

Enquiry for Course Details

CHEM3341 Inorganic chemistry II (6 credits)		Academic Year	2021
Offering Department	Chemistry	Quota	90
Course Co-ordinator	Prof V W W Yam, Chemistry < wwyam@hku.hk >		
Teachers Involved	(Dr A M Y Yuen, Chemistry) (Prof V W W Yam, Chemistry)		
Course Objectives	This course is a continuation from CHEM2341 Inorganic Chemistry I, with a more detailed treatment of general inorganic chemistry, with examples relevance to biological processes and material science, suited to the needs of those intending to extend their studies in chemistry.		
Course Contents & Topics	Chemistry of selected classes of inorganic, coordination and organometallic compounds including mechanisms of their reaction where appropriate. Structure, bonding, magnetism and spectral properties of inorganic systems including examples in bioinorganic systems.		
Course Learning Outcomes	On successful completion of this course, students should be able to:		
	CLO 1	demonstrate knowledge of chemistry of selected classes of inorganic, coordination and organometallic compounds	
	CLO 2	understand structure, bonding, magnetism and spectral properties of inorganic systems	
	CLO 3	understand mechanisms of selected chemical reactions that are essential to coordination and organometallic compounds	
	CLO 4	gain appropriate knowledge of coordination compounds in biological systems	
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM2341		
Course Status with Related Major/Minor /Professional Core	2021 Major in Chemistry (Core/Compulsory) 2021 Major in Chemistry (Intensive) (Core/Compulsory) 2021 Minor in Chemistry (Disciplinary Elective) 2020 Major in Chemistry (Core/Compulsory) 2020 Major in Chemistry (Intensive) (Core/Compulsory) 2020 Minor in Chemistry (Disciplinary Elective) 2019 Major in Chemistry (Core/Compulsory) 2019 Major in Chemistry (Intensive) (Core/Compulsory) 2019 Minor in Chemistry (Disciplinary Elective) 2018 Major in Chemistry (Core/Compulsory) 2018 Major in Chemistry (Intensive) (Core/Compulsory) 2018 Minor in Chemistry (Disciplinary Elective) 2017 Major in Chemistry (Core/Compulsory) 2017 Major in Chemistry (Intensive) (Core/Compulsory) 2017 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping	2021 Major in Chemistry < PLO 2,3,4 > 2021 Major in Chemistry (Intensive) < PLO 2,3,4 > 2020 Major in Chemistry < PLO 2,3,4 > 2020 Major in Chemistry (Intensive) < PLO 2,3,4 > 2019 Major in Chemistry < PLO 2,3,4 > 2019 Major in Chemistry (Intensive) < PLO 2,3,4 > 2018 Major in Chemistry < PLO 2,3,4 > 2018 Major in Chemistry (Intensive) < PLO 2,3,4 > 2017 Major in Chemistry < PLO 2,3,4 > 2017 Major in Chemistry (Intensive) < PLO 2,3,4 >		
Offer in 2021 - 2022	Y	1st sem	Examination Dec
Offer in 2022 - 2023	Y		
Course Grade	A+ to F		

Grade Descriptors	<p>A Demonstrate thorough knowledge and understanding of essential facts, concepts, principles, and theories relating to the more advanced foundation knowledge of inorganic chemistry, especially those related to structure and bonding of inorganic, coordination and organometallic compounds; mechanisms of reactions; and magnetic and spectral properties of inorganic systems including examples in bioinorganic systems. Show strong ability to apply and integrate knowledge and theory relating to the more advanced foundation knowledge of inorganic chemistry. Show strong ability to analyze novel problems and critical use of data and experimental results to draw appropriate and insightful conclusions relating to the essential and more advanced foundation principles and knowledge of inorganic chemistry. Demonstrate highly effective laboratory skills and techniques, especially in the synthesis and reactivity study of inorganic compounds and metal complexes, and their characterization by various spectroscopic methods.</p> <p>B Demonstrate substantial command of knowledge and understanding of essential facts, concepts, principles, and theories relating to the more advanced foundation knowledge of inorganic chemistry, especially those related to structure and bonding of inorganic, coordination and organometallic compounds; mechanisms of reactions; and magnetic and spectral properties of inorganic systems including examples in bioinorganic systems. Show evidence to apply and integrate knowledge and theory relating to the more advanced foundation knowledge of inorganic chemistry. Show evidence to analyze novel problems and correct use of data and experimental results to draw appropriate conclusions relating to the essential and more advanced foundation principles and knowledge of inorganic chemistry. Demonstrate effective laboratory skills and techniques, especially in the synthesis and reactivity study of inorganic compounds and metal complexes, and their characterization by various spectroscopic methods.</p> <p>C Demonstrate general but incomplete command of knowledge and understanding of essential facts, concepts, principles, and theories relating to the more advanced foundation knowledge of inorganic chemistry, especially those related to structure and bonding of inorganic, coordination and organometallic compounds; mechanisms of reactions; and magnetic and spectral properties of inorganic systems including examples in bioinorganic systems. Show evidence of some abilities to apply and integrate knowledge and theory relating to the more advanced foundation knowledge of inorganic chemistry. Show ability to analyze problems to most familiar situations and mostly correct but erroneous use of data and experimental results to draw appropriate conclusions relating to the essential and more advanced foundation principles and knowledge of inorganic chemistry. Demonstrate moderately effective laboratory skills and techniques, especially in the synthesis and reactivity study of inorganic compounds and metal complexes, and their characterization by various spectroscopic methods.</p> <p>D Demonstrate partial but limited command of knowledge and understanding of essential facts, concepts, principles, and theories relating to the more advanced foundation knowledge of inorganic chemistry, especially those related to structure and bonding of inorganic, coordination and organometallic compounds; mechanisms of reactions; and magnetic and spectral properties of inorganic systems including examples in bioinorganic systems. Show evidence of limited abilities to apply and integrate knowledge and theory relating to the more advanced foundation knowledge of inorganic chemistry. Show limited ability to analyze problems to most familiar situations and mostly correct but erroneous use of data and experimental results to draw appropriate conclusions relating to the essential and more advanced foundation principles and knowledge of inorganic chemistry. Demonstrate partially effective laboratory skills and techniques, especially in the synthesis and reactivity study of inorganic compounds and metal complexes, and their characterization by various spectroscopic methods.</p> <p>Fail Demonstrate little or no evidence of command of knowledge and understanding of essential facts, concepts, principles, and theories relating to the more advanced foundation knowledge of inorganic chemistry, especially those related to structure and bonding of inorganic, coordination and organometallic compounds; mechanisms of reactions; and magnetic and spectral properties of inorganic systems including examples in bioinorganic systems. Show little or no evidence of abilities to apply and integrate knowledge and theory relating to the more advanced foundation knowledge of inorganic chemistry. Show little or no ability to analyze problems to most familiar situations and erroneous use of data and experimental results to draw appropriate conclusions relating to the essential and more advanced foundation principles and knowledge of inorganic chemistry. Demonstrate minimally effective laboratory skills and techniques, especially in the synthesis and reactivity study of inorganic compounds and metal complexes, and their characterization by various spectroscopic methods.</p>																				
Course Type	Lecture with laboratory component course																				
Course Teaching & Learning Activities	<table border="1"> <thead> <tr> <th data-bbox="395 1099 970 1133">Activities</th> <th data-bbox="970 1099 1297 1133">Details</th> <th data-bbox="1297 1099 1495 1133">No. of Hours</th> </tr> </thead> <tbody> <tr> <td data-bbox="395 1133 970 1167">Laboratory</td> <td data-bbox="970 1133 1297 1167"></td> <td data-bbox="1297 1133 1495 1167">24</td> </tr> <tr> <td data-bbox="395 1167 970 1200">Lectures</td> <td data-bbox="970 1167 1297 1200"></td> <td data-bbox="1297 1167 1495 1200">24</td> </tr> <tr> <td data-bbox="395 1200 970 1234">Tutorials</td> <td data-bbox="970 1200 1297 1234"></td> <td data-bbox="1297 1200 1495 1234">6</td> </tr> <tr> <td data-bbox="395 1234 970 1290">Reading / Self study</td> <td data-bbox="970 1234 1297 1290"></td> <td data-bbox="1297 1234 1495 1290">100</td> </tr> </tbody> </table>	Activities	Details	No. of Hours	Laboratory		24	Lectures		24	Tutorials		6	Reading / Self study		100					
Activities	Details	No. of Hours																			
Laboratory		24																			
Lectures		24																			
Tutorials		6																			
Reading / Self study		100																			
Assessment Methods and Weighting	<table border="1"> <thead> <tr> <th data-bbox="395 1308 651 1364">Methods</th> <th data-bbox="651 1308 978 1364">Details</th> <th data-bbox="978 1308 1177 1364">Weighting in final course grade (%)</th> <th data-bbox="1177 1308 1495 1364">Assessment Methods to CLO Mapping</th> </tr> </thead> <tbody> <tr> <td data-bbox="395 1364 651 1408">Assignments</td> <td data-bbox="651 1364 978 1408"></td> <td data-bbox="978 1364 1177 1408">18</td> <td data-bbox="1177 1364 1495 1408">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="395 1408 651 1453">Examination</td> <td data-bbox="651 1408 978 1453"></td> <td data-bbox="978 1408 1177 1453">50</td> <td data-bbox="1177 1408 1495 1453">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="395 1453 651 1498">Laboratory reports</td> <td data-bbox="651 1453 978 1498"></td> <td data-bbox="978 1453 1177 1498">12</td> <td data-bbox="1177 1453 1495 1498">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="395 1498 651 1532">Test</td> <td data-bbox="651 1498 978 1532"></td> <td data-bbox="978 1498 1177 1532">20</td> <td data-bbox="1177 1498 1495 1532">CLO 1,2,3,4</td> </tr> </tbody> </table>	Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping	Assignments		18	CLO 1,2,3,4	Examination		50	CLO 1,2,3,4	Laboratory reports		12	CLO 1,2,3,4	Test		20	CLO 1,2,3,4
Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping																		
Assignments		18	CLO 1,2,3,4																		
Examination		50	CLO 1,2,3,4																		
Laboratory reports		12	CLO 1,2,3,4																		
Test		20	CLO 1,2,3,4																		
Required/recommended reading and online materials	Shriver & Atkins, Inorganic Chemistry (4th Ed.), Oxford University Press, 2005 Catherine, Housecroft & Sharpe, Inorganic Chemistry (3rd Ed.), Prentice Hall, 2008																				
Course Website	NIL																				
Additional Course Information	Laboratory classes are mandatory. Students must complete ALL experiments and laboratory reports to pass this course.																				