Enquiry for Course Details

CHEM4341 Advanced inorganic chemistry (6 credits)		Academic Year	2023
Offering Department	Chemistry	Quota	50
Course Co-ordinator	Prof C M Che, Chemistry < cmche@hku.hk >		
Teachers Involved	(Prof C M Che,Chemistry) (Prof H Z Sun,Chemistry) (Prof V W W Yam,Chemistry)		
Course Objectives	This course is a continuation from Intermediate Inorganic Chemistry, giving further and more detailed treatment to topics in Inorganic Chemistry and new areas of interest. Problem based learning on selected advance topics will be introduced in the later part of the course. This course also aims to prepare students for graduate work.		
Course Contents & Topics	Selected advanced topics of current interest. Examples include metal-metal bonds and metal-ligand multiple bonds, inorganic and supramolecular photochemistry, lanthanide chemistry, bio-inorganic and medicinal chemistry, and activation of small molecules by metal complexes.		
Course Learning Outcomes	On successful completion of this course, students should be able to: CLO 1 understand the principles and concepts of inorganic and supramolecular photochemistry CLO 2 understand the electronic structure and bondings of novel metal-metal and metal-ligand multiple bonded metal complexes CLO 3 understand and realize the activation of small molecules by transition metal complexes and realize the importance of such activation in chemical catalysis of global interest, green chemistry and energy saving reactions CLO 4 understand the role of metal complexes in bio-inorganic and medicinal chemistry		
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM3341		
Course Status with Related Major/Minor /Professional Core	2023 Major in Chemistry (Disciplinary Elective) 2023 Major in Chemistry (Intensive) (Disciplinary Elective) 2023 Minor in Chemistry (Disciplinary Elective) 2022 Major in Chemistry (Disciplinary Elective) 2022 Major in Chemistry (Intensive) (Disciplinary Elective) 2022 Minor in Chemistry (Disciplinary Elective) 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)		
Course to PLO Mapping	2023 Major in Chemistry < PLO 2,3 > 2023 Major in Chemistry (Intensive) < PLO 2,3 > 2022 Major in Chemistry < PLO 2,3 > 2022 Major in Chemistry (Intensive) < PLO 2,3 > 2021 Major in Chemistry < PLO 2,3 > 2021 Major in Chemistry (Intensive) < PLO 2,3 > 2020 Major in Chemistry < PLO 2,3 > 2020 Major in Chemistry (Intensive) < PLO 2,3 > 2019 Major in Chemistry < PLO 2,3 > 2019 Major in Chemistry (Intensive) < PLO 2,3 >		
Offer in 2023 - 2024	Y 1st sem	Examination	Dec
Offer in 2024 - 2025	Y		
Course Grade	A+ to F		
Grade Descriptors	A: Demonstrate thorough knowledge and understanding of essential facts, concepts, principles and theories relating to the frontiers in inorganic chemistry. Show strong ability to apply and integrate knowledge and theory, and strong ability to analyze novel problems in inorganic chemistry. Apply highly effective organizational and presentational skills. B: Demonstrate substantial command of knowledge and understanding of essential facts, concepts, principles and theories relating to the more advanced knowledge in inorganic chemistry. Show evidence to apply and integrate knowledge and theory, and ability to analyze novel problems of inorganic chemistry. Apply effective organizational and presentational skills. C: Demonstrate general but incomplete command of knowledge and understanding of essential facts, concepts, principles and theories relating to the more advanced knowledge in inorganic chemistry. Show evidence of some abilities to apply and integrate knowledge and theory, and to analyze problems to most familiar situations in inorganic chemistry. Apply moderately effective organizational and presentational skills. D: Demonstrate partial but limited command of knowledge and understanding of essential facts, concepts, principles and theories relating to the more advanced knowledge in inorganic chemistry. Show evidence of limited abilities to apply and integrate knowledge and theory, and limited ability to analyze problems to most familiar situations in inorganic chemistry. Demonstrate partially effective organizational and presentational skills. Fail: Demonstrate little or no evidence of command of knowledge and understanding of essential facts, concepts, principles and theories relating to the more advanced knowledge in inorganic chemistry. Show little or no evidence of abilities to apply and integrate knowledge and theory, and little or no ability to analyze problems to most familiar situations in inorganic chemistry. Demonstrate minimally effective organizational and presentational skills.		

Course Type	Lecture-based course
Course Teaching & Learning Activities	

Activities	Details	No. of Hours
Lectures		36
Tutorials	including literature survey & presentation	12
Reading / Self study		100

Assessment Methods and Weighting

Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
Assignments		25	CLO 1,2,3,4
Examination		50	CLO 1,2,3,4
Test	(quiz/ test)	25	CLO 1,2,3,4

Required/recommended reading and online materials	F.A. Cotton, G. Wilkinson, Hurillo and Bochmann: Advance Inorganic Chemistry (Wiley, 1999, 6th ed.) References to specialist texts and other published materials will be made throughout the course.
Course Website	NIL
Additional Course Information	(Students are strongly recommended to take CHEM4142 Symmetry, group theory and applications if they wish to take this course.) This course is also offered to RPg students, and the course code for RPg students is CHEM6115.