

Course Syllabus
AREC 456/556
Economics of Water Conservation (1 Credit)

Instructor:	William Jaeger	Class Time:	Tuesday, 3-3:50 PM
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Catalog Description

In this course students will analyze water conservation by examining the relationship between economic and technological efficiency in water systems and management; and the competition between water for competing uses. Offered alternate years.

Prerequisites: AREC 311 and 313

Course Description

Water is special because it serves as both a private good and public good, and is recognized to be an “essential” commodity for which individuals require a minimum availability for survival. Water is also a private commodity, essential to industry, agriculture, commerce and household living. We now recognize the interdependency and connection between our water needs and our energy needs. Scarcity of fresh water in many parts of the world is increasingly viewed as a serious concern now and in the future, and a potential source of conflict among interest groups within countries as well as between countries.

In this class we will explore water issues from an economic perspective. Economic principles will be applied to understanding water use, incentives and efficiency. Topics will include the potential for water conservation in agricultural, residential, urban and industrial uses. What kinds of institutional structures are more likely to encourage conservation and which more often lead to waste and inefficiency? The relationship between economic efficiency and technological efficiency (e.g., irrigation efficiency) will be examined, as will the “water-energy nexus.” Students will explore potential for improvements in water allocation mechanisms, aquifer management (cap-and-trade), storm water and waste water management, decentralized incentives, grey water reuse, rainwater harvesting, and aquifer storage and recovery.

Course Delivery

The course will meet one hour per week. Class time will combine some lecture but extensive discussion, based primarily on published papers in the water economics literature.

Student Performance Evaluation

Letter grades (A to F). Grades will be determined based on the following weights: class participation (50%), midterm exam (25%), final project/activity (25%).

Graduate students will be given more challenging readings (readings with a “*” are for graduate students only), problem sets, and exams, and will be judged against a somewhat higher standard. They will also have a writing assignment to summarize an article or book chosen jointly with the instructor.

Exams

The midterm will be a take-home exam, aimed to test students understanding of concepts, definitions, and (to a limited extent) quantitative methods.

Participation

Class participation will be based on evidence that the students have read the assigned readings for each class session, and can ask and respond to questions, and engage in discussions about the readings, as well as for material presented in class. Blackboard discussion participation will provide an additional way for students to contribute to class participation.

Attendance

Class attendance is required. One excused absence is permissible. More than one absence (excused or unexcused) will result in a reduction in letter grade except for illness (e.g., from A to A-). Absences will also result in a “0” for class participation.

Statement Regarding Students with Disabilities

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Expectations for Student Conduct

Expectations for student conduct, cheating policies, etc. can be found at <http://oregonstate.edu/admin/stucon/achon.htm>

If you cheat on exams, you will receive an F. I will not negotiate. Example: In another course, a student had his class notes open on the floor. He assured me that he had not looked at them since he started the exam but merely forgot to close them. Needless to say, he failed the course. I have no tolerance for cheating, and I do not hesitate to punish those who do.

Academic Dishonesty: You are expected to conduct yourself in a professional manner. Academic dishonesty such as plagiarism and cheating will not be tolerated. Therefore, students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- cheating- use or attempted use of unauthorized materials, information or study aids
- fabrication- falsification or invention of any information
- assisting- helping another commit an act of academic dishonesty
- tampering- altering or interfering with evaluation instruments or documents, or
- plagiarism- representing the words or ideas of another person as one's own

Week	Topic	AREC 456/556 Readings and assignments (revised May 13, 2013)
1	Course Overview: Discussion	<p>Reference document: Robert A. Young and Robert H. Haveman, “Economics of Water Resources: A Survey,” <i>Handbook of Natural Resources and Energy Economics</i>, North-Holland, 1985.</p> <p>Assignment: You should read this document in installments, so that you have finished it by the end of the quarter.</p>
2	Economic concept of water	<p>Hanemann, WM. 2006. The economic conception of water. In Peter P. Rogers, M. Ramon Llamas and Luis Martinez-Cortina (eds) <i>Water Crisis: Myth or Reality</i> Taylor & Francis, 2006.</p> <p>Assignment #1: find one article from a major newspaper (New York Times, Wall Street Journal, The Oregonian) that you can use to illustrate one of the major points in Hanemann’s article.</p>
3	Water scarcity and its management	<p>Olmstead, S., 2010. The Economics of Managing Scarce Water Resources. <i>Review of Environmental Economics and Management</i>. Vol. 4(2): 179-198.</p> <p>Boehlert, B. B., and W. K. Jaeger, 2010. Past and future water conflicts in the Upper Klamath Basin: An economic appraisal, <i>Water Resources Research</i>, Volume 46.</p> <p>Assignment #2: Think about the shortcomings of these article definitions and focus related to water and scarcity; have in mind an example that illustrates a strength or weakness.</p>
4	Water markets and conflicts	<p>Grafton, R. Quentin , Gary Libecap, Samuel McGlennon, Clay Landry, and Bob O’Brien, 2011. An Integrated Assessment of Water Markets: A Cross-Country Comparison. <i>Review Environ Econ Policy</i>.</p>

5 & 6	Urban water demand, supply, pricing	<p>Hanemann, W. Michael, 1997. Price and Rate Structures, Chapter 5 in <i>Urban Water Demand Management and Planning</i> edited by Duane Baumann, John Boland, and Michael Hanemann. New York: McGraw Hill</p> <p>*Mansur, E.T. and S.M Olmstead, 2011. The value of scarce water: measuring the inefficiency of municipal regulations. <i>Journal of Urban Economics</i>.</p>
7	Groundwater economics	Koundouri, P. 2004. Current issues in the economics of groundwater resource management. <i>Journal of Economic Surveys</i> . Vol. 18(5): 703-40.
8	Water issues in developing countries	Dale Whittington; W. Michael Hanemann; Claudia Sadoff; Marc Jeuland. The challenge of improving water and sanitation services in less developed countries. <i>Foundations and Trends in Microeconomics</i> , Vol. 4 (6-7), 2008. Chapters 1 and 2, pages 471- 508.
9	Water in Agriculture	tba
10	Other	tba