

## Enquiry for Course Details

<b>CHEM3141 Environmental chemistry (6 credits)</b>		Academic Year	2022												
Offering Department	Chemistry	Quota	50												
Course Co-ordinator	Dr Y X Li, Chemistry < yxpli@hku.hk >														
Teachers Involved	(Dr Y X Li, Chemistry)														
Course Objectives	This course introduces students to Environmental Chemistry and enables them to understand the chemical principles involved in various environmental phenomena and processes.														
Course Contents & Topics	Atmosphere chemistry: atmospheric composition and behavior, ozone, air pollution Energy and climate change: energy resources, carbon emission, carbon neutrality, and climate change Water Chemistry: water resources and cycle, water pollution, water purification, and water crisis Pollutants: persistent organic pollutants, pesticides, toxic heavy metals, toxicology Waste treatment: domestic waste treatment, landfill, incineration														
Course Learning Outcomes	On successful completion of this course, students should be able to: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">CLO 1</td> <td>demonstrate knowledge on chemical principles of the various environmental phenomena and processes</td> </tr> <tr> <td>CLO 2</td> <td>describe the practical processes of chemistry in atmosphere, water purification, waste treatment, and energy production</td> </tr> <tr> <td>CLO 3</td> <td>critically discuss local and global environmental issues based on scientific principles and data</td> </tr> <tr> <td>CLO 4</td> <td>apply knowledge to analyze chemical processes involved in various environmental problems</td> </tr> </table>			CLO 1	demonstrate knowledge on chemical principles of the various environmental phenomena and processes	CLO 2	describe the practical processes of chemistry in atmosphere, water purification, waste treatment, and energy production	CLO 3	critically discuss local and global environmental issues based on scientific principles and data	CLO 4	apply knowledge to analyze chemical processes involved in various environmental problems				
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Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM2341 or CHEM2441 or CHEM2442 or CHEM2541														
Course Status with Related Major/Minor /Professional Core	2022 Major in Environmental Science ( Disciplinary Elective ) 2022 Minor in Chemistry ( Disciplinary Elective ) 2022 Minor in Environmental Science ( Disciplinary Elective ) 2021 Major in Environmental Science ( Disciplinary Elective ) 2021 Minor in Chemistry ( Disciplinary Elective ) 2021 Minor in Environmental Science ( Disciplinary Elective ) 2020 Major in Environmental Science ( Disciplinary Elective ) 2020 Minor in Chemistry ( Disciplinary Elective ) 2020 Minor in Environmental Science ( Disciplinary Elective ) 2019 Major in Environmental Science ( Disciplinary Elective ) 2019 Minor in Chemistry ( Disciplinary Elective ) 2019 Minor in Environmental Science ( Disciplinary Elective ) 2018 Major in Environmental Science ( Disciplinary Elective ) 2018 Minor in Chemistry ( Disciplinary Elective ) 2018 Minor in Environmental Science ( Disciplinary Elective )														
Course to PLO Mapping	2022 Major in Environmental Science < PLO 1,2,3,4 > 2021 Major in Environmental Science < PLO 1,2,3,4 > 2020 Major in Environmental Science < PLO 1,2,3,4 > 2019 Major in Environmental Science < PLO 1,2,3,4 > 2018 Major in Environmental Science < PLO 1,2,3,4 >														
Offer in 2022 - 2023	Y	2nd sem	Examination May												
Offer in 2023 - 2024	Y														
Course Grade	A+ to F														
Grade Descriptors	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">A</td> <td>- Demonstrate thorough grasp of the subject. - Demonstrate integration of the full range of appropriate theories, principles, and evidence. - Show evidence of strong analytical abilities, logical and independent thinking, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. - Demonstrate highly effective organization and presentation skills.</td> </tr> <tr> <td>B</td> <td>- Demonstrate substantial grasp of the subject. - Demonstrate general integration of theories, principles, and evidence. - Show evidence of analytical abilities and logical thinking, some evidence of independent thinking, and ability to apply knowledge to familiar and some unfamiliar situations. - Demonstrate effective organization and presentation skills.</td> </tr> <tr> <td>C</td> <td>- Demonstrate general but incomplete grasp of the subject. - Demonstrate some partial integration of theories, principles, and evidence. - Show evidence of some analytical abilities and logical thinking, little evidence of independent thinking, and ability to apply knowledge to most familiar situations. - Demonstrate moderately effective organization and presentation skills.</td> </tr> <tr> <td>D</td> <td>- Demonstrate partial but limited grasp, with retention of some relevant information, of the subject. - Demonstrate limited integration of theories, principles, and evidence. - Show evidence of limited analytical abilities, logical and independent thinking, and limited ability to apply knowledge to solve problems. - Demonstrate limited or barely effective organization and presentation skills.</td> </tr> <tr> <td>Fail</td> <td>- Demonstrate little or no grasp of the knowledge and understanding of the subject. - Demonstrate little or inapt integration of theories, principles, and evidence. - Show little or no evidence of analytical abilities, logical and independent thinking, and very little or no ability to apply knowledge to solve problems. - Demonstrate incoherent organization and poor presentation skills.</td> </tr> </table>			A	- Demonstrate thorough grasp of the subject. - Demonstrate integration of the full range of appropriate theories, principles, and evidence. - Show evidence of strong analytical abilities, logical and independent thinking, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. - Demonstrate highly effective organization and presentation skills.	B	- Demonstrate substantial grasp of the subject. - Demonstrate general integration of theories, principles, and evidence. - Show evidence of analytical abilities and logical thinking, some evidence of independent thinking, and ability to apply knowledge to familiar and some unfamiliar situations. - Demonstrate effective organization and presentation skills.	C	- Demonstrate general but incomplete grasp of the subject. - Demonstrate some partial integration of theories, principles, and evidence. - Show evidence of some analytical abilities and logical thinking, little evidence of independent thinking, and ability to apply knowledge to most familiar situations. - Demonstrate moderately effective organization and presentation skills.	D	- Demonstrate partial but limited grasp, with retention of some relevant information, of the subject. - Demonstrate limited integration of theories, principles, and evidence. - Show evidence of limited analytical abilities, logical and independent thinking, and limited ability to apply knowledge to solve problems. - Demonstrate limited or barely effective organization and presentation skills.	Fail	- Demonstrate little or no grasp of the knowledge and understanding of the subject. - Demonstrate little or inapt integration of theories, principles, and evidence. - Show little or no evidence of analytical abilities, logical and independent thinking, and very little or no ability to apply knowledge to solve problems. - Demonstrate incoherent organization and poor presentation skills.		
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Assessment Methods and Weighting	Methods	Details	Weighting in final course grade (%)	Assessment Methods to CLO Mapping
	Assignments	(poster presentation)	50	CLO 1,2,3,4
	Examination		50	CLO 1,2,3,4
Required/recommended reading and online materials	C. Baird and M. Cann: Environmental Chemistry, Freeman, latest edition. S.E. Manahan: Environmental Chemistry, Lewis Publishers, latest edition.			
Course Website	NIL			
Additional Course Information	NIL			