

**City University of Hong Kong  
Course Syllabus**

**offered by School of Energy and Environment  
with effect from Semester A 2023/24**

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**Part I Course Overview**

<b>Course Title:</b>	Climate Change: Science, Adaptation and Mitigation
<b>Course Code:</b>	SEE5202
<b>Course Duration:</b>	One semester
<b>Credit Units:</b>	3
<b>Level:</b>	P5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Medium of Instruction:</b>	English
<b>Medium of Assessment:</b>	English
<b>Prerequisites:</b> <i>(Course Code and Title)</i>	Nil
<b>Precursors:</b> <i>(Course Code and Title)</i>	Nil
<b>Equivalent Courses:</b> <i>(Course Code and Title)</i>	Nil
<b>Exclusive Courses:</b> <i>(Course Code and Title)</i>	Nil

## Part II Course Details

### 1. Abstract

(A 150-word description about the course)

It is widely recognized that anthropogenic global warming and relevant climate change are severe problems we faced. This course will first cover the basic physical science related to different components of the Earth system that are related to various aspects of the climate system. These concepts are then applied to explain the science of the climate system and climate feedback. The second part of the course is to make use of the knowledge from the first part on the science of the climate system to understand different types of extreme climate/weather events 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 climate feedback/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%			

\* If weighting is assigned to CILOs, they should add up to 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
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		1	2	3	4	5		applicable)
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	✓	✓	✓				35%	
Presentation and Term paper				✓	✓		40%	Presentation: 20% Term paper: 20%
<i>* The weightings should add up to 100%.</i>							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.)

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Homework	Ability to apply the concepts learned in class to solve real-world problems	High	Significant	Basic	Not even reaching marginal levels
2. Quizzes	Ability to explain key concepts	High	Significant	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	Basic	Not even reaching marginal levels

Applicable to students admitted before Semester A 2022/23

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	High	Significant	Moderate	Basic	Not even reaching marginal levels

	real-world issues and problems					
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**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) Basics of certain types of climate feedback/extreme weather events and their impacts on society under climate change
- ii) The concepts of risk, hazard, vulnerability, resilience and impacts

**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.	IPCC, 2022: <i>Climate Change 2022: Impacts, Adaptation, and Vulnerability</i> . Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844.
2.	C.D. Ahrens, 2013: <i>Meteorology today: an introduction to weather, climate, and the environment</i> , Brooks/Cole.
3.	R. Henson, 2011: <i>The Rough Guide to Climate Change</i> , Rough Guides.