

ECON 4454 Green Economy and Sustainability

Fall 2024

Hong Kong University of Science and Technology

Department of Economics

Instructor	Deyu RAO dyrao@ust.hk
Lecture	TuTh 04:30PM - 05:50PM @ Rm 1527, Lift 22
Office Hours	By appointment only. Preferred around/over lunch (noon \pm 1h) on TuTh @ LSK 6072
Tutorial/TA Office Hours	Th 12:00PM - 12:50PM @ LSK 1033 (Tutorial sessions will take place <u>only</u> if they have been officially announced on Canvas, e.g. after PS and before midterm. TA will hold office hours by appointment, instead.)
TA	Chen (Cassie) XIANG cxiang@connect.ust.hk
Prerequisite	Microeconomics (ECON 2103/2113 or equivalent)
Credit	4 units

Course Description

This course discusses the application of finance in addressing contemporary environmental issues, such as pollution and climate change. Topics include the fundamental theories of environmental economics, strategies for a green economy and sustainable business, as well as related legislative and regulatory frameworks. The course also covers cases regarding the environmental impacts on asset prices, such as real estate prices and stock market performance, and discusses the challenges in public finance in the setting of sustainability. Students will learn basic financial tools to navigate environmental risks as an investor, an asset manager, or a regulator.

Assessment Scheme

- Homework (20%): There will be two problem sets. Students are encouraged to discuss with each other but should submit his/her own copy.
- Midterm (30%): An in-class midterm exam will be scheduled, tentatively on Oct 31st, covering topics and materials before the midterm.
- Class participation (10%): Class participation will be measured from in-class mini-quizzes (or surveys, games). The mini-quizzes will have one or two questions and will be graded only on participation (i.e., not on your answers).

- Group project (40%): Students should form groups of 1-3 and work on one of the following topics. The final products include a group presentation at the end of semester (~ 15 min per group) and a paper/report of 4-6 pages (12pt font, double space, including references) due on Dec 20th (last day of fall term and exam period). Possible topics include
 - a trading pitch (on a stock, a bond, or a trading strategy) with a specific focus on their sustainability (“green”) aspects;
 - a report on the current developments of a regional green finance market;
 - an evaluation of an environmental policy.

In the context of this course, students are recommended to employ tools such as ChatGPT for the purpose of refining their final reports. These tools can prove instrumental in enhancing writing skills and facilitating idea generation. However, it is imperative to underscore the critical importance of upholding academic integrity throughout this process. The primary objective is for students to judiciously employ these language tools, ensuring that the ideas articulated in their final reports remain inherently their own.

Intended Learning Outcomes (ILOs)

On successful completion of the course, students will be able to:

- Understand the key concepts, principles, and models of environmental economics (SILO #1);
- Understand the principles of sustainable business practices and the fundamentals of green finance (SILO #1);
- Understand the professional and ethical responsibility regarding sustainability (SILO #1);
- Collaborate and communicate effectively in oral and written English on issues regarding sustainability (SILO #2);

Hopefully, you can also

- Analyze and identify risks and opportunities in business practices, market strategies, or trade strategies associated with sustainability and green finance (SILO #3);
- Analyze the consequence of an environmental challenge or an environmental policy change and provide policy suggestions to governments and international organizations (SILO #4);
- Develop an academic or career interest in green finance and sustainability.

Note: For details of School Intended Learning Outcomes (SILOs) from the School of Business and Management (SBM), please refer to <https://bmundergrad.hkust.edu.hk/academics/academic-programs/learning-outcomes>.

Academic Honesty and Integrity

Honesty and integrity is a central value in HKUST. Please be aware of the importance and maintain a high standard of honesty in the problem sets and examinations in this course. Please familiarize yourself to the university rules and the HKUST academic honor code. The code will be strictly enforced, and any violation cases will be reported to the university. For details on academic integrity, please refer to <https://registry.hkust.edu.hk/resource-library/academic-integrity>.

Tentative Course Schedule

- **Module 1.** Principles of environmental economics (7 lectures).
 1. Environmental challenges and their implications for the economy.
 2. Market efficiency and regulatory tools.
- **Module 2.** Green asset pricing (3 lectures).
 1. Emission trading.
 2. Environmental factors in asset pricing: real estate and market portfolio.
- **Module 3.** Strategies for a greener economy and a sustainable business (5 lectures).
 1. Principles of corporate social responsibility (CSR) and sustainable business practices.
 2. Environmental, social, and governance (ESG) investing and disclosure.
 3. Negative screening, green classification, and greenwashing.
 4. Behavioral biases and their potential role in ESG investing.
- **Module 4.** Fundamentals of green finance (4 lectures).
 1. Overview of green finance market: participants, policies, and regulations.
 2. Green financial instruments: green bonds and green loans.
 3. Green investments from the public sector: sustainable development goals (SDGs) and green financing.
- **Module 5.** Macroeconomics of climate change (2 lectures).
 1. Growth, structural transformation, and migration.
- **Other in-class activities.**
 - **Guest lecture** (1 lecture). During our lectures, we will invite one or two speakers (previously, from Hong Kong Green Finance Association, PAG ESG) to share his/her industry insights, complementing the academic and theoretical knowledge covered in our lectures. Location and time TBA. Nominations are welcome.
 - **Midterm** (1 lecture). Tentatively on Oct 31st, 80 minutes in-class exam.
 - **Midterm Review** (1 lecture, if time allows). Time TBA.
 - **Group presentations** (2 lectures). Last two lectures at the end of semester.

Note: This is a tentative course outline. The instructor may fine-tune the topics while ensuring the course objectives being achieved.