

**SYLLABUS**  
**Organic Chemistry 1**  
**CHM 3301**  
**Fall 2004**

**Instructor:**

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Dr. Kiessling

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**Office Hours:**

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MW 9:00 - 11:00, T 11:00 – 12:00 and by appointment.

I do try to maintain an open door policy. If you stop by my office and the door is open then you are free to pick up graded materials and ask questions.

**Lecture Time:**

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MWF 8:00 – 8:50

**Purpose:**

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Fundamentals of organic chemistry are presented. Modern theory, reaction mechanisms and stereochemistry are included along with nomenclature, preparation, reactions and properties of organic compounds. The laboratory stresses syntheses, chemical and physical properties and an introduction to instrumental techniques. The laboratory period includes one hour of lecture on theory and techniques of laboratory operations. Prerequisite: CHM 1112.

**Texts:**

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1. *Organic Chemistry* (5<sup>th</sup> Edition) by Carey
2. *Study Guide and Solutions Manual* by Carey
3. *Darling Molecular Models*.
4. *The Organic Laboratory Survival Manual* (5th edition) by Zubrick.

### **Attendance:**

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Students are expected to be at all lectures and laboratories. Attendance will be taken during class. If a lecture is missed, the student is expected to obtain the information and will be responsible for it. Anything discussed in a lecture will be considered appropriate test material.

### **Course Goals:**

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At the end of the course each student should be able to:

1. Use theories (models) of varying complexity to rationalize chemical bonding, structure and reactivity.
2. Explain the relationship between structure and physical and chemical properties and to make predictions concerning these properties.
3. Think creatively about synthesis.
4. Attack problems in a systematic, logical manner.
5. Discuss mechanisms for selected organic reactions.
6. Discuss the principle reactions of organic compounds.
7. Discuss the importance of stereochemistry with particular application to medicine and biochemistry.
8. Derive the proper name for an organic compound.

### **Homework:**

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At the end of each chapter there is a section titled 'Problems'. Several problems from each chapter will be assigned. These problems are highly recommended and should be done in a timely fashion, as they are an *excellent* way to prepare for an exam. You should work the problem *before* consulting the answer key. These problems serve as a model for exam question and may appear exactly as written on exams. You should periodically check the course web site for any updates on material relating to the course.

### **Examinations:**

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There will be three exams given during the regular class period and a fourth exam given finals week. If a student has a legitimate excuse for missing an exam the student **must** notify the instructor at least 24 hr. **in advance** to arrange a make-up examination. If arrangements are not made in advance, a single, comprehensive make-up exam will be scheduled for the end of the semester.

Exams will cover material from the lecture, textbook, and laboratory. The three mid-term exams will be worth 100 points each and the final exam will be worth 150 points. Organic chemistry is by nature a cumulative subject; that is, all topics build upon what has already been discussed. Therefore, all exams are cumulative to a degree. The following exam schedule is **tentative**. Should the University close on the day of an exam, the exam will be given the *next* scheduled class period.

EXAM I	Friday, Sept. 24	(Chap. 1-3)
EXAM II	Friday, Oct. 22	(Chap. 4-7)
EXAM III	Friday, Nov. 19	(Chap. 8-9)
FINAL	TBA	(Chap. 1-12)

### **Quizzes:**

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Quizzes will be given weekly except for the week of a test. On occasion, additional quizzes may be given. There will be no make up quizzes given for any reason. At the end of the semester, the lowest quiz grade will be dropped when determining the final grade.

### **Grading:**

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Course grades will be calculated as follows:

Exams (4)	65%
Quizzes	10%
Lab	<u>25%</u>
<b>Total</b>	<b>100%</b>

Your final grade will be determined by the average of all your graded work according to the scale below. The instructor reserves the right to lower some, or all of these grade cut-offs.

<b>Final Average</b>	<b>Grade</b>
90-100	A
77-89	B
64-76	C
50-63	D
<50	F

**NOTE: No final grades will be calculated until *after* the results of the final exam are available. It is up to you to keep track of your progress during the semester. You can do this by setting up an Excel spreadsheet using the above information.**

### **Grade Changes:**

It is your responsibility to confirm the grade you receive on any exam or quiz. If you find an error has been made in the addition of the points on an exam or quiz you must bring the exam to my office and show me the error. Once this is done the grade will be changed accordingly. If you believe that you deserve more partial credit for a particular question then you can bring the exam to me and make your case.

### **Academic Integrity:**

In an effort to encourage honesty and integrity please be aware of the following:

1. All work must be your own. Copying an answer from someone else is cheating.
2. The use of crib notes of any kind is strictly forbidden during all exam situations.
3. Allowing your work to be viewed by someone else counts as cheating.

### **Suggestions for Learning Organic Chemistry:**

See the 'Links' page on my web site and the link 'How to Study'. Read this page carefully. This page contains advice from someone other than myself, but all that is said is good and recommended. I strongly suggest that you use the 3 x 5-card method to record notes and reactions from class. I also suggest that you organize yourselves into small study groups and try to help each other learn. Nothing will solidify the information in your mind better than trying to explain it to someone else.

## TENTATIVE SCHEDULE OF LECTURE TOPICS

<u>Date</u>	<u>Topic</u>	<u>Chapter</u>
Week 1	Introduction, Chemical Bonding	1
Week 2	Alkanes	2
Week 3	Conformation of Alkanes and Cycloalkanes	3
Week 4	Alcohols and Alkyl Halides & <b>Exam 1</b>	4
Week 5	Structure and Preparation of Alkenes	5
Week 6	Reactions of Alkenes	6
Week 7	Reactions of Alkenes	6
Week 8	Stereochemistry	7
Week 9	Stereochemistry & <b>Exam 2</b>	7
Week 10	Nucleophilic Substitution	8
Week 11	Alkynes	9
Week 12	Alkyl dienes and Allylic Systems	10
Week 13	Arenes and Aromaticity & <b>Exam 3</b>	11
Week 14	Reactions of Arenes	11
Week 15	Reactions of Arenes/EAS	12
Week 16	Electrophilic Aromatic Substitution	12

## HOMEWORK ASSIGNMENTS

The following problems are found at the end of the designated chapter under the heading “Problems.” In addition to these problems there are problems within each chapter that you should also work on. These problems will not be turned in for a grade.

These problems are highly recommended and should be done in a timely fashion, as they are an *excellent* way to prepare for an exam. You should work the problem *before* consulting the answer key.

Chapter 1 - 33, 35, 36, 38, 40, 42, 43, 44(a-e), 46, 51(a, c, e, g), 52, 53(a-g), 54(a-g), 55(a), 56, 59, 61, 63, 66, 68

Chapter 2 - 20, 22 - 23, 26, 27, 28, 32, 34, 36, 40, 42, 43

Chapter 3 - 17, 18, 19, 23, 23(a,c,e,g), 28, 29, 31

Chapter 4 - 19, 20, 23, 25, 33, 34, 35, 37, 45

Chapter 5 - 22, 26, 27, 29, 31, 32, 33, 35, 43, 44

Chapter 6 - 22, 25, 29, 32, 36, 41, 46

Chapter 7 - 25, 29, 31, 32(as many as you can), 36, 39, 42, 45

Chapter 8 - 17, 19, 23, 25, 30, 31, 32, 36, 38, 39

Chapter 9 - 16, 17, 18, 21, 25, 29, 33, 35

Chapter 10 - 18, 19, 22, 24, 27, 31, 34, 36, 37

Chapter 11 - 26, 27, 31, 32, 34, 37, 40, 44, 47, 48

Chapter 12 - 22, 24, 26, 29, 32, 34, 36, 39, 40, 43