**Chemistry 2300**

**Principles of Organic Chemistry, Fall 2004**

**Instructor**: Dr. Tom Chang
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**Meeting Time/Place**: MWF 1:30 - 2:20pm, Old Main 121

**Office Hour**: M-F 8:30 am to 9:30 am, or drop by with or without appointment

**Texts**: "Introduction to Organic Chemistry" 2nd Ed, William Brown, Saunders College Publishing (2000)

**Model Kit**: Available in Chem Stores (1st Floor of Widtsoe). (recommended, ask me for suggestion first)

**Course Outline and Exam Schedule:**

| Week | Dates | Chapter(s) |
|---|---|---|
| 1 | 8/30 – 9/3 | Introduction, Chapter 1 |
| 2 | 9/8 – 9/10 (9/6 Labor Day) | Chapter 2 |
| 3 | 9/13 – 9/17 | Chapter 3 |
| 4 | 9/20 – 9/24 | Chapter 4, **Exam 1 (9/24)** |
| 5 | 9/27 – 10/1 | Chapter 5 |
| 6 | 10/4 – 10/8 | Chapter 6 |
| 7 | 10/11 – 10/15 | Chapter 7 |
| 8 | 10/18 – 10/22 | Chapter 8, **Exam 2 (10/22)** |
| 9 | 10/25 – 10/29 | Chapter 9 |
| 10 | 11/1 – 11/5 | Chapter 10 |
| 11 | 11/8 – 11/12 | Chapter 11 |
| 12 | 11/15 - 11/19 | Chapter 12 **Exam 3 (11/19)** |
| 13 | 11/22 (11/24 - 11/26 Thanksgiving) | Chapter 13 |
| 14 | 11/29 – 12/3 | Chapter 14 |
| 15 | 12/6 - 12/10 | Chapter 14 |
| 16 | 12/15 | Final Exam (**12/15**, 11:30 am – 1:20 pm) |

**Online links to chemistry materials:**

Organic chemistry: www.jbpub.com/organic-online/webhome.htm
Periodic Table: pearl1.lanl.gov/periodic
Organic reactions: www.towson.edu/~sweeting/orgrxs/reactsum.htm
Also check the links from the on-line course material of Chem2300:
http://www.chem.usu.edu/faculty/Chang/chem2320/previous_exams_2320.htm

**General Learning Objectives:**

1. Apply electronegativity and VESPR to draw the Lewis structure and predict chemical properties for various functional groups.

2. Use electronegativity, octet rule, and electron(s)-moving to write the resonance structures and judge the order of stability for these structures.

3. Apply the concepts of acid/base and nucleophile/electrophile to predict a chemical reaction.

4. Recognize constitution (structural) isomers, configuration isomers, conformation isomers, and stereoisomers, and explain the difference in chemical and physical properties among these compounds.

5. Write correct electron-pushing mechanisms for the topic reactions in each chapter.

6. Apply the concepts of resonance and inductive effects to predict the chemical and physical properties for different functional groups and the molecule to which these functional groups are attached.

7. Explain the reaction mechanisms by using the concepts of steric hindrance, stability of carbocation, and leaving group capability.

8. Use the p*Ka* values to explain or define the roles of a molecule with lone-pair electron (**:**Z) as base, nucleophile, or leaving group in a chemical reaction.

9. Explain aromaticity and recognize aromatic compounds.

10. Perform all of the detailed learning objectives for every chapter posted online or distributed as hard copy.

**Grading Scheme:**

Point Distribution:

(1) Three one-hour exams (100 pts each): You can drop one with the lowest score.
(2) Four homework problems and pop-quiz (20 pts each): You can drop one with the lowest score.
(3) Final (140 pts): Every one needs to take the final. The final cannot be partially dropped and substituted with scores from other exams, homework problems, or quizzes.
**Total Points: 400 pts**

Grade Breakdown:

The grade received in the course is based on your performance on the exams and homework problems. Grades are guaranteed as given below for overall percentage score on all exams.

However, it is **subjected to be changed** when abnormal distribution occurs, for example >50% of the class score A or >50% of the class score D. Your actual grade when located below the borderline may be upgraded, if you have shown a steady improvement on your scores. The final grade will be normalized if more than 20% of the students receive F or have total points lower than 250. Except for the final exam, any grading error needs to be corrected **within** a week after the exams, quizzes, or homework problems are returned. The final exam can be picked up in my office on December 16. Any grading error of final exam needs to be corrected by 12:00 pm of Friday, December 17. Your final grade will be posted by the end of Friday.

| Grade | A | A- | B+ | B | C+ | C | D+ | D | F |
|---|---|---|---|---|---|---|---|---|---|
| % Scores | 85% | 80% | 75% | 70% | 65% | 60% | 55% | 50% | <50% |
| Total Points | 340 | 320 | 300 | 280 | 260 | 240 | 220 | 200 | <200 |

**Procedures:**

1. There will be no regular make-up exams. Persons who miss an examination date due to sudden illness or family situation must contact me within one week in order to discuss appropriate arrangements. After one week, no credit will be given for a missed exam. It is possible to take an exam in advance, but only with a valid excuse and prearrangement with me.

2. It is an official University policy that unless you have three exams on the same day, you must take the final exam in the course at the officially scheduled time. Permission to take a final at any other time for any other reason can only be obtained from Dean of Science.

3. The last day to drop courses is 10/23. After that date, withdrawal may require the signature of your academic Dean. The University policy on giving an incomplete grade will be followed. Please see the current University Class Schedule for current policy.

4. The main function of office hours is to discuss and solve problems that you may be having with the course materials, problems in the textbook, and concepts presented during lecture. Try to formulate questions in advance. **Do not expect a mini review session.** On the other hand, **do not hesitate to ask me question**.