

**City University of Hong Kong  
Course Syllabus**

**offered by School of Energy and Environment  
with effect from Semester A 2024 / 25**

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**Part I Course Overview**

**Course Title:** Energy and Environmental Economics

**Course Code:** SEE8123

**Course Duration:** One semester

**Credit Units:** 3 credits

**Level:** R8

**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

This course aims to introduce students a set of economic concepts that economists use to understand energy and environmental issues, and use the concepts to analyze energy and environmental problems, and to model their solutions. They will understand the economic principles and practices behind the use of market and policy instruments, including command-and-control regulation, tax and emission trading, to conserve energy resources and to control environmental impacts. They will be able to apply innovative solutions to tackle energy and environmental problems.

### 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<br>(if applicable) | Discovery-enriched curriculum related learning outcomes (please tick where appropriate) |    |    |
|-----|--|------------------------------|---|----|----|
|     |  |                              | A1  | A2 | A3 |
| 1.  | Identify, describe, and clarify economic concepts that are relevant to energy and environment problems   | 30%                          | ✓   | ✓  |    |
| 2.  | Apply the economic concepts to energy and environmental problems, and model their solutions  | 30%                          | ✓   | ✓  |    |
| 3.  | Design and critically evaluate from an economic perspective public policies associated with energy and the environment                                   | 20%                          |   | ✓  | ✓  |
| 4.  | Understand and be able to join intellectual discussions as an aid in the discovery of innovative applications of economics to energy and the environment | 20%                          |   | ✓  | ✓  |
|     |  | 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 real-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. Learning and Teaching Activities (LTAs)

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

| LTA                  | Brief Description   | CILO No. |   |   |   | Hours/week (if applicable) |
|----------------------|---|----------|---|---|---|----------------------------|
|                      |   | 1        | 2 | 3 | 4 |                            |
| Interactive lectures | Explaining the basics of energy and environmental economics as well as some recent developments                                   | ✓        | ✓ | ✓ | ✓ | 3h/week                    |
| Assignment           | Application of the knowledge obtained during the lectures and material to generate discussions on energy and environmental issues | ✓        | ✓ | ✓ | ✓ | 1h/week                    |
| Term paper           | Identifying an issue related to energy and the environment and analysing the nature and characteristics of the issue              | ✓        | ✓ | ✓ | ✓ | 0.5h/week                  |

#### 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 |           |         |
| Continuous Assessment: 60%                          |          |   |   |   |           |         |
| Assignment  | ✓        | ✓ | ✓ | ✓ | 30%       |         |
| Term paper  | ✓        | ✓ | ✓ | ✓ | 30%       |         |
| Examination: 40% (duration: 2 hours, if applicable) |          |   |   |   |           |         |
|   |          |   |   |   | 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 in-class exercises, case study, oral presentation, 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 before Semester A 2022/23 and in Semester A 2024/25 & thereafter

| Assessment Task | Criterion  | Excellent<br>(A+, A, A-) | Good<br>(B+, B, B-) | Fair<br>(C+, C, C-) | Marginal<br>(D) | Failure<br>(F)                    |
|-----------------|--|--------------------------|---------------------|---------------------|-----------------|-----------------------------------|
| 1. Assignment   | Ability to analyse and solve problems related to energy and environmental economics. | High                     | Significant         | Moderate            | Basic           | Not even reaching marginal levels |
| 2. Group work   | Ability to analyse and solve problems related to energy and environmental economics. | High                     | Significant         | Moderate            | Basic           | Not even reaching marginal levels |
| 3. Examination  | Ability to analyse and solve problems related to energy and environmental economics. | High                     | Significant         | Moderate            | Basic           | Not even reaching marginal levels |

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

| Assessment Task | Criterion  | Excellent<br>(A+, A, A-) | Good<br>(B+, B) | Marginal<br>(B-, C+, C) | Failure<br>(F)                    |
|-----------------|--|--------------------------|-----------------|-------------------------|-----------------------------------|
| 1. Assignment   | Ability to analyse and solve problems related to energy and environmental economics. | High                     | Moderate        | Basic                   | Not even reaching marginal levels |
| 2. Group work   | Ability to analyse and solve problems related to energy and environmental economics. | High                     | Moderate        | Basic                   | Not even reaching marginal levels |
| 3. Examination  | Ability to analyse and solve problems related to energy and environmental economics. | High                     | 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.)*

- Economics and the environment (including basic economics)
- Externalities
- Public goods
- Property rights
- Instruments for environmental policy (command-and-control regulation, tax and emission trading)
- Economic valuation
- Climate change
- Renewable resources
- Energy economics
- Innovation

**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. | Jonathan M. Harris and Brian Roach, Environmental and Natural Resource Economics: A Contemporary Approach, Fourth Edition, Routledge (2018). |
| 2. | Tom Tietenberg and Lynne Lewis, Environmental and Natural Resource Economics, 10th Edition, Routledge (2016).                                |
| 3. | Perman R., Ma Y. and McGillivray J. : Natural Resources and Environmental Economics, Pearson Education 3rd ed., 2011                         |

**2.2 Additional Readings**

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

|    |  |  |
|----|--|--|
| 1. | Stephen Smith, Environmental Economics: A Very Short Introduction, Oxford University Press (2011).                               |  |
| 2. | Robert Falkner, ed., The Handbook of Global Climate and Environmental Policy, Wiley-Blackwell (2016).                            |  |
| 3. | Christine Greenhalgh and Mark Rogers, Innovation, Intellectual Property, and Economic Growth, Princeton University Press (2010). |  |
| 4. | J.D. Angrist and J.S. Pischke, Mastering 'Metrics: The Path from Cause to Effect, Princeton University Press, 2015(MM).          |  |