

جامعة الملك سعود
King Saud University

Organic Chemistry

By
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Syllabus

Course Title:

Introduction Organic Chemistry
For Health Science Students

Code #:

Chem 145

Credit hrs.:

(2+0)

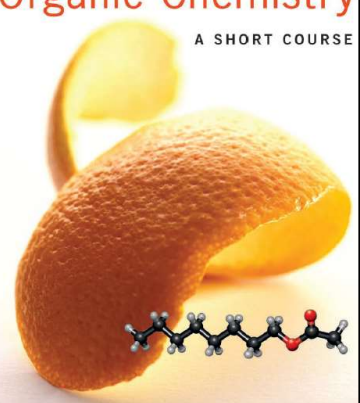
King Saud University
College of Science, Chemistry Department

<p>Introduction Definition of organic chemistry, classification of hydrocarbons, types of chemical bonds, ionic and covalent; atomic and molecular orbital, sigma and pi bond, hybridization, sp^3, sp^2, sp; inductive effect, polarity and polarization.</p> <p>(2 Lectures)</p> <p>Alkanes structure, hybridization, nomenclature, physical properties, preparation: by hydrogenation of alkenes, hydrolysis of alkyl Grignard reagent, by reaction of lithium dialkyl cuprates with alkyl halides and by Wurtz reaction. Reaction of alkanes: halogenations by Br_2, Cl_2. Ring strain in cycloalkanes, reaction of cyclopropane and cyclobutane with halogen, H_2, conc. H_2SO_4, HBr.</p> <p>(3 Lectures)</p>	<p>Ethers Structure and nomenclature, physical properties, preparation of ethers: by dehydrogenation of symmetric alcohols and by Williamson synthesis. Reaction of ethers: with hot concentrated HI, HCl, HBr, preparation of epoxide: by peracids. Reaction of epoxide: with H_3O^+, alcohol, hydrohalic acid (HI, HCl, HBr), Grignard compound and organolithium compound.</p> <p>(2 Lectures)</p> <p>Aldehydes and Ketones nomenclature, physical properties, preparation: by oxidation of alcohols, ozonolysis, hydration of alkynes and Friedel-Crafts acylation. Reaction of aldehydes and ketones: reduction and oxidation; addition of Grignard compounds, hydrogen cyanide, alcohol, ammonia and ammonia derivatives.</p> <p>(2 Lectures)</p>
<p>Alkenes structure, geometrical isomerism, nomenclature, physical properties, preparation: from dehydration of alcohols (Zaitsevrule) and dehydrohalogenation. Reaction: electrophilic addition reaction (Markonikow rule, stability of carbocation), addition of H_2, halogen, hydrohalogen, HOX, water; oxidation of alkenes with ozone and potassium permanganate.</p> <p>(2 Lectures)</p> <p>Alkynes structure, nomenclature, physical properties and acidity of terminal alkyne, preparation: from dehydrohalogenation and reaction of sodium acetylide with primary alkyl halide. Reaction: of alkynes, hydrogenation, halohydrogenation, hydration.</p> <p>(2 Lectures)</p>	<p>Carboxylic acids nomenclature and physical properties, acid strength and structure. Preparation: by oxidation of primary alcohols and aldehydes; hydrolysis of nitrile; oxidation of alkyl benzenes; carbonylation of Grignard reagents. Reaction of carboxylic acids: formation of salt, ester, amide and acid chloride. Carboxylic acid derivatives, nomenclature, preparation: from acid and acid chloride, hydrolysis of acid derivatives.</p> <p>(3 Lectures)</p>
<p>Aromatic compounds aromaticity and Huekel rule, nomenclature, electrophilic aromatic substitution reactions (alkylation, acylation, halogenations, nitration and sulfonation). Effects of substituents on electrophilic aromatic substitution reaction. Side-chain reactions of Benzene-derivatives.</p> <p>(3 Lectures)</p> <p>1st Midterm Exam</p>	<p>Amines classification and nomenclature, physical properties and basicity. Preparation: by alkylation of ammonia; reduction of nitrogroup, nitrile and amide. Reaction of amines: formation of salt, amide, imine and diazonium salt.</p> <p>(1 Lectures)</p> <p>Final Exam.</p>
<p>Organic halogen compounds classes, nomenclature, physical properties, preparation: by halogenations of alkanes, alkenes, alkynes and aromatic rings; hydrohalogenation of alkenes and alkynes and by conversion of alcohols by $HCl/ZnCl_2$, $SOCl_2$, PX_3, PX_5. Reaction of organic halides: nucleophilic substitution reaction, elimination reaction, reaction with Mg (Grignard compounds).</p> <p>(2 Lectures)</p>	<p>1) <i>Organic chemistry: A short course by I Harold Hart, David J. Hart and Leslie E. Craine, Houghton Mifflin Company, USA.</i></p>

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Organic Chemistry

A SHORT COURSE



HART || HADAD || CRAINE || HART

13th EDITION

Organic Chemistry

A SHORT COURSE

David J. Hart
The Ohio State University

Christopher M. Hadad
The Ohio State University

Leslie E. Craine
Central Connecticut State University

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Michigan State University

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ضوابط الاختبار البديل

شروط عقد اختبار بديل للطالب:

يمكن أن يعقد للطالب -الذي يتغيب عن الاختبار الأساسي -اختبار بديل وفقاً للشروط والضوابط التالية:

- 1- ألا يكون الطالب قد دخل الاختبار الأساسي للمقرر.
- 2- ألا يكون الطالب محروم في المقرر.
- 3- أن يتقدم الطالب بطلب الاختبار البديل في موعد لا يتجاوز أسبوع من عقد الاختبار الأساسي وذلك لعامة السنة التحضيرية (فقط) وليس لمدرس المقرر .
- 4- أن يتقدم الطالب بعذر يقبله مجلس العمادة.
- 5- أن تكون الأعذار من جهات حكومية أو مصدق عليها من جهة حكومية.
- 6- لا يوجد اختبار بديل للاختبار البديل