

Agricultural Economics 604
PSAA 663
Natural Resource Economics
Spring 2020

Instructor

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Class Web Page: <http://agecon2.tamu.edu/people/faculty/mjelde-james/AGECO604/>

Office Hours

Open Door Policy and
by Appointment

Class Times

Monday / Wednesday 4:10-5:25 AGLS 110

Class Objectives

Natural resource and environmental problems facing society today are complex. Improper problem conceptualization often leads to increasing conflict between affected individuals. The general objective of this course is to challenge the student to address natural resource and environmental problems in a systematic and defensible framework. One such framework is the economic approach to natural resource and environmental problems. Specific objective is to provide the student with the economic framework used to address natural resource and environmental problems, along with the economic interpretation of the framework. An important aspect of the economic framework is the necessity for other disciplines to provide information into the decision making process.

Class Prerequisites

The only prerequisite for AGE 604 is ECON 323 (junior level microeconomics) or its equivalent. Depending on the demand and need, time will be taken during the course (class or outside time) to review the necessary economic concepts. As such, students without the prerequisite, but willing to work should have no trouble with AGE 604.

Assignments

Reading assignments come from the required textbook.

Tietenberg, T. and L. Lewis. *Environmental and Natural Resource Economics*. Harper Collins Publishers. 10th edition. Cheapest recent edition you can find is OK, 6th, 7th, 8th, or 9th.

You can also purchase an e-textbook from Course Smart. Students in the past have used e-textbook and shared the password to reduce costs. <http://www.coursesmart.com/>

You will also be responsible to view one video tape. This tape is available from the Evan's Library (Education Media Services). The required videotape is:

"A Wilderness Idea: John Muir, Gifford Pinchot and the First Great Battle for the Wilderness." Call Number QH 76.W56 1989. This tape examines the battle between multi use and preservationists in a historical context. Video viewing is located at Media and Reserves, 4th floor, Library Annex, Evans Library. Also available through AGECEC 604 eCampus website under My Mediasites.

See also <http://www.environmentaldefense.org/page.cfm?tagID=152>

The Evans' Library has several other interesting videos addressing various environmental/resource topics. Notable among these is the 10-part, *Race to Save the Plant*. Available from the instructor are several other videos on issues concerning forests, recycling, private property issues, and fisheries, please feel free to check out and view.

Course Grade and Requirements

	<u>Total Possible Points</u>
Mid-term examination	100
Final examination	100
Project	100
Homeworks	80
Course Participation	<u>10</u>
Total	390

- 1) Two examinations will be given. The final will be comprehensive (100 points), but will stress the material since the mid-term exam (100 points).
- 2) Each student will be required to complete a project concerning a natural resource or environmental issue. Both content and presentation style will be evaluated. Students will be given a choice as to the type of projects they are going to undertake.
- 3) Several short homeworks will be required during the semesters. These homeworks will reinforce the concepts discussed in the class. You must do the homeworks alone, **NO COLLABORATION** unless otherwise stated. Homework points will be adjusted to account for 80 of the possible 390 points.
- 4) The final 10 points of your grade is based on your participation in the class (in and/or out of class). By nature, this part of your grade is subjective and up to the instructor's prerogative.

Addition information concerning the projects, readings, and the examinations will be given in class.

Course Structure

The course involves an explanation of the main concepts in each chapter covered along with the outside readings. Economic interpretation and use of the major concepts will be reinforced through the use of case studies. These case studies involve current or historical perspectives of the use of economic principles in defining natural resource/environmental issues. The course web page will be used to disseminate class material. External links are provided on the page to other web pages which relate to the case studies. Several guest speakers may give presentations to the class throughout the semester.

Scholastic Dishonesty

As commonly defined, academic dishonesty/plagiarism consists of presenting as one's own ideas, words, writings, etc. material that belongs to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of the person. It does not matter from where the material is borrowed - a book, an article, material off the web, another student's paper, etc. - all constitute plagiarism unless the source of the work is fully identified and credited. Identifying a paper or other material as one's own that has actually been written or prepared by someone else is always a case of academic dishonesty. Quotation or borrowing certain material and including a small component of one's own original work is appropriate if proper credit is given. It is important when using a phrase, a distinctive idea or concept, or a sentence from another source to credit explicitly that source either in the text, a footnote, or end note. Plagiarism is a violation of academic and personal integrity and carries extremely serious consequences at Texas A&M University. Scholastic dishonesty (including cheating and plagiarism) will not be tolerated. The full consequences of scholastic dishonesty will be pursued consistent with University policy. If you have any questions, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty." Be especially careful with your written assignments to make certain that any and all sources are explicitly acknowledged in writing. The instructor will make clear which course assignments are collaborative exercises in which it is appropriate for team-members to work together and share their ideas and writing, but not that of those outside their own team.

Americans with Disability Act (ADA)

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit <http://disability.tamu.edu>. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Copyright Statement

Please note that all handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including but not limited to syllabi, exams, in-class materials, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use only, and may not be given or sold to other individuals.

Lectures and Reading Assignments

Below is a tentative list of the lectures and reading assignments (subject to change to accommodate the guest speakers' schedules and class involvement.) You need to be going through the A&M system to properly use the links provided. The following chapters are based on 8th edition, modify to your edition. Links work as of 1/10/2019.

☐ Class Introduction

Readings – Chapters 1, 2, 4 Tietenberg

☐ Characterization of Resource Issues/BWCA - Case Study

[Boundary Waters Canoe Area](#) – website – background for the lecture

Links that are especially relevant are

[Planning your trip](http://www.canocountry.com/plan/index.html) (<http://www.canocountry.com/plan/index.html>)

[Introduction](http://www.canocountry.com/about/intro.htm) - <http://www.canocountry.com/about/intro.htm>

[History](http://www.canocountry.com/about/history/index.htm) - <http://www.canocountry.com/about/history/index.htm>

[Travel Ethics](http://www.canocountry.com/ethics/index.htm) - <http://www.canocountry.com/ethics/index.htm>

Readings

Dustin, D.L. and Schneider, I.E. “The Science of Politics/The Politics of Science: Examining the Snowmobile Controversy in Yellowstone National Park.”

Environmental Management 34(2004): 761 – 767.

<http://www.springerlink.com/cwcdwlb5ablpe0brf5fks1ji/app/home/main.asp?referrer=default>

Search for Article Titled - The Politics of Science: Examining the Snowmobile Controversy in Yellowstone National Park - in search for box – cut and paste in this title.

☐ Environment as an Asset

Readings

Simpson, R.D. “Economic Analysis and Ecosystems: Some Concepts and Issues.” *Ecological Applications* 8(1998):342-349. Chp. 3 readings

<https://esajournals.onlinelibrary.wiley.com/doi/10.1890/1051-0761%281998%29008%5B0342%3AEEAESC%5D2.0.CO%3B2>

☐ Property Rights – Chapter 4 Tietenberg

Readings – Chapters 2, 5 - Tietenberg

☐ Market Failures

Readings – Chapter 4 Tietenberg

☐ Correction to Market Failures

Readings – Chapter 4 Tietenberg

☐ Cost Benefit Analysis

Readings Chapter 3 – Tietenberg

Arrow, K.J., M.L. Crooper, G.C. Eads, R.W. Hahn, L.B. Lave, R.G. Noll, P.R. Portney, M. Russell, R. Schmalensee, V.K. Smith, and R.N. Stavins. “Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?” *Science* 272(May 1996):221-222. <http://science.sciencemag.org/content/272/5259/221>

Griffin, R.C. “The Fundamental Principles of Cost-Benefit Analysis.” *Water Resources Research* 34(1998):2063-2071. – **Basis for the lecture, i.e. - READ**
<http://onlinelibrary.wiley.com/doi/10.1029/98WR01335/pdf>

Kasting, J.F. and P.A. Schultz. “Benefit-Cost Analysis and the Environment.” *Science* 272(1996):1571-1572. <http://science.sciencemag.org/content/272/5268/1571.3/tab-pdf>

Arrow, K.J., M.L. Crooper, G.C. Eads, R.W. Hahn, L.B. Lave, R.G. Noll, P.R. Portney, M. Russell, R. Schmalensee, V.K. Smith, and R.N. Stavins. “Response to Kasting and Schultz.” *Science* 272(1996):1572. – **at end of previous reading**

☐ Valuation of Resources

[Hell’s Canyon National Recreation Area](#) – website – background for the lecture

Readings Chapter 3 – Tietenberg

Web site – pay particular attention to Framework and Technique activity pages
<http://agecon2.tamu.edu/people/faculty/mjelde%2Djames/valuation%20test/>

Valuing Ecosystem Services: Toward Better Environmental Decision-Making
http://www.nap.edu/catalog.php?record_id=11139

Read - Executive Summary which is a free downloads on above web site.

☐ Endangered Species

[Whooping Crane](#) – website – background for the lecture.

Aransas Wildlife Refuge -

https://www.fws.gov/refuge/Aransas/wildlife/whooping_cranes.html

Readings

Shogren, J.F., J. Tschirhat, T. Anderson, Am Whritenourando, S.R. Beissinger, D. Brookshire, G.M. Brown, Jr. D. Coursey, R. Innes, S.M. Meyer, and S. Polasky. “Why Economics Matters for Endangered Species.” *Conservation Biology* 13(December 1999): 1257-1261. <https://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.1999.98414.x>

☐ Allocation of Depletable Resources

Readings – Chapter 7 Tietenberg

☐ Energy

Readings – Chapter 8 Tietenberg

Campbell, C.J. and J.H Laherrere. “The End of Cheap Oil.” *Scientific American* (March 1998):78-83. <http://dieoff.org/page140.htm>

☐ Solid Waste Management

Readings – Chapter 9 Tietenberg

☐ Water Issues

Readings – Chapter 10 Tietenberg

Porter, E. “The Risks of Cheap Water.” *The New York Times*. Oct. 14, 2014. http://www.nytimes.com/2014/10/15/business/economy/the-price-of-water-is-too-low.html?smid=pl-share&_r=0

Griffin, R. “The Origins and Ideals of Water Resource Economics in the United States.” *Annual Review of Resource Economics* 4 (August 2012): 353-377. <http://www.annualreviews.org/doi/10.1146/annurev-resource-110811-114517>

or

<http://www.annualreviews.org/eprint/zGHgTpjWiSBNQFmjEefD/full/10.1146/annurev-resource-110811-114517>

Howitt, R. and K. Hansen. "The Evolving Western Water Markets." *Choices* 1st Quarter (2005):59-63. <http://www.choicesmagazine.org/2005-1/environment/2005-1-12.htm>

▣ Forestry

Readings – Chapter 13 Tietenberg

▣ Fisheries

Readings – Chapter 14

▣ Pollution

Readings – Chapter 15 Tietenberg

Jenson, R. "Using Market-Based Approaches to Protect the Environment." *Texas Water Resources* 23(March 1998):1. and Summary pp. 5-6.

<http://twri.tamu.edu/newsletters/TexasWaterResources/twr-v23n3.pdf>

Griffin, R.C. "The Case for Tradeable Emission Permits." *Texas Water Resources* 23(March 1998):2-3.

Emerson, P. "EDF Believes Market Forces Can Protect Texas= Environment." *Texas Water Resources* 23(March 1998):4-5.

Merrifield, J. "Implementing Emission Allowance Markets." *Texas Water Resources* 23(March 1998):3-4.

NOTE: All four articles are part of the Jenson piece.

Woodward, R. "Markets for the Environment." *Choices* 1st Quarter (2005):42-52.

<http://www.choicesmagazine.org/2005-1/environment/2005-1-10.htm>

▣ Air Pollution

Readings – Chapters 16, 17, 18 Tietenberg

Stavins, R.N. "Lessons Learned from SO₂ Allowance Trading." *Choices* 1st Quarter

(2005):53-58. <http://www.choicesmagazine.org/2005-1/environment/2005-1-11.htm>

▣ Water Pollution

Readings – Chapter 19 Tietenberg

King, D.M. “Crunch Time for Water Quality Trading.” *Choices* 1st Quarter (2005):71-76. <http://www.choicesmagazine.org/2005-1/environment/2005-1-14.htm>

☐ Enforcement

Readings – Chapter 21 Tietenberg

Chang, C.C., J.W. Mjelde, and T. Ozuna Jr. “Political Pressure and Regulatory Control.” *Public Choice* 97(December 1998):687-700. **Read before lecture.**
<http://www.springerlink.com/content/w378k03171274124/fulltext.pdf>.

☐ Diesel

Readings

Toy, E., J.D. Graham, and J.K. Hammitt. “Fueling Heavy Duty Trucks: Diesel or Natural Gas?” *Risk in Perspective* 8(January 2000):1-6. Harvard Center for Risk Analysis.
https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1273/2013/06/RISK_IN_PERSP_JANUARY2000.pdf

Hester, T., W. Bunn, and C. Lapin. “An Evaluation Criteria for Selecting Vehicles Fueled with Diesel or Compressed Natural Gas.” *Sustainability: Science, Practice, & Policy* 8(2009): Issue 1.
<https://www.tandfonline.com/doi/abs/10.1080/15487733.2009.11908025>

☐ Potpourri

☐ Concluding Remarks

Readings – Chapter 24

Hahn, R.W. “The Impact of Economics on Environmental Policy.” *Journal of Environmental Economics and Management* 39(2000):375-399. http://ac.els-cdn.com/S0095069699911191/1-s2.0-S0095069699911191-main.pdf?_tid=c79aca12-5500-11e2-8ba1-00000aacb35e&acdnat=1357147441_801ad29049139452d56d8a2a4defecd4

Other Readings

This is a list of optional readings. Some of the lectures come from this material. This material is also provided to provide other view points. Use as you deem appropriate.

Externalities

Naughton, H. A Note on Teaching Externalities: Distinguishing between Consumption and Production Externalities. *International Review of Economics Education* 14(Sept 2013):

94-99. <http://www.sciencedirect.com.lib-ezproxy.tamu.edu:2048/science/article/pii/S1477388013000534>

Coase Theorem

Butler, M.R. and R.f. Garnett. Teaching the Coase Theorem: Are We Getting it Right? .
Atlantic Economic Journal 131(June 2003): 133-145. <http://link.springer.com.lib-ezproxy.tamu.edu:2048/article/10.1007/BF02319866#close>

Yellowstone Park

Bozeman Daily Chronicle <http://bozemandailychronicle.com> Search articles from 2000 to present on snowmobiles and snowcoaches – other articles also.

Nonrenewable Energy

George, R.L. “Mining for Oil.” *Scientific American* (March 1998):84-85.

MUST GO THROUGH A&M LIBRARY WEB PAGE <http://library.tamu.edu/>

Anderson, R.N. “Oil Production in the 21st Century.” *Scientific American* (March 1998):86-91.

MUST GO THROUGH A&M LIBRARY WEB PAGE <http://library.tamu.edu/>

Fouda, S.A. “Liquid Fuels from Natural Gas.” *Scientific American* (March 1998):92-95.

MUST GO THROUGH A&M LIBRARY WEB PAGE <http://library.tamu.edu/>

Water

Griffin, R.C. and J.W. Mjelde. “Distributing Water’s Bounty.” *Ecological Economics* 72(2011): 116-128.

<http://www.sciencedirect.com/science/article/pii/S0921800911003892>

Hanak, E. “Finding Water for Growth: New Sources, New Tools, New Challenges.”
Journal of the American Water Resources Association 43 4(2007): 1024-1035.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1752-1688.2007.00084.x/full>

Hanemann, W.M. “The Economic Concept of Water.” *Water Crisis: Myth or Reality*,
 Chapter 4. Eds. P.P. Rogers, M.R. Llamas, and L.M. Cortina.

Air Pollution

Kiester, Jr., E. “A Darkness in Donora.” *Smithsonian* 30(November 1999):22-24.

Citizen Suits

Naysnerski, W. and T. Tietenberg. “Private Enforcement of Federal Environmental Law.” *Land Economics* 68(February 1992):28-48.

Enforcement

Khanna, M. “Non-Mandatory Approaches to Environmental Protection.” *Journal of Economic Surveys* 15(2001):291-324. <https://onlinelibrary.wiley.com/doi/10.1111/1467-6419.00141>

Contingent Valuation – issues and alternatives

Hanley, N., S. Mourato, and R.E. Wright. “Choice Modelling Approaches: A Superior Alternative for Environmental Valuation?” *Journal of Economic Surveys* 15(2001):291-324. <https://onlinelibrary.wiley.com/doi/10.1111/1467-6419.00145>

Mjelde, J.W., Y.H. Jin, C.K. Lee, T.K. Kim, and S.Y. Han. “Development of a Bias Ratio to Examine Factors Influencing Differences in People’s Actions.” *Journal of Environmental Management* 95(2012): 39-48.
<http://www.sciencedirect.com/science/journal/03014797/95>

Endangered Species

Brown, Jr., G.M. and J.F. Shogren. “Economics of the Endangered Species Act.” *The Journal of Economic Perspectives* 12(Summer 1998): 3-20.
<https://www.aeaweb.org/articles?id=10.1257/jep.12.3.3>

Shogren, J.F. and J. Tschirhat. “The Endangered Species Act at Twenty-Five.” *Choices* 3rd Quarter (1999):4-9.

Innes, R. “Takings and Endangered Species Protection.” *Choices* 3rd Quarter (1999):10-16.

Solow, A.R. and S. Polasky. “The Endangered Species Act as a Tool to Conserve Biological Diversity.” *Choices* 3rd Quarter (1999):17-21.

Valuation / Endangered Species

Loomis, J.B. and D.S. White. “Economic Benefits of Rare and Endangered Species: Summary and Meta-Analysis.” *Ecological Economics* 18(1996):197-206.