Enquiry for Course Details

CHEM3141 Environmental chemistry (6 credits)		Academic Year	2023
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: 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		
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM2241 or CHEM2341 or CHEM2441 or CHEM2442 or CHEM2541 For those who have not got the above pre-requisite but with a pass in CHEM1042 and a pass in ENVS2001, and will work hard to cope with the course, they are welcome to join the course.		
Course Status with Related Major/Minor /Professional Core	2023 Major in Environmental Science (Disciplinary Elective) 2023 Minor in Chemistry (Disciplinary Elective) 2023 Minor in Environmental Science (Disciplinary Elective) 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)		
Course to PLO Mapping	2023 Major in Environmental Science < PLO 1,2,3,4 > 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 >		
Offer in 2023 - 2024	Y 2nd sem	Examination	May
Offer in 2024 - 2025	Y		
Course Grade	A+ to F		
Grade Descriptors	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 ablility 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, little or no evidence of 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.		
Course Type	Lecture-based course		
Course Teaching & Learning Activities	**Activities** / **Details** / **No. of Hours** Lectures / / 36 Tutorials / / 12 Reading / Self study / / 100		

<table>
<tr><td>Assessment Methods and Weighting</td><td>
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<tr><th>Methods</th><th>Details</th><th>Weighting in final course grade (%)</th><th>Assessment Methods to CLO Mapping</th></tr>
<tr><td>Assignments</td><td>30% Assignment 1 (poster presentation); 20% Assignment 2 (two short quizzes)</td><td>50</td><td>CLO 1,2,3,4</td></tr>
<tr><td>Examination</td><td></td><td>50</td><td>CLO 1,2,3,4</td></tr>
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<tr><td>Required/recommended reading and online materials</td><td>C. Baird and M. Cann: Environmental Chemistry, Freeman, latest edition.
S.E. Manahan: Environmental Chemistry, Lewis Publishers, latest edition.</td></tr>
<tr><td>Course Website</td><td>NIL</td></tr>
<tr><td>Additional Course Information</td><td>NIL</td></tr>
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