

**City University of Hong Kong
Course Syllabus**

offered by School of Energy and Environment

with effect from Semester B 2020/21

Part I Course Overview

Course Title: Urban Green City: Pollution and Solution

Course Code: GE1337

Course Duration: One semester

Credit Units: 3

Level: B1

Arts and Humanities

Proposed Area: 2 Study of Societies, Social and Business Organisations

(for GE courses only) 1 Science and Technology

Medium of Instruction: English

Medium of Assessment: English

Prerequisites: Nil
(Course Code and Title)

Precursors: Nil
(Course Code and Title)

Equivalent Courses: Nil
(Course Code and Title)

Exclusive Courses: Nil
(Course Code and Title)

Part II Course Details

1. Abstract

(A 150-word description about the course)

Pollution is the by-product of industrialization and urbanization. Growing numbers of cities and surrounding environments throughout the world have now suffered from issues such as air, water, and waste pollution, among many other environmental problems. Clean and healthy urban environments are the critical and essential elements of quality living. In order to develop a sustainable society, it is important to understand and apply new technologies to tackle these pollution problems. This course is designed to enable students to develop a broader perspective and critical understanding of the current pollution issues related to urban environments, as well as to identify possible solutions to these environmental problems based on sound scientific understanding. The comprehensive course contents consist of environmental health and toxicology, food safety and security, air pollution and health effects, climate change, water pollution and resource utilization, wastewater treatment and management, integrated solid waste management, and future sustainable development/environmental ethics. Case studies on Hong Kong and Greater Bay Area environments will also be covered to help students gaining more understanding of the local environments. The major learning activities include lectures, tutorials, and projects.

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	Comprehend essential urban environmental concepts such as life supporting system, natural resources, sustainability, and their inter-relationships	20%	√	√	
2.	Describe the source and complexity of environmental pollution and natural resources	20%	√	√	
3.	Discover pollution issues and apply existing innovative technologies for remedying these problems	20%	√	√	√
4.	Apprehend the basic biological and chemical behaviour of environmental pollutants	20%	√	√	
5.	Apply the acquired knowledge to design a future sustainable city and contribute to environmental protection	20%		√	√
		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	5	
1	Lectures: Introduction to science and engineering principles, environmental pollution, sustainable development/environmental ethics.	√	√	√	√	√	2.5
2	Group discussion/presentation/tutorial: Practice on problem solving; questions and answers; group discussion.	√	√	√	√	√	0.5
3	Reading/Self-study/Project: Data and information collection; critical thinking; report writing	√	√	√	√	√	3

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	5		
Continuous Assessment: 30%							
Participation: Students involvement throughout the course	√	√	√	√	√	10%	
Assignments and Project: Homework assignments, Data and information collection, Report writing	√	√	√	√	√	20%	
Examination: 70% (duration: 2 hours)							
						100%	

* The weightings should add up to 100%.

Examination duration: 2 hrs

Percentage of coursework, examination, etc.: 30% by coursework; 70% by exam

To pass a course, a student must do ALL of the following:

- 1) obtain at least 30% of the total marks allocated towards coursework (combination of assignments, pop quizzes, term paper, lab reports and/ or quiz, if applicable);
- 2) obtain at least 30% of the total marks allocated towards final examination (if applicable); and
- 3) meet the criteria listed in the section on Assessment Rubrics.

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. Participation, assignment and final exam	Interpretation, analysis and problem solving in pollution issues	Strong evidence of knowledge and skills in the interpretation, analysis and problem solving in pollution issues.	Some evidence of knowledge and skills in the interpretation, analysis and problem solving in pollution issues.	Student has some understanding of the pollution subject and shows some analytical capability; evidence of interest in the subject.	Sufficient familiarity with matters in the pollution field to enable the student to progress without repeating the course.	Little evidence of familiarity with the field of pollution issues.
2. Project	Originality and evidence of reflection on performance-based on theory and creative views	High degree of originality and evidence of reflection on performance-based on theory and creative views.	Some degree of originality. Good coverage with relevant and accurate support on issues.	Student covers a fair number of issues. However, little evidence of understanding the overall view of the project.	Information is relevant but limited. Minimal understanding with poor coverage of the project.	Irrelevant information with no understanding to the project

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.)

Week	Content	Description
1	Introduction to urban pollution	Overview of pollution problems in urban city.
2-3	Environmental health	Connection between environment and health. Hazards. Cause-effect relationship. Scope of environmental toxicology. Measurements of toxicity.
4	Environment and food production and safety	Food demand and production. Green Revolution. Food safety and security.
5-7	Air pollution and control	Air circulation. Global warming. Climate change. Ozone depletion. Greenhouse gases and their cycling in the environment. Air pollution. Acid raining and acidification.
8-10	Water Pollution and Control	Water resources. Water usage. Water cycle. Groundwater. Eutrophication. Hypoxia and anoxia. Water pollution types and remediation.
11	Wastewater treatment technology and management	Wastewater production and quantification. Wastewater treatment technologies
12	Case studies in Hong Kong: Integrated solid waste management	Types of wastes; 4R approach: Reduce, Reuse, Recycle and Replace; Current challenges
13	Human and Environment: Future sustainable development	Develop sustainable approach to tackle pollution problems, Ocean health and connection with urban environment in Hong Kong. Resource utilization.

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.)

Nil

2.2 Additional Readings

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

Cunningham, W.P. and Cunningham, M.A. (2017) *Principles of Environmental Science: Inquiry and Application*. Eighth Edition. McGraw-Hill Companies, Inc.