

Enquiry for Course Details

CHEM3341 Inorganic chemistry II (6 credits)	Academic Year	2020
Offering Department	Chemistry	Quota
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	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) 2016 Major in Chemistry (Core/Compulsory) 2016 Major in Chemistry (Intensive) (Core/Compulsory) 2016 Minor in Chemistry (Disciplinary Elective)	
Course to PLO Mapping	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 > 2016 Major in Chemistry < PLO 2,3,4 > 2016 Major in Chemistry (Intensive) < PLO 2,3,4 >	
Offer in 2020 - 2021	Y 1st sem	Examination Dec
Offer in 2021 - 2022	Y	
Course Grade	A+ to F	

Grade Descriptors	<table border="1"> <tr> <td data-bbox="617 155 706 365">A</td> <td data-bbox="706 155 1437 365">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.</td> </tr> <tr> <td data-bbox="617 365 706 575">B</td> <td data-bbox="706 365 1437 575">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.</td> </tr> <tr> <td data-bbox="617 575 706 827">C</td> <td data-bbox="706 575 1437 827">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.</td> </tr> <tr> <td data-bbox="617 827 706 1058">D</td> <td data-bbox="706 827 1437 1058">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.</td> </tr> <tr> <td data-bbox="617 1058 706 1289">Fail</td> <td data-bbox="706 1058 1437 1289">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.</td> </tr> </table>	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.	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.	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.	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.	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.										
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.																				
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.																				
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.																				
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.																				
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.																				
Course Type	Lecture with laboratory component course																				
Course Teaching & Learning Activities	<table border="1"> <thead> <tr> <th data-bbox="617 1350 966 1381">Activities</th> <th data-bbox="966 1350 1263 1381">Details</th> <th data-bbox="1263 1350 1437 1381">No. of Hours</th> </tr> </thead> <tbody> <tr> <td data-bbox="617 1381 966 1413">Laboratory</td> <td data-bbox="966 1381 1263 1413"></td> <td data-bbox="1263 1381 1437 1413">24</td> </tr> <tr> <td data-bbox="617 1413 966 1444">Lectures</td> <td data-bbox="966 1413 1263 1444"></td> <td data-bbox="1263 1413 1437 1444">24</td> </tr> <tr> <td data-bbox="617 1444 966 1476">Tutorials</td> <td data-bbox="966 1444 1263 1476"></td> <td data-bbox="1263 1444 1437 1476">6</td> </tr> <tr> <td data-bbox="617 1476 966 1528">Reading / Self study</td> <td data-bbox="966 1476 1263 1528"></td> <td data-bbox="1263 1476 1437 1528">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="617 1545 792 1577">Methods</th> <th data-bbox="792 1545 1047 1577">Details</th> <th data-bbox="1047 1545 1226 1577">Weighting in final course grade (%)</th> <th data-bbox="1226 1545 1437 1577">Assessment Methods to CLO Mapping</th> </tr> </thead> <tbody> <tr> <td data-bbox="617 1577 792 1629">Assignments</td> <td data-bbox="792 1577 1047 1629"></td> <td data-bbox="1047 1577 1226 1629">18</td> <td data-bbox="1226 1577 1437 1629">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="617 1629 792 1661">Examination</td> <td data-bbox="792 1629 1047 1661"></td> <td data-bbox="1047 1629 1226 1661">50</td> <td data-bbox="1226 1629 1437 1661">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="617 1661 792 1692">Laboratory reports</td> <td data-bbox="792 1661 1047 1692"></td> <td data-bbox="1047 1661 1226 1692">12</td> <td data-bbox="1226 1661 1437 1692">CLO 1,2,3,4</td> </tr> <tr> <td data-bbox="617 1692 792 1745">Test</td> <td data-bbox="792 1692 1047 1745"></td> <td data-bbox="1047 1692 1226 1745">20</td> <td data-bbox="1226 1692 1437 1745">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.																				

← Back / 🏠 Home