



昆山杜克大学
DUKE KUNSHAN
UNIVERSITY

ENVIRON 800 LEVEL

Environmental Economics

Fall 2017

Dates / contact hours: 150 minutes of contact time per week for 14 weeks
Academic Credit: 1 course
Course format: lectures, presentations by students, classroom discussion

Instructor's Information

Junjie Zhang
Associate Professor of Environmental Economics, DKU and Duke

Prerequisite(s), if applicable

Students are required to have taken an introductory microeconomics course. Students should be familiar with basic microeconomic concepts such as: supply and demand functions, consumer and producer surplus and deadweight loss, opportunity cost, marginal analysis, and time discounting. Students also need a working knowledge of calculus, including familiarity with partial differentiation.

Students without a background in economics or calculus are required to have participated a summer boot camp organized by the iMEP program. Students can also meet the prerequisites by taking courses in other institutions, as long as evidence of proficiency can be provided.

Course Description

This course provides an overview of environmental economics by introducing analytical methods and tools to analyze environmental problems and identify policy solutions. The first part of the course provides a microeconomic foundation of environmental economics, with a focus on market efficiency and market failures. The second part introduces environmental policy decision tools such as benefit-cost analysis and cost-effectiveness criterion. In particular, this part focuses on benefits estimation including revealed preference approaches and stated preference approaches. The third part discusses environmental regulation, with topics covering command-and-control regulation, market-based approaches, and behavioral interventions. The challenges of applying economic instruments to real world environmental problems will be also discussed, such as time and space, risk and uncertainty, compliance and enforcement, etc. This course is expected to stimulate critical thinking about environmental challenges and policy solutions.

Course Goals / Objectives

- Demonstrate understanding of the economic cause of environmental problems, environmental valuation techniques, environmental policy instruments and their economic consequences, and environmental policy decision making tools.
- Critically analyze the environmental policy practices in the real world using economics methods and tools.
- Apply knowledge of environmental economics, including analytical tools and methods, to identify policy solutions that can correct environmental problems.
- Demonstrate the ability to model environmental policy issues using fundamental environmental economics skills.
- Engage in self-directed research and learning about environmental economics.

Required Text(s)/Resources

- EE: Kolstad, Charles D. 2011. Environmental Economics (Second Edition). Oxford University
- EOE: Stavins, Robert N., ed. 2012. Economics of the Environment: Selected Readings (Sixth Edition). W.W. Norton & Company.

Recommended Text(s)/Resources

- KO: Keohane, Nathaniel O. and Sheila M. Olmstead. 2007. Markets and the Environment. Island Press.
- FF: Field, Barry and Martha K. Field. 2012. Environmental Economics: An Introduction. McGraw Hill.

Other materials may be provided, as determined by the instructor. Other course readings will be available on the course SAKAI site. The readings will include current research papers as well as papers from international organizations and policy institutions. Students are expected to read the chapters and papers before class and be prepared for class discussion. The students are also encouraged to select readings from the international media that cover global environmental news.

Additional Materials (optional)

None.

Course Requirements / Key Evidences

The course will be mainly run as lectures with active student participation. The instructor will present basic materials on each topic. The instructor will also lead the class in discussing the designated readings.

Technology Considerations, if applicable

We will use the Sakai site to communicate with students, make bibliographic references available, give assignments, etc. Students are required to prepare slides and make presentations. Students are encouraged to upload slides before the class in order to save transition time. Using laptop, cell phone or other digital devices in classroom is prohibited.

Assessment Information / Grading Procedures

Students are expected to finish reading and preparing course materials before class. There are 10 problem sets, 2 quizzes, and 1 final exam. The course grade will be based on:

Problem sets: 30% (3% each)
2 Quizzes: 20% (10% each)
Final exam: 50%

The students can form study groups to work on problem sets and help each other learn. However, each student must submit his or her own copy of the assignment and students are not allowed to directly copy another student's work. Students may NOT use any materials from prior offerings of this course to assist them in completing their assignments.

Diversity and Intercultural Learning (see Principles of DKU Liberal Arts Education)

This course will foster diversity and intercultural learning experiences through reading materials on China's environmental and energy problems from Chinese and Western media. The interactions of students in the classroom through discussion, debates, and presentation will also enhance diversity and intercultural learning. The instructor has been teaching environmental economics and policy to students with a variety of backgrounds, including students from China and other countries with English as a Foreign Language. All aspects of the experience, from field trips to group presentations to library work, will be accomplished with attention to intercultural sensitivity and awareness of global cultural diversity.

Course Policies and Guidelines

ACADEMIC INTEGRITY:

Each student is bound by the academic honesty standard of the Duke Kunshan University. Its Community Standard states: "Duke Kunshan University is a community composed of individuals of diverse cultures and backgrounds. We are dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Members of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity."

CLASS ATTENDANCE:

Students are expected to engage in active classroom discussion, thus class participation and attendance is mandatory. This includes reading assigned articles, submitting reading reports, leading discussions and participate classroom debates.

POLICY ON MAKE-UP WORK:

Students are allowed to make up work only for medical reasons, consistent with DKU policy. You must notify the instructor in advance if you will miss a report or presentation.

Tentative Course Outline or Schedule

WEEK	TOPICS
1	<p>Overview of Environmental and Resource Economics</p> <p>EE: Chapters 1-2</p> <p>EOE: Chapter 1—Fullerton and Stavins, “How Economics See the Environment,” <i>Nature</i>, 1988.</p>
2	<p>Microeconomics and Calculus Refresher</p> <p>Handouts distributed before class on Sakai.</p> <p>Problem set 1 distributed.</p>
3	<p>Market Efficiency and Market Failures</p> <p>EE: Chapter 3-5</p>
4	<p>Cost-Benefit Analysis</p> <p>EE: Chapter 6</p> <p>EOE: Chapter 11—Arrow, et al., “Is There a Role for Benefit-Cost Analysis in Environmental, Health and Safety Regulation?” <i>Science</i>, 1996.</p> <p>EOE: Chapter 14—Kelman “Cost-Benefit Analysis: An Ethical Critique.” <i>Regulation</i>, 1981 with replies by DeLong, Solow, Butters, Calfee, and Ippolito.</p> <p>EOE: Chapter 15—Graham “The Evolving Regulatory Role of the U.S. Office of Management and Budget”</p> <p>Problem set 1 due. Problem set 2 distributed.</p>
5	<p>Benefits Estimation: Revealed Preference</p> <p>EE: Chapters 7-9</p> <p>Kling, CL, DJ Phaneuf, and J Zhao (2012). From Exxon to BP: Has Some Number</p>

	Become Better Than No Number? Journal of Economic Perspectives, 26(4): 3-26.
6	<p>Benefits Estimation: Stated Preference</p> <p>EE: Chapters 10</p> <p>EOE: Chapter 7—Portney “The Contingent Valuation Debate: Why Economists Should Care,” Journal of Economic Perspectives, 1994.</p> <p>EOE: Chapter 8—Hanemann, “Valuing the Environment through Contingent Valuation,” Journal of Economic Perspectives, 1994.</p> <p>EOE: Chapter 9—Diamond and Hausman, “Contingent Valuation: Is Some Number Better than No Number?” Journal of Economic Perspectives</p> <p>Hausman, J (2012). Contingent Valuation: From Dubious to Hopeless. Journal of Economic Perspectives, 26(4): 43-56.</p> <p>Problem set 2 due.</p>
7	<p>Cost Estimation</p> <p>Chapter 8 of Guidelines for Preparing Economic Analyses (Washington, D.C.: U.S. Environmental Protection Agency, 2010)</p> <p>EOE: Chapter 5—Porter and van der Linde (1995) “Toward a New Conception of the Environment-Competitiveness Relationship,” Journal of Economic Perspectives, 9(4): 97-118.</p> <p>EOE: Chapter 6—Palmer, Oates and Portney (1995) “Tightening Environmental Standards: The Benefit-Cost of the No-Cost Paradigm?” Journal of Economic Perspectives, 9(4): 119-32.</p> <p>Quiz 1.</p>
8	<p>Environmental Regulation: Tax</p> <p>EE: Chapter 11-12</p> <p>Mankiw, GN (2013). A Carbon Tax That America Could Live With. The New York Times. 31 August 2013.</p> <p>Problem set 3 distributed.</p>
9	<p>Environmental Regulation: Cap-and-Trade</p> <p>EE: Chapter 13</p> <p>Goulder, L (2013). Markets for Pollution Allowances: What Are the (New) Lessons?</p>

	Journal of Economic Perspectives 27(1): 87-102.
10	<p>Choice of Instruments</p> <p>EE: Chapter 15</p> <p>Stavins, RN (1998). Market-based Environmental Policies. Resources for the Future Discussion Paper 98-26. Resources for the Future: Washington, DC.</p> <p>Goulder, LH and WH Parry (2008). Instrument Choice in Environmental Policy. Review of Environmental Economics and Policy 2(2): 152-174.</p> <p>Problem set 3 due.</p>
11	<p>Dynamic and Spatial Efficiency</p> <p>EE: Chapter 14</p>
12	<p>Environmental Compliance and Enforcement</p> <p>EE: Chapter 16</p> <p>Shimshack, J.P., 2014. The economics of environmental monitoring and enforcement. <i>Annu. Rev. Resour. Econ.</i>, 6(1), pp.339-360.</p> <p>Quiz 2.</p>
13	<p>Voluntary Actions and Agreements</p> <p>EE: Chapter 17</p> <p>Strom, S. Has 'organic' been oversized?, New York Times, 2012, vol. 7 July 7</p> <p>Kotchen, M.J., 2013. Voluntary-and information-based approaches to environmental management: A public economics perspective. <i>Review of Environmental Economics and Policy</i>, p.ret012.</p>
14	<p>Risk and Uncertainty</p> <p>EE: Chapter 18</p> <p>Heal, G. and Millner, A., 2014. Reflections uncertainty and decision making in climate change economics. <i>Review of Environmental Economics and Policy</i>, 8(1), pp.120-137.</p>

Bibliography (optional)
