

CHEM 2453 ORGANIC CHEMISTRY III

Syllabus

Instructor: Dr. Ronald Nohr

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Office Hours: One Half Hour Before Lecture and One Half Hour After Lecture (M – F)

Text: Organic Chemistry, 5th ed., Marc Loudon, Roberts and Company Publishers, 2009

Lecture Room: Olin 105

OBJECTIVE: During the last two quarters of this year long course in organic chemistry an emphasis has been placed on the relationship between structure and reactivity. This theme will be continued this last quarter through an organization that combines the most useful features of the traditional functional group approach with one based on reaction mechanisms. That is, emphasizing the structural aspects shows what organic chemistry is and the mechanistic aspects shows how organic chemistry works. Whenever possible the course will review and integrate earlier material so that the end result will be a meaningful knowledge building process.

HOMEWORK: In the lecture outline you will find a set of recommended study questions for each chapter. You do not have to turn in these problems. However it is important that you do enough of them in order to understand the concept.

EXAMINATIONS: There will be two take-home exams, two in class exams and a comprehensive final exam. The take-home exams will be given out on Thursday June 20 and Thursday June 27 (There are no Friday labs.) and will be collected the following Friday. Part B (in class part) will be given on the following Monday. You will be given at the time you turn in the take-home test on Friday a key to study the test material over the week-end.

The take-home and in class examinations will cover the same lecture material.

FINAL LETTER GRADE:

Your final letter grade will be based on the percentage of the points you earned. The four exams. (take-home and in class) will each count 100 points. Your lowest exam. grade will be dropped. **There will be no make-up exams.** If you miss an exam., for any reason, it will count as the dropped exam. The final exam. will count 200 points.

Points: 300 Points (take-home and in class) (400 pts -100 pts (lowest))
200 Points (final required - comprehensive)
500 Points Total

Final Point Percentage

87 to 100% = A

84 to 86% = A⁻

81 to 83% = B⁺

77 to 80% = B

74 to 76% = B⁻

71 to 73% = C⁺

68 to 70% = C

65 to 67% = C⁻

Below 65% = D

Below 55% = F

ADDITIONAL ITEMS

- 1. No Cell Phones in Lecture**
- 2. No Talking During Lecture**
- 3. Please Respect the University Honor Code**
- 4. I reserve the right to modify the syllabus and lecture schedule as necessary**

TENTATIVE LECTURE SCHEDULE

<u>DATE</u>	<u>TOPIC</u>	<u>READING ASSIGNMENT AND PROBLEMS</u>
		PROBLEMS
June 17	CH 19 Aldehydes and Ketones Nomenclature, Physical Properties Spectroscopy, Synthesis, Reactions Mechanism of Carbonyl Addition Rxns.	pp. 890 – 913 19.1, 19.2, 19.3 19.4, 19.5, 19.6 19.7, 19.11 19.15, 19.6
June 18	CH 19 Reduction of Aldehydes and Ketones Acetals, Protecting Groups Reactions With Amines Reduction of Carbonyl Groups Wittig Alkene Synthesis Oxidation of Aldehydes	pp. 914 – 938 19.19 19.20, 19.27 19.34, 19.35 19.36
June 19	CH 20 Carboxylic Acids Nomenclature, Physical Properties, Spectroscopy Synthesis and Reactions Conversion to Esters, Acid Chlorides, and Anhydrides Reduction to Primary Alcohols Decarboxylation	pp. 948 – 985 20.1, 20.2, 20.3 20.5, 20.7, 20.10 20.16 20.20 20.22
June 20	CH 21 Carboxylic Acid Derivatives Nomenclature, Structures, Physical Properties, Spectroscopy TAKE-HOME EXAMINATION I	pp. 986 – 997 21.3, 21.5, 21.7
June 21	TAKE-HOME EXAMINATION I DUE REVIEW CH 19, 20, 21 (pp. 986 – 997)	
June 24	IN CLASS EXAMINATION I CH 21 Grignard Reaction and the Dialkyl Cuprate Reaction Synthesis of Carboxylic Acid Derivatives	21.9, 21.19, 21.23 21.26
June 25	CH 22 Chemistry of Enolate Ions and Unsaturated carbonyl Cpd. Enolization, Aldol Addition and Condensation Claisen Condensation	pp. 1047 – 1103 22.1, 22.3, 22.7 22.19, 22.25

June 26	CH 22 Dieckmann Condensation, Crossed Claisen Condensation	22.28, 22.29
June 27	CH 22 Malonic Ester Synthesis and Acetoacetic Ester Synthesis Michael Addition Rxn, Robinson Annulation	22.33, 22.36 22.39, 22.44
	TAKE-HOME EXAMINATION II	
June 28	Take-Home Examination Due REVIEW CH 21 (PP. 998 – 1033) AND CH 22	
July 1	IN CLASS EXAMINATION II	
	CH 23 Chemistry of Amines pp. 1116 – 1155 Nomenclature, Physical Properties, Spectroscopy, Basicity	23.1, 23.6, 23.7
July 2	CH 23 Alkylation and Acylation Reactions Diazotization Reactions Synthesis of Amines	23.13, 23.18 23.24, 23.26 23.29, 23.31
July 3	COURSE REVIEW FOR FINAL	
July 4	HOLIDAY	
July 5	Final Examination	

***IN DOING THE SUGGESTED PROBLEMS IT IS STRONGLY SUGGESTED THAT YOU DO AS MANY ADDITIONAL PROBLEMS AS NECESSARY TO MASTER THE CONCEPTS**