

## CHEM 2452 ORGANIC CHEMISTRY II

### 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, 5<sup>th</sup> ed., Marc Loudon, Roberts and Company Publishers, 2009

Lecture Room: Olin 103

**OBJECTIVE:** During this first quarter of organic chemistry there will be an emphasis on the relationship between structure of organic compounds and their reactivity. This theme will continue 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 reveals how organic chemistry works. Whenever possible the course will review and integrate what you learned in your general chemistry class.

**HOMEWORK:** Problems at the end of the chapter are important for you to study. You do not have to turn in these problems; however, it is important that you do enough of them to understand the concepts presented in lecture.

**EXAMINATIONS:** There will be two take-home exams, two in-class exams and a comprehensive final exam. The take-home exams will be given on August 1 and August 8 and will be collected the following Fridays. Part B (the in-class exams) will be given on the following Monday. You will be given at the time you turn in your take-home test on Friday the key to the exam to help you study over the week-end for in-class exam on Monday. The take-home exams and the in-class exams will cover the same lecture material.

TENTATIVE LECTURE SCHEDULE

<u>Date</u>	<u>Topic</u>	
July 29	Alcohol Eliminations/Substitutions Mesylate/Tosylate/Triflate Alcohol Oxidations	<b>Chapter 10</b> pp. 436 - 481
July 30	continued	
July 31	Williamson Ether Synthesis Ether from Alkene + Alcohol Epoxides Preparation and Reactions Glycols Preparation and Reactions Ozonolysis ; (Chapter 5) S-Oxidation	<b>Chapter 11</b> pp. 482 - 535
August 1	IR Spectroscopy Mass Spectrometry Molecular Ion Isotopes Fragmentation	<b>Chapter 12</b> pp. 536 - 577
Take-Home Exam I		
August 2	<sup>1</sup> H NMR Spectroscopy Chemical Shift Integration Signal Splitting <sup>13</sup> C NMR Spectroscopy	<b>Chapter 13</b> pp. 578 - 643
August 5	continued	
In-Class Exam I		

August 6

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August 7

Alkynes Reactions Hydration Hydroboration-Oxidation Reduction Alkyne Anions Carbon-Carbon Bond Formation	<b>Chapter 14</b> pp. 644 – 675
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August 8

Take-Home Exam II

Dienes Simple/Conjugated/Cumulated Conjugated Diene Reactions Addition of HX/Allyl Carbocations The Diels-Alder Reaction Benzene Structure and Aromaticity	<b>Chapter 15</b> pp. 676 – 739
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August 9

Aromatic Nomenclature Electrophilic Aromatic Substitution (EAS) General Mechanism for EAS of Benzene EAS Reactions of Benzene EAS Reactions of Substituted Benzenes Directing Effect (o/m/p) Activating/Deactivating Effect	<b>Chapter 16</b> pp. 740 – 787
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August 12

In-Class Exam II

Allylic/Benzylic Cation/Radical/Anion $S_N1$ Free Radical Halogenation RMgX and RLi Reagents E2 $S_N2$ Review Allylic/Benzylic Oxidation Methods	<b>Chapter 17</b> pp. 788 – 821
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August 13

Nucleophilic Aromatic Substitution (NAS) Phenols Acidity and EAS Transition Metal-Catalyzed Reactions Heck/Suzuki/Stille	<b>Chapter 18</b> pp. 822 - 887
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August 14

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August 15

FINAL EXAMINATION
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