

Syllabus Chem 28B Organic Chemistry

Spring 1998

Instructor : J. Dekker

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Office hours : M, T and Th 2:30-3:30 pm

Chem 28B meets : T and Th 9:00-10:15 am

Textbooks : McMurry Organic Chemistry (4th ed)
Traynham Organic Nomenclature (5th ed)

Course objectives : Chem 28B is an organic chemistry course for chemistry and biology majors. Chemical Engineering, Pre-Med and Pre-Pharm professional majors will also need and enjoy this course. Students will acquire a solid base to study biochemistry, pharmacology and other biology and chemistry related fields in medical school, pharmacy school etc. In this class we make a thorough study of the reactions of principal functional groups with emphasis on theory and mechanism. The students will develop a level of learning skills, vocabulary and critical thinking skills which will enable them to successfully transfer to four year institutions.

Quizzes and exams: There will be three quizzes during this semester announced one week ahead of time. The average score of the quizzes is worth two exam scores.

Including the final there will be a total of three exams, typically covering more material than the quizzes. Each exam including the final will be equally weighted.

A no show for a quiz or exam without prior notice is graded with a 0. This grade is also used for fraudulent behavior.

Grading: The average of graded homework and pop quizzes is worth the weight of one exam score. If the students' attendance was 100% and he/she has fulfilled all the assignments properly and submitted **in time**, the lowest grade of the quizzes will be dropped. Break-off for grading A > 90%, B 80-89%, C 70-79%, D 60-69%, F < 59%.

Homework: Homework will be assigned often. It is crucial to your success that you do your homework, with the emphasis on readings in McMurry's text. Homework will sometimes be collected and selected problems from McMurry or Traynham will be graded. Sometimes a popquiz will be given to check the homework assignment.

Attendance: In accordance with Community College policy attendance is mandatory. Always let me know in advance during one of my office hours if you are to miss an assignment (homework, quiz or exam). If you miss two weeks or four consecutive lectures without prior notice you will be dropped automatically. Tardiness, leaving early, sleeping during class are all considered disruptive behavior and are punished with an absence.

Drop date: The final date to drop a class is FRIDAY, MARCH 13, 1998. After that day a letter grade must appear on your transcript. When you are dropped from the class before the drop date you will receive a W.

Brief description of lecture topics.

1. Ultraviolet Spectroscopy. Ch 14 deals with Ultraviolet Spectroscopy. Conjugated compounds, compounds with alternating double and single bonds, show absorption in the UV spectrum. You will study the molecular orbital description of dienes and trienes and the Diels-Alder reaction.

2. We will review the electrophilic substitution of aromatic compounds and the Friedel-Crafts reaction. Orientation of reactions on substituted rings especially the activation on ortho- and para-positions and the deactivation on the meta-positions will be learned. Refer for this important piece of organic chemistry to chapters 15 and 16.

We will also pay extensive attention to synthesis so it is of great value to study the concise overview of organic reactions starting on page 623!

3. The Chapters 17 and 18 describe the alcohols and ethers, compounds we are already familiar with. We will add the thiols, including SH as the functional group and epoxides, cyclic ethers.

4. The carbonyl group C=O has a special meaning in organic chemistry and thus in life! Reason why we will study the properties and reactions of this group in aldehydes, ketones, acids and esters.

The nucleophilic addition reactions described in Ch 19 are important. Refer to Ch 19 paragraphs 19.1 - 19.8, 19.10 - 19.15 19.17 - 19.20.

5. From Chapter 20, 21 and 22 I will make a selection. Emphasis will be put on some biological important compounds, including biologically active esters and amides.

6. Carbonyl condensation reactions, chapter 23, will be predominantly studied in lab, Chem 29B.

7. Compounds such as carbohydrates and amines are important biological substances meaning that we will spend a considerable amount of time studying their structure and reactions. Refer to Chapter 24 and 26.

8. If time allows in the last part of the semester we will study amino acids, peptides and proteins. Sequencing of amino acids in peptides will be discussed briefly.

9. In Traynham, our nomenclature book, we will learn about bicyclic and heterocyclic compounds and make a start with their particular names.

Lecture quizzes and exams:

Quiz 1 Th 1/29

Exam 1 Th 2/19

Quiz 2 Th 3/12

Exam 2 Th 4/2

Quiz 3 Tu 4/21

Exam 3 Final: F 5/22 at 8:00 am in FE4-E

Spring recess: 4/6- 4/10/1998

JD/1/5/1998