Enquiry for Course Details

CHEM4147 Supramolecular chemistry (6 credits)		Academic Year	2021
Offering Department	Chemistry	Quota	40
Course Co-ordinator	Dr H Y Au-Yeung, Chemistry < hoyuay@hku.hk >		
Teachers Involved	(Dr H Y Au-Yeung,Chemistry) (Dr K Okuro,Chemistry) (Dr Y F Wang,Chemistry)		
Course Objectives	Supramolecular chemistry concerns the chemistry beyond that of molecules. This course aims at introducing students to concepts and techniques in supramolecular chemistry, demonstrating how molecular assembly and supramolecular structures leads to functions and properties, and their relevance to material and biological science.		
Course Contents & Topics	Basic concepts in molecular recognition and self-assembly; non-covalent interactions and common supramolecular building blocks; methods in supramolecular chemistry. Selected topics in modern supramolecular chemistry, such as macrocycles and cages, molecular capsule and container molecules, synthetic receptors, interlocked structures, supramolecular polymers and supramolecular chemistry of biomolecules and biomaterials, will also be discussed.		
Course Learning Outcomes	On successful completion of this course, students should be able to: CLO 1 Understand important principles and concepts in supramolecular chemistry CLO 2 Demonstrate knowledge and understanding in the nature of non-covalent interactions and to apply these concepts in the design and explanation of the structures, properties and functions of different supramolecular systems CLO 3 Interpret and analyse physical characterization data of supramolecular systems and extract relevant chemical information to explain the properties of the supramolecular systems		
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM3341 and CHEM3441		
Course Status with Related Major/Minor /Professional Core	2021 Major in Chemistry (Disciplinary Elective) 2021 Major in Chemistry (Intensive) (Disciplinary Elective) 2021 Minor in Chemistry (Disciplinary Elective) 2020 Major in Chemistry (Disciplinary Elective) 2020 Major in Chemistry (Intensive) (Disciplinary Elective) 2020 Minor in Chemistry (Disciplinary Elective) 2019 Major in Chemistry (Disciplinary Elective) 2019 Major in Chemistry (Intensive) (Disciplinary Elective) 2019 Minor in Chemistry (Disciplinary Elective) 2018 Major in Chemistry (Disciplinary Elective) 2018 Major in Chemistry (Intensive) (Disciplinary Elective) 2018 Minor in Chemistry (Disciplinary Elective) 2017 Major in Chemistry (Disciplinary Elective) 2017 Major in Chemistry (Intensive) (Disciplinary Elective) 2017 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping	2021 Major in Chemistry < PLO 1,2,3,5 > 2021 Major in Chemistry (Intensive) < PLO 1,2,3,5 > 2020 Major in Chemistry < PLO 1,2,3,5 > 2020 Major in Chemistry (Intensive) < PLO 1,2,3,5 > 2019 Major in Chemistry < PLO 1,2,3,5 > 2019 Major in Chemistry (Intensive) < PLO 1,2,3,5 > 2018 Major in Chemistry < PLO 1,2,3,5 > 2018 Major in Chemistry (Intensive) < PLO 1,2,3,5 > 2017 Major in Chemistry < PLO 1,2,3,5 > 2017 Major in Chemistry (Intensive) < PLO 1,2,3,5 >		
Offer in 2021 - 2022	Y 2nd sem	Examination	May
Offer in 2022 - 2023	Y		
Course Grade	A+ to F		

Grade Descriptors

A	Demonstrate thorough knowledge and understanding of essential facts, concepts and principles in supramolecular chemistry, especially those relating to non-covalent interactions, molecular recognition and self-assembly. Show strong ability to apply and integrate knowledge in supramolecular chemistry in explaining the formation and properties of, and in designing different supramolecular systems. Show strong ability to analyse and interpret experimental data to draw appropriate conclusions relating to the advanced principles and properties of supramolecular systems.
B	Demonstrate substantial knowledge and understanding of essential facts, concepts and principles in supramolecular chemistry, especially those relating to non-covalent interactions, molecular recognition and self-assembly. Show evidence to apply and integrate knowledge in supramolecular chemistry in explaining the formation and properties of, and in designing different supramolecular systems. Show evidence to analyse and interpret experimental data to draw appropriate conclusions relating to the advanced principles and properties of supramolecular systems.
C	Demonstrate general but incomplete amount of knowledge and understanding of essential facts, concepts and principles in supramolecular chemistry, especially those relating to non-covalent interactions, molecular recognition and self-assembly. Show some ability to apply and integrate knowledge in supramolecular chemistry in explaining the formation and properties of, and in designing different supramolecular systems. Show some ability to analyse and interpret experimental data to draw appropriate conclusions relating to the advanced principles and properties of supramolecular systems.
D	Demonstrate partial but incomplete command of knowledge and understanding of essential facts, concepts and principles in supramolecular chemistry, especially those relating to non-covalent interactions, molecular recognition and self-assembly. Show evidence of limited ability to apply and integrate knowledge in supramolecular chemistry in explaining the formation and properties of, and in designing different supramolecular systems. Show limited ability to analyse and interpret experimental data to draw appropriate conclusions relating to the advanced principles and properties of supramolecular systems.
Fail	Demonstrate little or no evidence of command of knowledge and understanding of essential facts, concepts and principles in supramolecular chemistry, especially those relating to non-covalent interactions, molecular recognition and self-assembly. Show little or no ability to apply and integrate knowledge in supramolecular chemistry in explaining the formation and properties of, and in designing different supramolecular systems. Show little or no ability to analyse and interpret experimental data to draw appropriate conclusions relating to the advanced principles and properties of supramolecular systems.

Course Type

Lecture-based course

Course Teaching & Learning Activities

Activities	Details	No. of Hours
Lectures		36
Tutorials		12
Reading / Self study		100

Assessment Methods and Weighting

Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
Assignments		15	CLO 1,2,3
Examination		45	CLO 1,2,3
Presentation		20	CLO 1,2,3
Test		20	CLO 1,2,3

Required/recommended reading and online materials

Supramolecular Chemistry by Jonathan W. Steed and Jerry L. Atwood, John Wiley & Sons, Ltd., 2nd Edition, 2009
Modern Physical Organic Chemistry by Eric V. Anslyn and Dennis A. Dougherty, University Science Books, 2006
References to specialist texts and other published materials will be made throughout the course.

Course Website

Additional Course Information

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