

DEREE COLLEGE SYLLABUS FOR: CH 3232 ORGANIC AND MEDICINAL CHEMISTRY		3/0/3
(Updated: Fall 2024)		UK LEVEL: 5 UK CREDITS: 15
PREREQUISITES:	CH 2015 General Chemistry CH 2121 Organic Chemistry	
CATALOG DESCRIPTION:	Organic chemistry with emphasis on biomolecular and pharmaceutical applications. Properties and reactions of carbonyl compounds, carboxylic acids and their derivatives are discussed, in addition to tools for structure determination and biological activity evaluation, such as nuclear magnetic resonance, x-ray crystallography, fluorescence and luminescence.	
RATIONALE:	Organic and medicinal chemistry is a course designed to employ and expand on prior knowledge of organic chemistry. Students following careers in chemistry, organic synthesis, biochemistry, pharmacology or drug design are required to have a solid background in organic chemistry, that will help them understand synthetic methodologies and applications, as well as the molecular mechanisms of life.	
LEARNING OUTCOMES:	<p><i>As a result of taking this course, the student should be able to:</i></p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of organic chemistry and its role in the natural and synthetic world. 2. Demonstrate understanding of functional group chemistry, structure elucidation and drug-target interactions. 3. Apply methods of scientific enquiry by demonstrating problem solving and critical thinking skills. 4. Describe how reactivity and different chemical or biophysical properties of small organic molecules can be utilized in rational drug design. 	
METHOD OF TEACHING AND LEARNING:	<p>In congruence with the teaching and learning strategy of the college, the following tools are used:</p> <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work), video presentations, and practical problems solved in class. • Exercises and primary source documents are assigned as homework and are discussed and reviewed in class. • Use of textbook and supplementary material/resources posted on blackboard site. • Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture material. • Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources. 	

ASSESSMENT:	<p>Summative:</p> <table border="1" data-bbox="643 185 1441 510"> <tr> <td>1st assessment: Midterm examination, (Multiple choice/short answers/matching /short essay questions, exercises)</td><td>40%</td></tr> <tr> <td>2nd assessment: Portfolio (Exercises, problems aiming to prepare students for their first and final assessments)</td><td>10%</td></tr> <tr> <td>Final assessment: Final examination, (Multiple choice/short answers/matching /short essay questions, exercises)</td><td>50%</td></tr> </table> <p>Formative:</p> <table border="1" data-bbox="643 582 1441 622"> <tr> <td>Multiple homework quizzes and worksheets</td><td>0</td></tr> </table> <p>The formative assessment aims to prepare students for the examinations. The 1st assessment tests Learning Outcomes 1, 2 and 3 The 2nd and Final assessments tests Learning Outcomes 1, 2, 3 and 4</p>	1 st assessment: Midterm examination, (Multiple choice/short answers/matching /short essay questions, exercises)	40%	2 nd assessment: Portfolio (Exercises, problems aiming to prepare students for their first and final assessments)	10%	Final assessment: Final examination, (Multiple choice/short answers/matching /short essay questions, exercises)	50%	Multiple homework quizzes and worksheets	0
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INDICATIVE READING:	<p>REQUIRED READING:</p> <ul style="list-style-type: none"> T. W. Graham Solomons, Craig B. Fryhle and Scott A. Snyder, Organic Chemistry, 13th Edition, ISBN: 9781119801290, Wiley. <p>RECOMMENDED READING:</p> <ul style="list-style-type: none"> Francis Carey and Robert Giuliano, Organic Chemistry, 11th Edition, ISBN: 9781260568806, McGraw Hill. Graham Patrick, BIOS Instant Notes in Medicinal Chemistry, 1st Edition, ISBN: 9780429524318, Taylor & Francis. 								
INDICATIVE MATERIAL: <i>(e.g. audiovisual, digital material, etc.)</i>	<p>REQUIRED MATERIAL: Scientific Calculator</p> <p>RECOMMENDED MATERIAL: Organic Chemistry Model set</p>								
COMMUNICATION REQUIREMENTS:	Verbal and written skills using academic / professional English								
SOFTWARE REQUIREMENTS:	MS Office and Blackboard CMS								
WWW RESOURCES:	<p>Royal Society of Chemistry: http://www.rsc.org/learn-chemistry American Chemical Society: http://www.acs.org Online Resources for Teaching and Learning Chemistry: http://www.chemcollective.org/</p>								
INDICATIVE CONTENT:	<ul style="list-style-type: none"> Properties, preparation and reactions of aldehydes and ketones, enols and enolates, amines, carboxylic acids and their derivatives. Spectroscopic methods including nuclear magnetic resonance Green Chemistry Drug – Target interactions, lead discovery, pharmacological concepts as quantitative parameters of drug action, pharmacological assays and lead optimization. 								