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:	Climate Change: Science, Adaptation and Mitigation
Course Code:	SEE5202
Course Duration:	One semester
Credit Units:	3
Level:	P5
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)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

It is widely recognised that climate change is one of the most important problems of our time. This course will first cover the basic physical science related to different components of the earth system that are related to various aspects of weather and climate. These concepts are then applied to explain the science of climate change. The tools in studying the past and current weather and climate as well as in weather and prediction and in future climate projection will also be introduced. The second part of the course is to make use of the knowledge from the first part on the science of climate change to understand different types of extreme weather and their impacts on society, and to discuss various adaptation measures to tackle these impacts. The last part will be on mitigation strategies to slow down anthropogenic climate change.

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 key features of the various components of the earth system and their key physical processes, and the physical mechanisms behind climate and climate change	40%	✓	✓	
2.	Describe the tools for studying past, present and future climate and explain the limitations in predicting future climate	5%	✓		
3.	Explain the basics of various extreme weather events and their impacts on society under climate change	20%	✓	✓	
4.	Describe and explain various adaptation measures to tackle the impacts of climate change	30%	✓	✓	✓
5.	Describe mitigation strategies to reduce anthropogenic climate change	5%	✓	✓	
		100%			

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	
Lectures /tutorials		✓	✓	✓	✓	✓	3
Term paper presentation					✓		

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: 100%							
Homework and quizzes	✓	✓	✓			25%	
Midterm	✓	✓	✓			25%	
Term paper				✓	✓	50%	
						100%	

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. Homework	Ability to apply the concepts learned in class to solve real-world problems	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Quizzes	Ability to explain key concepts	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Term paper	Ability to apply lecture material to explain solutions of real-world issues and problems	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.)

CILO1

i) Basics of the various components of the earth system and their key physical processes

ii) Basic physical mechanisms explaining natural and anthropogenic climate change

CILO2

i) Tools for studying the past, current and future weather and climate and their limitations

CILO3

i) The concepts of risk, hazard, vulnerability, resilience and impacts

ii) Basics of certain types of extreme weather events and their impacts on society under climate change

CILO4

i) Principles of adaptation and adaptation measures and their effectiveness

CILO5

i) Mitigation strategies to reduce anthropogenic climate change

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.)

1.	T.F. Stocker et al. (eds.), 2013: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press. [Available from http://ipcc.ch/report/ar5/wg1/]
2.	C.B. Field et al. (eds.), 2014: *Climate Change 2014: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press. [Available from http://ipcc.ch/report/ar5/wg2/]
3.	O. Edenhofer et al. (eds.), 2014: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press. [Available from http://ipcc.ch/report/ar5/wg3/]
4.	C.D. Ahrens, 2013: *Meteorology today: an introduction to weather, climate, and the environment*, Brooks/Cole.
5.	R. Henson, 2011: *The Rough Guide to Climate Change*, Rough Guides.