

**City University of Hong Kong
Course Syllabus**

**offered by Department of Chemistry
with effect from Semester A 2020/21**

Part I Course Overview

Course Title:	Environmental Toxicology
Course Code:	CHEM4022 (and CHEM4022A)
Course Duration:	1 semester
Credit Units:	4 (3) credits
Level:	B4
Proposed Area: (for GE courses only)	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: (Course Code and Title)	Nil
Precursors: (Course Code and Title)	Nil
Equivalent Courses: (Course Code and Title)	BCH4022 (and BCH4022A) Environmental Toxicology
Exclusive Courses: (Course Code and Title)	Nil

Note: CHEM4022A does not contain any practical component, and has a credit unit value of three (3).

Part II Course Details

1. Abstract

(A 150-word description about the course)

In this course, students will:

- examine problems caused by various environmental toxicants and their fate
- be provided with practical experience in conducting in toxicity tests
- develop knowledge and techniques in the management of environmental toxicants

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Describe and evaluate the problems caused by various environmental toxicants and their fate in the environment	NA	NA	NA	NA
2.	Compare and contrast the various laboratory techniques used in quantitative assessment of environmental toxicants	NA	NA	NA	NA
3.	Critically evaluate, using case studies and group presentations, various management techniques adopted in the management of environmental toxicants	NA	NA	NA	NA
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.			Hours/week (if applicable)
		1	2	3	
Group activities	Teaching and learning will be primarily based around large and small group activities examining problems caused by various environmental toxicants and their fate in the environment	✓			
Practical sessions	Teaching and learning will be based on small group practical sessions laying the basis for various laboratory techniques used in quantitative assessment of environmental toxicants. Students will be able to experience these laboratory techniques themselves under guidance.		✓		
Group activities, written assignments and presentations	Teaching and learning will be primarily by large and small group activities, written assignments, and presentations related to various management techniques adopted in the management of environmental toxicants.			✓	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.			Weighting*		Remarks
	1	2	3	CHEM4022	CHEM4022A	
Continuous Assessment: <u>50%</u>						
Tutorial Assignments and Quizzes	✓		✓	NA	NA	
Group Presentations			✓	NA	NA	
Practicals		✓		NA	--	(for CHEM4022 only)
Examination: <u>50%</u> (duration: 3 hours)						
* The weightings should add up to 100%.				100%	100%	

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for courses offered by CHEM:

"A minimum of 40% in both coursework and examination components."

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Tutorial Assignments and Quizzes	understanding of the topic and reading materials; correctness of interpretation and analysis of experimental data	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Group Presentations	Understanding of the topic and material; completeness of the presentation; logic of the presentation structure; clarity of talk; appropriate use of photos and figures in the illustration of concepts; ability to discuss the presented topic	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Practicals	Correctness of interpretation and analysis of experimental data; understanding of the topic and reading materials; application of knowledge in solving real life problems	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Examination	Completeness and correctness of	High	Significant	Moderate	Basic	Not even reaching marginal levels

	calculations/answers; correctness of interpretation and analysis of experimental data; application of knowledge in solving real life problems; logic of argumentation and intelligent use of course content/ original thinking					
--	--	--	--	--	--	--

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

Environmental Toxicants and Their Fates

Types, sources, properties of environmental toxicants.
Fate, effects and interaction of environmental toxicants.
Bio-accumulation and bio-magnification.
Carcinogenicity, mutagenicity and teratogenicity.
Toxic mechanisms, dose-response relationship.
Responses at various levels of biological organization.

Toxicity Tests and Bioassay

Qualitative and quantitative biological assessment of environmental toxicants including principles and objectives, concepts and terminology, methodology, test organisms, conducting the tests, data analysis and reporting.
Use of test results for various environmental management purposes.

Management of Environmental Toxicants

International Conventions, National and Local Legislations.
Case studies (Hong Kong, Regional and Global).

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	
2.	
3.	
...	

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	To be provided, as required, in lectures and tutorials.
----	---

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)
PILO 1: Demonstrate the capacity for self-directed learning	
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	
PILO 3: Demonstrate critical thinking skills	
PILO 4: Interpret information and numerical data	
PILO 5: Produce structured, well-organised and fluent text	
PILO 6: Demonstrate effective oral communication skills	
PILO 7: Demonstrate an ability to work effectively in a team	
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	
PILO 9: Value ethical and socially responsible actions	
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task