Overview
This class explores two questions: Why and how do governments intervene in markets to protect the environment and ensure the continued availability of natural resources? What is governments' track record in improving the environmental performance of our economies? We begin by studying the context in which 21st-century environmental policy decisions are made, including climate change, ecosystem degradation, environmental inequity, natural resource scarcity, and successes as well as gaps in technology innovation that affect our ability to address environmental challenges. We examine the role of data, models, and uncertainties in environmental policy design and evaluation, and discuss linkages between environmental, energy, and technology policy. Key concepts include: properties of environmental and socio-economic systems that relate to environmental policy design; externalities and other market failures; policy co-benefits; pollution charges, cap-and-trade, technology-push, and market-pull instruments. The primary focus of the course is international, with some more in-depth discussion of policies in China and the U.S.

Learning Objectives
By the end of this course, students will be able to:

• Explain the motivations for environmental policy making and its key objectives
• Distinguish socio-economic, political, technological, and managerial dimensions of current environmental debates
• Identify strengths and weaknesses of methods used in environmental policy assessment
• Apply basic concepts and frameworks to evaluate the suitability of policy instruments to address environmental problems

Grading Scheme
15% Class participation
15% Quizzes
30% Assignments
40% Final Project

Assignments
• READING REFLECTIONS: Due on Canvas at 3pm on Sept 22/29, Oct 20, and Nov 3. 800 words in length (+/- 50) with two parts of equal length. Part A summarizes key insights from ALL BUT ONE of the assigned readings for the class held on the day before the deadline (e.g., for Sept 22, the Sept 21 reading list applies). Part B discusses one aspect of ONE SINGLE reading of choice in more depth, e.g. a policy-related argument you agree/disagree with, or a research result you find interesting.

• STUDENT MIDTERM PRESENTATIONS will focus on linking theory/methods to specific cases and will be held on Oct 12 (Details to be announced on Canvas).

• THE FINAL PROJECT PLAN is due on Oct 27 (Details on Canvas).

Final project
The project is an opportunity for students to deepen their environmental policy knowledge through research conducted in groups. All projects will involve literature review, data collection, data analysis, and data visualization, but the emphasis can be placed in different ways depending on students' interest/background. There will be a list of suggested topics; groups are welcome to propose alternative topics. Project presentations will be held on Nov 23 and Nov 30. A detailed project description will be posted on Canvas and the timeline and grading criteria will be discussed in class.
COVID-19
The University has returned to pre-pandemic normalcy in full. Members who are tested COVID positive are no longer required to report to the University. They should follow the Government’s health advice: those with symptoms (e.g., fever, cough, shortness of breath) should stay at home for rest and seek medical attention as soon as possible. For latest announcements and information on COVID-19 in Hong Kong, please refer to the Government COVID-19 website (https://www.coronavirus.gov.hk).

Make-up and Late Homework Policy
Make-up quizzes or assignments will only be allowed for students who have a substantiated excuse approved by the instructor before the due date. Quiz dates and assignment due dates have been included in the Class Schedule (in this syllabus) to help students plan ahead. Sometimes things do not go as planned, however, and students are therefore allowed to use three late days over the course of the semester, either all at once (turn in an assignment three days after the due date) or spread over different assignments. Please inform the TA when you are planning to use a late day.

Diversity and Inclusivity Statement
All members of this class are expected to contribute to a respectful, welcoming and inclusive environment. Diversity, equity, justice, and inclusion are important values at HKUST and in this class. Students are encouraged to continually learn from each others’ diverse backgrounds and viewpoints.

Accommodations for Students with Disabilities
I am committed to ensure that students with disabilities can fully participate in this course. Please email me as soon as possible to set up a time to discuss your needs.

Academic Integrity
Academic integrity and honesty are critical values, at HKUST in general and in this class. Students are expected to be familiar with HKUST’s Academic Honor Code. More information can be found here: http://ugadmin.ust.hk/integrity/student-1.html. Violations of the Code are serious and will be handled in a manner that represents the extent of the Code and that befits the seriousness of its violation.
## MODULE 1: Introduction to Environmental Policy and Key Challenges

### Sept 7 INTRODUCTION

**Introduction to environmental policy and natural resource management**


### Sept 14 CLIMATE CHANGE

#### Part I: Geophysical basics, scale, uncertainty


#### Part II: Insights from models


### Sept 21 SUSTAINABILITY

#### Part I: Environmental degradation and planetary boundaries


#### Part II: Resource poverty and inequity issues


### Sept 28 SCARCITY, NATURAL RESOURCE MANAGEMENT, INNOVATION
<table>
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<tr>
<th>Date</th>
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VIDEO: Minutes 1-35 of a lecture by Edward Tufte: https://www.youtube.com/watch?v=rHUDJ8RyseQ  
Oct 19 | COST BENEFIT ANALYSIS | | |
Part I: Environmental valuation


Part II: Cost-benefit analysis


MODULE 3: Policy Cases

**Oct 26**  
**CASE 1: CHINA’S FIGHT AGAINST AIR POLLUTION**  


Loh, C., 2021. How Hong Kong can take its 2035 Clean Air Plan further. *South China Morning Post*.

**Nov 2**  
**CASE 2: THE PARIS AGREEMENT AND IMPLEMENTATION CHALLENGES**  

**CASE 3: GLOBAL MERCURY POLLUTION POLICIES**  

MODULE 4: Theory, Methods, Models (Part II)

**Nov 9**  
**INTEGRATED ASSESSMENT MODELS**

**QUIZ 2**  
**Part I: Introduction to models of environmental and energy systems**

**Part II: Integrated assessment models: Basics, benefits, drawbacks**


**Nov 16**  
**OTHER METHODS**
|---|---|

**VIDEO:** Short intro to system dynamics: https://www.youtube.com/watch?v=IenySRdkRu8

**VIDEO:** First 21 minutes of a lecture by Donella Meadows: A Philosophical Look at System Dynamics. https://www.youtube.com/watch?v=XLdOomRTA

**FINAL PRESENTATIONS AND CLASS WRAP-UP**

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<tbody>
<tr>
<td>Nov 23</td>
<td>FINAL PRESENTATIONS I</td>
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<tr>
<td>Nov 30</td>
<td>FINAL PRESENTATIONS II, class summary</td>
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