Enquiry for Course Details

CHEM4444 Chemical biology (6 credits)		Academic Year	2023
Offering Department	Chemistry	Quota	50
Course Co-ordinator	Prof X C Li, Chemistry < xuechenl@hku.hk >		
Teachers Involved	(Prof X C Li,Chemistry)		
Course Objectives	To understand how to use chemical approaches to emulate biological systems to study natural molecules and generate new functional molecules. Useful as an introduction to research in areas of chemical biology, medicinal chemistry and biotechnology.		
Course Contents & Topics	Chemical biology of nucleic acids, protein chemistry, protein posttranslational modifications, carbohydrate chemistry, chemical glycobiology and tools and techniques in chemical biology.		
Course Learning Outcomes	On successful completion of this course, students should be able to: CLO 1: understand chemical biology approaches in studying biology CLO 2: give examples of how to use chemical methods to produce natural biomolecules and new biomolecules wiht altered functions CLO 3: compare chemical biology and traditional biology approaches in drug discovery		
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in BIOC3601 or CHEM3441		
Course Status with Related Major/Minor /Professional Core	2023 Major in Biochemistry (Disciplinary Elective) 2023 Major in Chemistry (Disciplinary Elective) 2023 Major in Chemistry (Intensive) (Disciplinary Elective) 2023 Minor in Biochemistry (Disciplinary Elective) 2023 Minor in Chemistry (Disciplinary Elective) 2022 Major in Biochemistry (Disciplinary Elective) 2022 Major in Chemistry (Disciplinary Elective) 2022 Major in Chemistry (Intensive) (Disciplinary Elective) 2022 Minor in Biochemistry (Disciplinary Elective) 2022 Minor in Chemistry (Disciplinary Elective) 2021 Major in Biochemistry (Disciplinary Elective) 2021 Major in Chemistry (Disciplinary Elective) 2021 Major in Chemistry (Intensive) (Disciplinary Elective) 2021 Minor in Biochemistry (Disciplinary Elective) 2021 Minor in Chemistry (Disciplinary Elective) 2020 Major in Biochemistry (Disciplinary Elective) 2020 Major in Chemistry (Disciplinary Elective) 2020 Major in Chemistry (Intensive) (Disciplinary Elective) 2020 Minor in Biochemistry (Disciplinary Elective) 2020 Minor in Chemistry (Disciplinary Elective) 2019 Major in Biochemistry (Disciplinary Elective) 2019 Major in Chemistry (Disciplinary Elective) 2019 Major in Chemistry (Intensive) (Disciplinary Elective) 2019 Minor in Biochemistry (Disciplinary Elective) 2019 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping	2023 Major in Biochemistry < PLO 1,2,3,4,5 > 2023 Major in Chemistry < PLO 1,2,6 > 2023 Major in Chemistry (Intensive) < PLO 1,2,6 > 2022 Major in Biochemistry < PLO 1,2,3,4,5 > 2022 Major in Chemistry < PLO 1,2,6 > 2022 Major in Chemistry (Intensive) < PLO 1,2,6 > 2021 Major in Biochemistry < PLO 1,2,3,4,5 > 2021 Major in Chemistry < PLO 1,2,6 > 2021 Major in Chemistry (Intensive) < PLO 1,2,6 > 2020 Major in Biochemistry < PLO 1,2,3,4,5 > 2020 Major in Chemistry < PLO 1,2,6 > 2020 Major in Chemistry (Intensive) < PLO 1,2,6 > 2019 Major in Biochemistry < PLO 1,2,3,4,5 > 2019 Major in Chemistry < PLO 1,2,6 > 2019 Major in Chemistry (Intensive) < PLO 1,2,6 >		
Offer in 2023 - 2024	Y 2nd sem	Examination	May
Offer in 2024 - 2025	Y		
Course Grade	A+ to F		

Grade Descriptors

A	Demonstrate thorough mastery at an advanced level of extensive knowledge and skills required for attaining all the course learning outcomes. Show strong analytical and critical abilities and logical thinking, with evidence of original thought, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. Apply highly effective organizational and presentational skills. Insightful use and critical analysis / evaluation of information drawn from a full range of high quality sources and to quote/reference aptly.
B	Demonstrate substantial command of a broad range of knowledge and skills required for attaining at least most of the course learning outcomes. Show evidence of analytical and critical abilities and logical thinking, and ability to apply knowledge to familiar and some unfamiliar situations. Apply effective organizational and presentational skills. Critical use of relevant information from sources, showing ability to make meaningful comparisons between different secondary interpretations and to quote/reference aptly.
C	Demonstrate general but incomplete command of knowledge and skills required for attaining most of the course learning outcomes. Show evidence of some analytical and critical abilities and logical thinking, and ability to apply knowledge to most familiar situations. Apply moderately effective organizational and presentational skills. Use of relevant information from sources, showing ability to make comparisons between different interpretations and to quote/reference aptly.
D	Demonstrate partial but limited command of knowledge and skills required for attaining some of the course learning outcomes. Show evidence of some coherent and logical thinking, but with limited analytical and critical abilities. Show limited ability to apply knowledge to solve problems. Apply limited or barely effective organizational and presentational skills. Use and reference of several sources, but mainly through summary rather than analysis and comparison.
Fail	Demonstrate little or no evidence of command of knowledge and skills required for attaining the course learning outcomes. Lack of analytical and critical abilities, logical and coherent thinking. Show very little or no ability to apply knowledge to solve problems. Organization and presentational skills are minimally effective or ineffective. Limited use of secondary sources and no critical comparison of them.

Course Type

Lecture-based course

Course Teaching & Learning Activities

Activities	Details	No. of Hours
Lectures		36
Tutorials	(tutorials/discussion)	12
Reading / Self study		100

Assessment Methods and Weighting

Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
Assignments		5	CLO 1,2,3
Examination		50	CLO 1,2,3
Presentation		25	CLO 1,2,3
Test		20	CLO 1,2,3

Required/recommended reading and online materials

Foundations of Chemical Biology by C.M. Dobson, J.A. Gerrard and A.J. Pratt.

Course Website

Nil

Additional Course Information

Nil