



Short Syllabus



Course Title	Credits
Organic Chemistry	4
Lecturer	
Dr. Salam Bashir	
Contact details	
salamalibashir@gmail.com	
Semester	
Fall	
Short Description	
<p>The course focuses on fundamentals of organic chemistry as an extension to the general chemistry course. The course's goal is to provide students pursuing their degree in the life sciences with a strong theoretical background in organic chemistry.</p> <p>Introduction – nomenclature, carbons classification, alkanes, reactions of alkanes (combustion, radical halogenation), cycloalkanes.</p> <p>Mechanisms in organic reactions – energetic profile of organic reactions, two-steps reactions, intermediates and transition states, Hamond postulate.</p> <p>Alkenes – nomenclature, addition reactions, Markovnikov's rule, oxidation reactions.</p> <p>Alkynes – nomenclature, addition reactions, the acetylide ion, tautomerization.</p> <p>Conjugated dienes – structure and properties, electronic conjugation and its effects.</p> <p>Aromatic compounds – aromaticity, Huckle's rule, the benzene ring, reduction, electrophilic aromatic substitution, electron withdrawing and donating groups.</p> <p>Stereochemistry – chirality, enantiomers, diastereoisomers, meso compounds, racemic mixtures, chiral centers classification (R/S, D/L), Fischer diagrams.</p> <p>Alkylhalides – nomenclature, physical properties, substitution and elimination reactions (SN1/SN2/E1/E2 mechanisms), Zaitsev's rule, the Gringard reagent.</p> <p>Alcohols and ethers – nomenclature, physical properties, substitution and elimination reactions.</p> <p>Carbonyl compounds – aldehydes and ketones – nomenclature, physical properties, reduction and oxidation reactions, nucleophilic addition reactions, substitution at the α position.</p> <p>Carbonyl compounds – carboxylic acid and its derivatives – nomenclature, physical properties, reduction and oxidation reactions, nucleophilic acyl substitution reactions.</p> <p>Amines – nomenclature, physical properties, amino acids and the peptide bond.</p>	



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Final grade components

Minor assignments: Home practices (multiple choice questions) - not graded.

Midterm: Home Test 15% of the final grade

Final requirement: In-class exam 85% of the final grade

Attendance

Attendance is mandatory. Students are permitted a maximum of three absences without penalty. Any additional absences will affect the final grade and may result in failure of the course.

Academic Conduct

Plagiarism is taken extremely seriously. Any instance of academic misconduct which includes: submitting someone else's work as your own; failure to accurately cite sources; taking words from another source without using quotation marks; submission of work for which you have previously received credit; working in a group for individual assignments; using unauthorized materials in an exam and sharing your work with other students, will result in failure of the assignment and will likely lead to further disciplinary measures.

Additional requirements

Recommended literature:

J. McMurry, Organic Chemistry, Brooks/Cole

P.Y. Bruice, Organic Chemistry, Prentice Hall

(Older editions are as useful as the newer ones)