



Policy Analysis and Design for Sustainable Development

PPOL 5190

Instructor Info



Prof. Magdalena Klemun



Office Hrs: Upon request



Room 4616H



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Course Info



Prereq: None



Wed



10.30-1.20pm



LT-F

TA Info



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Overview

This class explores three questions: What are common disciplinary conceptions of sustainable development and their implications for policy design? What are the main challenges in pursuing sustainable development goals from the perspective of policy analysts and designers? Which concepts and analytical tools are particularly useful to analyze policies for sustainable development? We begin with a survey of sustainable development concepts and challenges and then dive into several example techniques for policy analysis. The focus is on basic literacy, emphasizing ways to better match methods to problems, rather than in-depth applications.

Learning Objectives

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

- Draw connections between how sustainable development is conceptualized and how it is (or is not) pursued in practice
- Understand the unique policy design challenges arising from contemporary sustainability challenges
- Comprehend the basic mechanics of selected methods for policy analysis
- Apply policy analysis concepts in the context of case studies

Grading Scheme

20% Class participation

40% Assignments

40% Final Project

Assignments

- **ASSIGNMENT 1 (15%): YOUR OWN DEFINITION OF SUSTAINABLE DEVELOPMENT.** Due on Canvas at 11:59pm on Sept 29. You will need to develop a definition of sustainable development and present arguments as to why this definition is useful in a policy context. Further details will be announced on Canvas.
- **ASSIGNMENT 2 (15%): PROBLEM SET.** The problem set will focus on the application of concepts to real world sustainable development challenges. Due on Canvas at 11:59pm on Oct 13. Further details will be announced on Canvas.
- **ASSIGNMENT 3 (10%) is THE FINAL PROJECT PLAN** and is due on Oct 27 (Details to be announced in class and on Canvas).

Final project

The project is an opportunity for students to deepen their policy analysis 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 22 and Nov 29. 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 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.

Class Schedule

MODULE 1: Overview: Policy Analysis and Design for Sustainable Development

Sept 6	INTRODUCTION	Overview: Main themes, concepts, class goals
Sept 13	FRAMING THE CHALLENGE: WHAT IS SUSTAINABLE DEVELOPMENT?	Disciplinary and interdisciplinary sustainability definitions: What do they mean for policy design and analysis?
	Required reading I	Solow, R.M., 1991. Sustainability: An Economist's Perspective.
	Required reading II	Choucri, N., 2007. Mapping Sustainability: Logic and Framework.
	Required reading III	Becker, C.U., 2012. The meaning of sustainability. In Sustainability ethics and sustainability research (pp. 9-15). Springer, Dordrecht.
Sept 20	POLICY DESIGN FOR SUSTAINABILITY	
	Required reading I	Sterner, T., Barbier, E.B., Bateman, I., van den Bijgaart, I., Crepin, A.S., Edenhofer, O., Fischer, C., Habla, W., Hassler, J., Johansson-Stenman, O. and Lange, A., 2019. Policy design for the Anthropocene. Nature Sustainability, 2(1), pp.14-21.
Sept 27	POLICY ANALYSIS FOR SUSTAINABILITY	Basic steps in the analytical process; differences between linear and alternative approaches
	Required reading I	European Training Foundation, 2018. Guide to Policy Analysis
	Required reading II	CECAN, 2021. The Complexity Evaluation Toolkit. Version 1.

MODULE 2: Contemporary Policy Design Challenges

Oct 4	CLIMATE CHANGE	Main implications of climate change for sustainability policy; case studies on coastal resilience
	Required reading I	Beg, N., Morlot, J.C., Davidson, O., Afrane-Okesse, Y., Tyani, L., Denton, F., Sokona, Y., Thomas, J.P., La Rovere, E.L., Parikh, J.K. and Parikh, K., 2002. Linkages between climate change and sustainable development. Climate policy, 2(2-3), pp.129-144.
	Required reading II (Policy Case)	Szalwinski, A. and Lewis, J., 2015. Hong Kong: Improving Coastal Resilience and Managing Urban Heat. Case Study, Georgetown Climate Center.
	Required reading III (Policy Case)	Lu, Mia and Lewis, J., 2015. Shanghai. Targeting Flood Management. Case Study, Georgetown Climate Center.
Oct 11	TECHNOLOGICAL CHANGE	Innovation stages/sources; directed technological change; policy instruments for sustainability innovation
	Required reading I	IPCC AR6 WGIII, 2022. Chapter 16: Innovation, technology development and transfer

	Required reading II (Technology Case)	Victoria, M., Haegel, N., Peters, I.M., Sinton, R., Jäger-Waldau, A., del Cañizo, C., Breyer, C., Stocks, M., Blakers, A., Kaizuka, I. and Komoto, K., 2021. Solar photovoltaics is ready to power a sustainable future. <i>Joule</i> , 5(5), pp.1041-1056.
Oct 18	URBANIZATION, WATER SCARCITY	Urban sustainability definitions and transformation processes; city-level sustainability indices; water scarcity governance challenges, Australia case study
	Required reading I	Elmqvist, T., Andersson, E., Frantzeskaki, N., McPhearson, T., Olsson, P., Gaffney, O., Takeuchi, K. and Folke, C., 2019. Sustainability and resilience for transformation in the urban century. <i>Nature sustainability</i> , 2(4), pp.267-273.
	Required reading II	Lerner, J., 2015. How to Build a Sustainable City. Op-Ed, New York Times.
	Required reading III	CHAPTER FOUR in Richter, B., 2014. Chasing water: a guide for moving from scarcity to sustainability (p. 171). Washington, DC: Island press.
	Required reading IV (Policy case)	CHAPTER SEVEN in Richter, B., 2014. Chasing water: a guide for moving from scarcity to sustainability (p. 171). Washington, DC: Island press.

MODULE 3: Policy Analysis Techniques

Oct 25	ANALYZING POLICY COSTS AND DYNAMICS	
Part I	COST-BENEFIT ANALYSIS	Key applications, analytical steps, common criticisms
	Required reading I	New Zealand Government, The Treasury, 2015. Guide to Social Cost Benefit Analysis.
Part II	SYSTEM DYNAMICS	Stocks, flows, feedbacks, and their relevance to policy analysts
	Required video I	Short intro to system dynamics. https://www.youtube.com/watch?v=IenySRdkRu8
	Required reading II (Policy Case)	Collins, R.D., de Neufville, R., Claro, J., Oliveira, T. and Pacheco, A.P., 2013. Forest fire management to avoid unintended consequences: A case study of Portugal using system dynamics. <i>Journal of environmental management</i> , 130, pp.1-9.
Nov 1	SCENARIO ANALYSIS	Main uses of scenarios; creative vs. biased thinking about the future
	Required reading I	Morgan, M.G. and Keith, D.W., 2008. Improving the way we think about projecting future energy use and emissions of carbon dioxide. <i>Climatic Change</i> , 90(3), pp.189-215.
	Required reading II	Fuld, L.M., 2015. An Exercise to Get Your Team Thinking Differently About the Future. <i>Harvard Business Review</i> .
Nov 8	RISK ANALYSIS, STAKEHOLDER ANALYSIS	
	Part I: RISK ANALYSIS	Introduction to risk assessment concepts

Required reading I	European Environment Agency, 2008. Environmental Risk Assessment - Approaches, Experiences and Information Sources. Sections 1-4.
Part II: STAKEHOLDER ANALYSIS	Why stakeholder analysis is important yet done often enough; overview of stakeholder analysis techniques
Required reading II	Bryson, J.M., 2003. What to do when stakeholders matter: A guide to stakeholder identification and analysis techniques. A paper presented at the London School of Economics and Political Science, 10, p.2003.

Nov 15	COMPLEX SYSTEMS ANALYSIS AND THE SDGS	A complex systems perspective on relationships between sustainable development goals
	Required reading I	Le Blanc, D., 2015. Towards integration at last? The sustainable development goals as a network of targets. Sustainable Development, 23(3), pp.176-187.
	Required video I (7 min.)	Mitchell, Melanie. Introduction to Networks. Santa Fe Institute, Complexity Explorer, Introduction to Complexity, Unit 9 (See Canvas)
	Required video II (4:30 min.)	Mitchell, Melanie. Network Terminology I. Santa Fe Institute, Complexity Explorer, Introduction to Complexity, Unit 9 (See Canvas)

POLICY CASE PRESENTATIONS

Nov 22	FINAL PRESENTATIONS I
Nov 29	FINAL PRESENTATIONS II, CLASS SUMMARY
