

Enquiry for Course Details

CHEM3342 Bioinorganic chemistry (6 credits)		Academic Year	2020
Offering Department	Chemistry	Quota	50
Course Co-ordinator	Prof H Z Sun, Chemistry < hsun@hku.hk >		
Teachers Involved	(Dr H Y Au Yeung, Chemistry) (Prof H Z Sun, Chemistry)		
Course Objectives	This course is a continuation from Basic Inorganic Chemistry and Basic Organic Chemistry, giving further and more details of inorganic chemistry in biological system, with examples relevance to biological processes and medical science, suited to the needs of those intending to extend their studies in (bio)chemistry and biomedical science.		
Course Contents & Topics	Bioinorganic Chemistry of selected topics of interest. Examples include the inorganic chemistry (and biochemistry) behind the requirement of biological cells for metals such as zinc, iron and copper; and metals in medicine such as mechanisms by which organisms obtain required metal ions from their environment, and use of metal-containing compounds in treating diseases such as cancer.		
Course Learning Outcomes	On successful completion of this course, students should be able to:		
	CLO 1	understand the principles and concepts of inorganic/organic chemistry in biological system	
	CLO 2	understand structure, bonding, and spectral properties of selected metals in proteins and nucleic acids	
	CLO 3	understand chemical mechanisms of selected metal homeostasis (i.e. uptake, transport and storage)	
	CLO 4	understand the role of metal complexes medicine	
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM2341		
Course Status with Related Major/Minor /Professional Core	2U000C00 Course not offered under any Major/Minor/Professional core 2020 Minor in Chemistry (Disciplinary Elective) 2019 Minor in Chemistry (Disciplinary Elective) 2018 Minor in Chemistry (Disciplinary Elective) 2017 Minor in Chemistry (Disciplinary Elective) 2016 Minor in Chemistry (Disciplinary Elective)		
Course to PLO Mapping			
Offer in 2020 - 2021	Y	2nd sem	Examination May
Offer in 2021 - 2022	Y		
Course Grade	A+ to F		

Grade Descriptors	<table border="1"> <tr> <td data-bbox="617 155 706 348">A</td> <td data-bbox="706 155 1446 348">Demonstrate thorough knowledge and understanding of essential facts, concepts, principles, and theories relating to the basic foundation knowledge of bioinorganic chemistry, especially those related to hard-soft acid-base theory; chelation; structure and bonding of metals in biological systems; thermodynamic and kinetic aspects of metal ions in biological processes and their relevance to metal homeostasis; metal-based drugs. Show strong ability to apply and integrate knowledge and theory relating to the basic foundation knowledge of bioinorganic 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 basic principles and knowledge of bioinorganic chemistry. 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Required/recommended reading and online materials	<p>Lippard, S. J. and Berg, J. M. Principles of Bioinorganic Chemistry (University Science Books; Mill Valley, CA, 1994</p> <p>Bertini, I.; Gray, H. B.; Stiefel, E. I.; Valentine, J. S., editors. Biological Inorganic Chemistry: Structure and Reactivity, University Science Books, 2007</p> <p>Metals and Life, Moore C., RSC Publishing, 2010.</p> <p>Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life, Kaim W. & Schwederski B., John Wiley & Sons, 2013.</p>												
Course Website	NIL												
Additional Course Information													

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