 6.8, 6.9	
-		6.12, 6.13, 6.15, 6.16, 6.18, 6.19, 6.20, 6.22, 6.24	
		7.1, 7.2, 7.7, 7.8, 7.10, 7.11, 7.13, 7.14, 7.19	
7	7.1 - 7.12	7.26, 7.27, 7.28 (b,f.g), 7.31, 7.32, 7.34, 7.36 (c,e), 7.37 (c,e), 7.38, 7.41,	
		7.43, 7.44, 7.46, 7.47	
		9.1, 9.2, 9.3, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.14, 9.16, 9.17, 9.18, 9.19,	
9	9.1 - 9.15,	9.24, 9.25, 9.26, 9.28	
	9.17 - 9.19	9.30 (a-e,h), 9.31 (a,b,d,e,f,j), 9.33, 9.37, 9.38, 9.40, 9.41, 9.42, 9.44,	
		9.45, 9.48	
		10.1, 10.2, 10.7, 10.8, 10.10, 10.12, 10.13, 10.15, 10.16, 10.17, 10.18,	
10	10.1 - 10.21	10.21, 10.24, 10.26, 10.26, 10.29, 10.30, 10.31a, 10.34	
		10.37, 10.38, 10.39, 10.40, 10.43, 10.44, 10.45 (c,d,e,f), $10.48, 10.49, 10.51, 10.52, 10.52$	
		10.50b, 10.51, 10.52, 10.53 (a-e), 10.57, 10.58	
11	11 1 11 12		
11	11.1 - 11.13	11.1, 11.3, 11.4, 11.3, 11.9, 11.13, 11.13, 11.10, 11.18, 11.19 $11.24, 11.25 (a.b. a.c.i), 11.27, 11.29, 11.24, 11.26$	
		11.24, 11.23 (a,0,0,0,0,1), $11.27, 11.20, 11.34, 11.30$	

*section numbers.

the problems in italics can be found in the chapter, those in regular type-face are found at the end of the chapter