

Enquiry for Course Details

CHEM2441 Organic chemistry I (6 credits)		Academic Year	2022
Offering Department	Chemistry	Quota	200
Course Co-ordinator	Prof X Y Li (1st sem); Prof P Chiu (2nd sem), Chemistry < xiaoyuli@hku.hk; pchiu@hku.hk >		
Teachers Involved	(Dr S K Lee, Chemistry) (Prof P Chiu, Chemistry) (Prof X Y Li, Chemistry)		
Course Objectives	To provide students with the basic principles to understand the structure and reactivity of organic molecules, with examples illustrating the role of organic chemistry in daily life and industry. This course serves as the first part of the complete program on fundamental organic chemistry, to be followed up by CHEM3441 Organic Chemistry II.		
Course Contents & Topics	Structure and bonding of organic compounds, three dimensional structures of organic molecules, conformational stereochemistry, chirality. Chemistry of alkanes, cycloalkanes, alkenes, alkynes, haloalkanes, dienes, alcohols, thiols, and ethers. Organometallic chemistry for organic synthesis. Principles of organic synthesis. Detailed considerations of reaction mechanisms.		
Course Learning Outcomes	On successful completion of this course, students should be able to:		
	CLO 1	visualize and draw stereochemically correct representations of three-dimensional organic molecules	
	CLO 2	define, classify, and name chirality, stereoisomers and diastereomers	
	CLO 3	understand the basic mechanism types: electrophilic addition, SN1, SN2, E1, E2, and radical propagation mechanisms	
	CLO 4	apply the basic mechanisms to rationalize the conditions and derive the outcomes of the reactions of alkanes, alkyl halides, alkenes, dienes, alkynes, alcohols, ethers, epoxides, and organometallic compounds	
	CLO 5	understand the structure, and bonding of alkanes, alkenes, alkynes and dienes	
	CLO 6	apply reactions to the synthesis of target alkane, alkyl halide, alkene, diene, alkyne, alcohol, ether, epoxides, and bifunctional molecules	
	CLO 7	appreciate the relevance of organic chemistry in biological processes and daily life	
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM1042; and Pass in CHEM1043, or already enrolled in this course		
Course Status with Related Major/Minor /Professional Core	2022 Major in Biochemistry (Core/Compulsory) 2022 Major in Chemistry (Core/Compulsory) 2022 Major in Chemistry (Intensive) (Core/Compulsory) 2022 Minor in Chemistry (Disciplinary Elective) 2021 Major in Biochemistry (Core/Compulsory) 2021 Major in Chemistry (Core/Compulsory) 2021 Major in Chemistry (Intensive) (Core/Compulsory) 2021 Minor in Chemistry (Disciplinary Elective) 2020 Major in Biochemistry (Core/Compulsory) 2020 Major in Chemistry (Core/Compulsory) 2020 Major in Chemistry (Intensive) (Core/Compulsory) 2020 Minor in Chemistry (Disciplinary Elective) 2019 Major in Biochemistry (Core/Compulsory) 2019 Major in Chemistry (Core/Compulsory) 2019 Major in Chemistry (Intensive) (Core/Compulsory) 2019 Minor in Chemistry (Disciplinary Elective) 2018 Major in Biochemistry (Core/Compulsory) 2018 Major in Chemistry (Core/Compulsory) 2018 Major in Chemistry (Intensive) (Core/Compulsory) 2018 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping	2022 Major in Biochemistry < PLO 1,2,3,4,5 > 2022 Major in Chemistry < PLO 1,2,3 > 2022 Major in Chemistry (Intensive) < PLO 1,2,3 > 2021 Major in Biochemistry < PLO 1,2,3,4,5 > 2021 Major in Chemistry < PLO 1,2,3 > 2021 Major in Chemistry (Intensive) < PLO 1,2,3 > 2020 Major in Biochemistry < PLO 1,2,3,4,5 > 2020 Major in Chemistry < PLO 1,2,3 > 2020 Major in Chemistry (Intensive) < PLO 1,2,3 > 2019 Major in Biochemistry < PLO 1,2,3,4,5 > 2019 Major in Chemistry < PLO 1,2,3 > 2019 Major in Chemistry (Intensive) < PLO 1,2,3 > 2018 Major in Biochemistry < PLO 1,2,3,4,5 > 2018 Major in Chemistry < PLO 1,2,3 > 2018 Major in Chemistry (Intensive) < PLO 1,2,3 >		
Offer in 2022 - 2023	Y	1st sem	2nd sem
		Examination	Dec May
Offer in 2023 - 2024	Y		
Course Grade	A+ to F		

Grade Descriptors	A	Demonstrate a thorough mastery at an advanced level of knowledge and understanding of facts and concepts pertaining to the chemical properties, reactions and mechanisms of organic chemistry. Show a strong ability to integrate knowledge and theory, and a strong ability to analyze and solve novel organic chemistry problems. Demonstrate highly effective organization, understanding, and execution of lab skills and techniques in organic chemistry experiments.		
	B	Demonstrate substantial command of knowledge and understanding of essential facts and concepts pertaining to the chemical properties, reactions and mechanisms of organic chemistry. Show evidence of ability to integrate knowledge and theory, and evidence of ability to analyze and solve novel organic chemistry problems. Demonstrate effective organization, understanding, and execution of lab skills and techniques in organic chemistry experiments.		
	C	Demonstrate a general but incomplete command of knowledge and understanding of essential facts and concepts pertaining to the chemical properties, reactions and mechanisms of organic chemistry. Show evidence of some ability to integrate knowledge and theory, and evidence of some ability to analyze novel problems. Show a mostly correct use of knowledge to solve most familiar problems. Demonstrate adequately effective organization, understanding, and execution of lab skills and techniques in organic chemistry experiments.		
	D	Demonstrate a partial but limited command of knowledge and understanding of essential facts and concepts pertaining to the chemical properties, reactions and mechanisms of organic chemistry. Show evidence of limited ability to integrate knowledge and theory, and a limited ability to analyze novel problems. Show some correct but also erroneous use of knowledge to solve most familiar problems. Demonstrate a partially effective organization, understanding and application of lab skills and techniques in organic chemistry experiments.		
	Fail	Demonstrate little or no evidence of command of knowledge and understanding of essential facts and concepts pertaining to the chemical properties, reactions and mechanisms of organic chemistry. Show little or no evidence of ability to apply and integrate knowledge and theory, and little or no ability to analyze novel problems. Show little or no evidence of ability to solve most familiar problems. Demonstrate minimal or no organization, understanding and application of lab skills and techniques in organic chemistry experiments.		
Course Type	Lecture-based course			
Course Teaching & Learning Activities	Activities	Details	No. of Hours	
	Lectures		24	
	Tutorials		36	
	Reading / Self study		100	
Assessment Methods and Weighting	Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
	Assignments	(Assignments and participation)	30	CLO 1,2,3,4,5,6,7
	Examination		50	CLO 1,2,3,4,5,6
	Test		20	CLO 1,2,3,4,5,6
Required/recommended reading and online materials	Organic Chemistry, by Paula Y. Bruice, 8th Global Edition, Chapters 1-12.			
Course Website	NIL			
Additional Course Information	This course will be conducted as a blended learning course, in which the teaching material will be delivered using videos, along with face-to-face and online tutorials.			