ECON 675 (Winter 2017)
Environmental Economics
November 28, 2016 – Feb 20, 2017

Office hours: Mondays, 6:15-6:45 PM
Class time: Mondays, 6:45-9:30 PM
Online discussion: Tuesday, 9:00 AM to Wednesday, 12:00 PM

1400 16th Street, NW (Suite 140)
Washington, DC 20036

Instructor

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Teaching Assistant

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TA Office Hours: One day per week from 3:00-7:00 p.m. – not on same day each week. Schedule will be posted on ELMS with email reminders every Sunday evening.

Texts – Required and Supplemental

Required: *Environmental Economics.* Charles D. Kolstad. Oxford University Press.
Additional required and supplementary readings will be provided.

Course Description

This course examines the problems of earth, air, and water pollution from an economic perspective and the nature of environmental regulation, U.S. environmental policies, and environmental policy debates. Students will use welfare economics to evaluate the inefficiencies of market failures and examine market-based policy responses to environmental problems. Students will be asked to undertake practical exercises commonly done by environmental economists, including estimating the willingness to pay for an environmental amenity and reviewing Regulatory Impact Analyses.

Objectives

At the end of the course, students should be able to

- Understand, evaluate and analyze environmental economics concepts and data.
- Statistically estimate and interpret the willingness to pay for an environmental good.
- Apply empirical evidence to assessing environmental economic arguments using benefit-cost analysis, discounting, and uncertainty analysis.
- Apply the microeconomic theories of market failure and externalities to policy discussions.
- Communicate environmental economic concepts and ideas to a broader audience.
- Evaluate the effectiveness of U.S. government pollution control policies using sound economic techniques.

Prerequisites

To enroll this course, students must have completed ECON 641 (Microeconomic Analysis), and they must have completed or be currently enrolled in ECON 645 (Empirical Analysis III: Econometric Modeling and Forecasting).

Structure of the Course

- The course will be taught in a lecture/seminar format meeting once per week on Monday, 6:45-9:30 PM. A 15-minute break will be given somewhere between 7:45 and 8:30 PM.
- An online discussion will be held each week on the ELMS/Canvas Discussion page from Tuesday, 9:00 AM to Wednesday, 12:00 PM. Students are expected to make two (but no more than three) substantive contributions to this discussion each week. The instructor will monitor this discussion (twice on Tuesday and twice on Wednesday) to respond to students and re-direct the discussion as necessary.
- Students will be given periodic quizzes at the end of class, three longer term assignments throughout the semester, and a final exam at the end of the semester. See class schedule below for due dates.

Grading

Grades will be determined based on students' performance on quizzes, homework, exam, and class participation:

10% Quizzes
Students periodically will be given questions at the end of class to test their understanding of the concepts discussed and to provide examples of the types of questions that will be used in the final exam.

20% Assignment 1 – Estimating the Efficient Level of Pollution Control
Students will be asked develop a simple conceptual model of the economic benefits of an environmental externality. They will then be asked to collect data, populate the model, and estimate the efficient level of pollution control.

20% Assignment 2 – Estimating Willingness to Pay
Students will be given a problem and data and will be asked to econometrically estimate the willingness to pay for an environmental amenity.

20% Assignment 3 – Policy Memo
Student will assume the role of a policy adviser and will be given a current environmental economic topic. They will be asked to write a short policy memo describing the problem and offering a set of recommendations for a decision-maker to consider.

20% Final Exam
Students will be given an in-class, open book exam.

10% Participation
Participation will be based on the student's attendance record and his or her participation in class discussion as well as his or her substantive participation in the weekly online discussion.

The final weighted numerical score from all submissions will be translated into a letter grade using our professional judgement.

In this course the best numerical score for an assignment will receive an "A," unless the quality of the work indicated a lack of effort or a fundamental lack of understanding. All other submissions for the assignment will be evaluated relative to this best score. If the other numerical scores were of similar magnitude and represented similar quality work, then all students would receive the same letter grade as the best student, generally an "A" for the assignment. If there is a wider distribution of quality and numerical scores for an assignment, the lowest grade for acceptable graduate level work for an assignment in this course will be a "B." Unacceptable work for the assignment will receive a B- or lower.

Required Technology
Students are expected to have access to a word processing package (e.g. Microsoft Word), a spreadsheet package (e.g., Microsoft Excel), and a statistical software package (Stata). Students should bring a calculator with them to class.

Purchasing Stata
The program's curriculum is designed to use Stata as the statistical software. Other leading statistical software packages include SAS and R. We have decided to focus on one package to enhance the continuity across courses in our program. A more superficial familiarity with multiple packages might be just as good as a deep understanding of a single package. But working with multiple packages would also result in less time to learn econometrics.

If you have not done so, students in the program should purchase Stata. Stata offers different "flavors" and different lengths of license. Price varies according to these two factors. A description of the flavors is given here: http://www.stata.com/products/which-stata-is-right-for-me/ Stata offers student discounts via the "Gradplan": http://www.stata.com/order/new/edu/gradplans/. A one-year license for Stata/IC is $125, and a perpetual license (which never expires) is $198. We do not recommend "Small Stata". Small Stata is too limited for the course work our program. Under the Gradplan, you may install Stata on up to three different computers. You may also eventually upgrade your version of Stata and your license, at a discount, if you wish.

Assignments
Assignments are due at the beginning of class. Assignments 1 and 2 should be submitted to the teaching assistant (DCmastersTA@econ.umd.edu) and copying both instructors (pdockins@umd.edu and cgriff16@umd.edu). Assignment 3 should be submitted as a printed hardcopy at the beginning of class, but an electronic version may be submitted as a backup (to both pdockins@umd.edu and cgriff16@umd.edu) or if you are unable to make it to class.

Copyright Notice
Class lectures and other materials are copyrighted and may not be reproduced for anything other than personal use without written permission from the instructor.

Course Website: Copies of the course syllabus, your grades, and other relevant links and documents will be posted on the course's ELMS/Canvas website. You can access the site via www.elms.umd.edu. You will need to use your University of Maryland "directory ID" and password.

Email: Email is the primary means of communication outside the classroom, and I will use it to inform you of important announcements. Students are responsible for updating their current email address via http://www.testudo.umd.edu/apps/saddr/ AND for paying attention to messages I send to the class via ELMS. Failure to check email, errors in forwarding email, and returned email due to "mailbox full" or "user unknown" will not excuse a student from missing announcements or deadlines. I will do my best to respond to email within 36 hours.

Contact Hours: Three credit courses at the University of Maryland require a minimum amount of contact between instructors and students. Our courses' 12 weekly 3-hour meetings only satisfy 80% of the university's contact requirement. The other 20% is satisfied by weekly mandatory and graded online contact. In principle, the contact hours requirement could be satisfied by scheduling 3 additional 150-minute meetings per term, or 6 additional 75-minute meetings, or 10 additional 45-minute meetings.

But in practice the contact hours requirement is satisfied by the weekly online discussions. The weekly online discussions are a more flexible way to ensure that our program's courses in DC provide the same level of student-instructor contact as the traditional 15-week, face-to-face, version of the same course when it is taught on campus in College Park.

Work Load: Mastering the material covered in this course requires a significant amount of work outside of class. Students should expect to spend more time outside of class than in class – typically at least twice as much time. The courses in our DC program are 12-week courses that cover all the same material as a traditional semester-long 3-credit course (15 weeks). The compressed schedule makes it possible to complete our degree in just 15 months if you take 2 courses each term. But the compressed schedule also implies an accelerated pace with an average of 25% more work per week in a given course (15/12 = 1.25). The normal full-time load in a master's program is 3 courses per semester, or 6 courses per year. Students who take 2 courses per quarter in our program complete 8 courses per year. So taking 2 courses per quarter in our program is equivalent to 133% of a full-time load (8/6 = 1.33).

Academic Integrity: The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards applicable to all undergraduate and graduate students, and you are responsible for upholding these standards as you complete assignments and take exams in this course. Please make yourself aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information see www.studenthonorcouncil.umd.edu.

Student Conduct: Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility to one another or myself will be referred to the Office of Student Conduct. You are expected to adhere to the Code of Student Conduct.

Excused Absences: The University of Maryland's policy on excused absences is posted here: http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g

Please note:

If you miss any class meetings for any reason, you are still responsible for all material covered during the meeting you missed. It is your responsibility – not the instructor's – to get yourself caught up in the course. Instructors routinely facilitate things by posting lecture notes, etc.

If you need to miss an exam or other graded course requirement because of illness, injury, or some other emergency: Follow doctor's orders and get documentation. Get in touch with the instructor as soon as you're able – preferably prior to missing the exam or deadline. Communicate with the instructor to make up the course requirement as soon as possible. You are entitled to recover before you make up the course requirement, but you are not entitled to extra days to study beyond the time the doctor's note says you're incapacitated. If you are incapacitated for more than a week or so beyond the end of the term, your grade in the course will be an "Incomplete". In such cases you must negotiate a plan with your instructor for completing the course requirements. Once you make up the course requirement the instructor will change your "I" to the appropriate letter grade.

School Closings and Delays: Information regarding official University closing and delays can be found on the campus website and the snow phone line: (301) 405-SNOW (405-7669). Since our program is an evening program in downtown Washington, DC, rather than a day program in College Park, we do not always cancel classes on the same days as the College Park campus. The program director will always announce cancellation information to the program as an announcement on the program's ELMS/Canvas site. This will generally be done by 1:00 p.m. on days when weather or other factors are an issue.

Students with Disabilities: The University of Maryland does not discriminate based on differences in age, race, ethnicity, sex, religion, disability, sexual orientation, class, political affiliation, and national origin. Reasonable accommodations will be made to students with documented disabilities. I will make every effort to accommodate students who are registered with the Disability Support Services (DSS) Office and who provide me with a University of Maryland DSS Accommodation form.

Academic Progress: The graduate school requires that students maintain a GPA of at least 3.0. Students whose cumulative GPA falls below 3.0 will be placed on academic probation by the graduate school. Students on academic probation must ask the program's director to petition the graduate school if they want to remain in the program. The petition must include a plan for getting the student's GPA up to at least 3.0. Students who do not live up to their plan can be forced to leave the program without having earned the degree. Note: a grade of "B" corresponds to a GPA of 3.0. A grade of "B-" corresponds to a GPA of 2.7.

Building Access: The door to the building at 1400 16th Street is unlocked on weekdays until 7:00 p.m. Students who arrive after 7:00 p.m. or on weekends will find the door locked. The building's security guard is stationed at a desk just inside the door until 11:00 p.m. and will let you in. You can also call the phone on the security guard's desk by dialing (202) 328-5158. If the security guard happens to be away from his or her desk when you arrive, you can pick up the black phone to the right of the door at 1400 16th Street. You will be connected to the company that handles security for our building. If you tell them you are with the University of Maryland, they should ask you for a password. The password is "Drawbridge". When you tell them the password, they will be able to unlock the door for you.

Class Schedule:

Week Date	Topics	Additional Readings
Week 1 Nov. 28	• Class Introduction • Economics and the Environment • Normative and Positive Economic Analysis	Kolstad: Chapters 1 & 2 Discussion Reading: - Environmental Economics vs. Ecological Economics Supplementary Readings: - The Early History of Environmental Economics (Sandmo) - Environmental Economics: Basic Concepts and Debates (Goffman)
Week 2 Dec. 5	• Efficiency and Markets	Kolstad: Chapters 3 & 4 Discussion Reading: - How economists see the environment (Fullerton and Stavins)
Week 3 Dec. 12	• Market Failure: • Public Goods, Public Bads and Externalities • Benefit-cost analysis • Cost-effectiveness analysis	Kolstad: Chapters 5 & 6 Discussion Reading: - Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation? (Arrow, et al.) Supplementary Readings: - An Eye on the Future (Goulder and Stavins) - Cost-Benefit Analysis: An Ethical Critique (with replies) (Kelman, et al.)
Assignment 1 – Estimating the Efficient Level of Pollution Control Due Date – Jan. 2		
Week 4 Dec. 19	• Measuring Willingness to Pay • Hedonic Price Methods • The Value of a Statistical Life	Kolstad: Chapters 7 & 8 Discussion Reading: - The Value of a Statistical Life (Ferreria) Supplementary Readings: - Euthanizing the Value of a Statistical Life (Cameron)
No Class – Dec. 26		
Week 5 Jan. 2	• Household Production • Travel Cost • Stated Preference Methods	Kolstad: Chapters 9 & 10 Discussion Reading: - Economic Values without Prices (Loomis) Supplementary Readings: - From Exxon to BP, Has Some Number Become Better than No Number (Kling, Phaneuf, and Zhao) - Contingent Valuation, From Dubious to Hopless (Hausman)

Week 6 Jan. 9	• Regulating Pollution • Regulatory Instruments • Emission Prices and Fees	Kolstad: Chapters 11 & 12 Discussion Reading: - Who Will Run the EPA (Heinzerling) Supplementary Readings: - The Evolving Regulatory Role of the U.S. OMB /(Graham) - Thirty Years of Economics at the EPA (McGartland) - Instrument Choice in Environmental Policy (Goulder and Parry)
Assignment 2 – Estimating Willingness to Pay Due Date – Jan. 23		
Week 7 Jan. 16	• Property Rights • Tradable Permits • Spatial and Temporal Issues	Kolstad: Chapters 13 & 14 Discussion Reading: - It's Immoral to Buy the Right to Pollute (with replies) (Sandel et al.) Supplementary Readings: - Markets for Pollution Allowances, What are the (New) Lessons (Goulder) - The SO2 Allowance Trading System, The Ironic History of a Grand Policy Experiment (Schmalensee and Stavins) - Carbon Markets 15 Years after Kyoto (Newell, Pizer, and Raimi)
Week 8 Jan. 23	• **Guest Speaker: Maureen Cropper** • Spatial and Temporal Issues (cont.) • Regulating Polluters with Unknown Costs	Kolstad: Chapters 14 & 15 Discussion Reading: - The West Needs a Water Market to Fight Drought (Glennon and Libecap) Supplementary Readings: - Moving Pollution Trading from Air to Water (Fisher-Vanden and Olmstead) - The Role of Economics in Climate Change Policy (Mckibbin and Wilcoxen)
Week 9 Jan. 30	• Enforcement • Voluntary Actions	Kolstad: Chapters 16 & 17 Discussion Reading: - How Well Do Voluntary Environmental Programs Really Work (Mogenstern and Pizer) Supplementary Readings: - The Economics of Environmental Voluntary Agreements (Croci)
Assignment 3 – Policy Memo Due Date – Feb. 13		

Week 10 Feb. 6	• Risk and Uncertainty • Liability • Insurance	Kolstad: Chapters 18 Discussion Reading: - Deterring Oil Spills, Who Should Pay and How Much (Cohen) Supplementary Readings: - Uncertainty in Environmental Economics (Pindyck) - A Route to more Tractable Expert Advice (Aspinall)
Week 11 Feb. 13	• Trade and the Environment • Growth and Development	Kolstad: Chapters 19 & 20 Discussion Reading: - China Exports Pollution to US, Study Finds (Wong) Supplementary Readings: - Confronting the Environmental Kuznets Curve (Dasgupta et al.) - Bridging the Trade-Environment Divide (Esty)
Week 12 Feb. 20	• Final exam	