

**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 Conservation and Resources Management
Course Code:	CHEM4039 (and CHEM4039A)
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)	BCH4039 (and BCH4039A) Environmental Conservation and Resources Management
Exclusive Courses: (Course Code and Title)	Nil

Note: CHEM4039A 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:

- explore the concepts of conservation and sustainable development;
- develop an appreciation of the need for conservation and management of physical and biological resources;
- apply ecological principles in conservation and exploitation of natural resources;
- critically evaluate present knowledge and techniques in environmental conservation and resources management.

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 the concepts of conservation and sustainable development and justify the need for conservation to a variety of audiences.		✓		
2.	Justify the selection of targets for the management of physical and biological resources.		✓		
3.	Apply relevant ecological principles and management techniques to solve real-life environmental conservation and resource problems through formulation of innovative approaches.			✓	✓
4.	Critically evaluate the merits, limitations and future trends, and apply techniques in environmental conservation and resources management.		✓	✓	✓
		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	4	
Group activities	Students will learn in large and small group activities by examining the concepts of conservation and sustainable development, and justifying reasons for the need of conservation locally and globally.	✓				
Group sessions and guest presentations	In large and small group sessions students will identify the targets for the management of physical and biological resources, examine how these targets are selected and justify their choice. Complementary guest presentations will engage students in discussion of real-life situations.		✓			
Case studies, student discussions / presentations, and field visits	Teaching and learning will be primarily by case studies, student discussions/presentations through individual and/or group work, and field visits to discover approaches in environmental conservation and resources management.			✓		
Group critical evaluation tasks	Through large and small group critical evaluation tasks students will analyse the merits, limitations and future trends and apply the techniques of environmental conservation and resources management.				✓	

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	4	CHEM4039	CHEM4039A	
Continuous Assessment: <u>40%</u>							
Short Quizzes	✓				10%	10%	
Tutorial Assignments		✓		✓	10%	20%	
Web-based Discussion / Presentation		✓	✓		10%	10%	
Field Visits / Report			✓		10%	--	(for CHEM4039 only)
Examination: <u>60%</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. Short Quizzes	ABILITY to master the concepts, principles, needs and applications of environmental conservation and sustainable development of natural resources.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Tutorial Assignments	ABILITY to analyse and apply relevant ecological principles and management techniques to solve real-life environmental conservation and resource problems through formulation of innovative approaches.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Web-based Discussion / Presentation	ABILITY to critically evaluate the merits, limitations and future trends in dealing with imminent environmental conservation and resources management problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Field Visits / Report	CAPACITY for self –observations, analysis and reporting of conservation and/or resource management issues	High	Significant	Moderate	Basic	Not even reaching marginal levels
5. Examination	ABILITY to explain, analyse, synthesize and/or discuss the principles, theories, applications and/or cases related to environmental conservation and resources management.	High	Significant	Moderate	Basic	Not even reaching marginal levels

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.)

- Principles of conservation and management of renewable and non-renewable resources.
- Conservation and management of agriculture/forestry.
- Conservation and management of wildlife/natural resources.
- Conservation and management of coastal/fisheries resources
- Conservation and protection of endangered species.
- The use of GIS and remote sensing techniques in the conservation and management of natural resources.
- Environmental economics in conservation and management of natural resources/habitats.
- Case studies.

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.	Gottfried Konecny, 2014. Geoinformation: Remote Sensing, Photogrammetry and Geographic Information Systems, Second Edition. CRC Press.
2.	James R. Mihelcic, Julie B. Zimmerman, 2014. Environmental Engineering: Fundamentals, Sustainability, Design, 2nd Edition. Wiley.
3.	Tom Tietenberg, Lynne Lewis, 2016. Environmental and Natural Resource Economics, 10 th Edition. Routledge.
4.	David A. Anderson, 2013. Environmental Economics and Natural Resource Management, 4th Edition. Routledge.
5.	Bruce Mitchell, 2014. Resource & Environmental Management 2nd Edition. Routledge.
6.	Guy R. Larocque, 2015. Ecological Forest Management Handbook. CRC Press.
7.	Alexander Lane, Michael Norton, Sandra Ryan, 2017. Water Resources: A New Water Architecture. Wiley.
8.	Ray Hilborn, Ulrike Hilborn, 2012. Overfishing: what everyone needs to know. Oxford University Press.
9.	Serge M. Garcia, Jake Rice, Anthony Charles, 2014. Governance of Marine Fisheries and Biodiversity Conservation: Interaction and Co-evolution. Wiley Blackwell.
10.	Kevern L. Cochrane, 2005. A Fishery Manager's Guidebook: Management Measures and Their Application. Food and Agriculture Organization of the United Nations.
11.	Craig R. Groves , Edward T. Game, 2015. Conservation Planning: Informed Decisions for a Healthier Planet. Roberts and Company Publishers.
12.	Peter Kareiva, Michelle Marvier, 2014. Conservation Science: Balancing the Needs of People and Nature, 2nd Edition. Roberts and Company Publishers.
13.	Lee, H., 2015. Climate change biology. Academic Press, London.
14.	Thipse, S.S., 2014. Energy conservation and management. Oxford: Alpha Science International Ltd.

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