



# **AEC 445.01W: RESOURCE AND ENVIRONMENTAL ECONOMICS**

COURSE SYLLABUS

Spring 2024

## **INSTRUCTOR INFORMATION**

**Instructor:** Dr. Rafael Bakhtavoryan

**Office Location:** Agricultural Science Building, Room 232

**Office Hours:** Mondays through Fridays via email, or by appointment

**Office Phone:** (903) 886-5367

**Office Fax:** (903) 886-5990

**University Email Address:** [Rafael.Bakhtavoryan@tamuc.edu](mailto:Rafael.Bakhtavoryan@tamuc.edu) (please, use only this email address and put "AEC 445" in the subject of the email)

**Preferred Form of Communication:** Email

**Communication Response Time:** Within 24 hours Monday through Friday

## **COURSE INFORMATION**

**Class Meeting:** Web-based

### ***Readings***

**Required Textbook:** *Environmental Economics and Management: Theory, Policy, and Applications*, by Scott J. Callan and Janet M. Thomas, Cengage Learning, 6th edition, 2012.

**Required:** PowerPoint Presentations. These will be provided on D2L.

### ***Course Description***

This course explores the approach that economists take toward environmental and resource problems. It examines both the economic roots of environmental problems and their potential solutions. The course focuses on questions a policymaker must face in deciding how and when to regulate, including issues regarding efficiency and distribution.

*The syllabus/schedule are subject to change.*

### ***Lecture Topics***

CHAPTER 1: The Role of Economics in Environmental Management

CHAPTER 2: Modeling the Market Process: A Review of the Basics

CHAPTER 3: Modeling Market Failure

CHAPTER 4: Conventional Solutions to Environmental Problems: The Command-and-Control Approach

CHAPTER 5: Economic Solutions to Environmental Problems: The Market Approach

CHAPTER 6: Environmental Risk Analysis

CHAPTER 7: Assessing Benefits for Environmental Decision Making

CHAPTER 8: Assessing Costs for Environmental Decision Making

CHAPTER 9: Benefit-Cost Analysis in Environmental Decision Making

CHAPTER 10: Air, Water, Solid Waste and Toxic Substances

### ***Student Learning Outcomes***

After studying all materials and resources presented in this course, students will be able to:

1. Master basic economic models of the environmental economics.
2. Develop an understanding of environmental issues and the various mechanisms used to improve upon market outcomes.
3. Use benefit-cost analysis to examine environmental issues.
4. Apply economic thinking to environmental problems and policies.
5. Learn about local and international environmental issues.

## **COURSE REQUIREMENTS**

### ***Minimal Technical Skills Needed***

Students are expected to know how to use the learning management system (D2L will be used heavily in this class), Microsoft Word and PowerPoint.

### ***Student Responsibilities or Tips for Success in the Course***

1. Read the assigned readings.
2. Complete and turn in course assignments and exams at the scheduled time.
3. Use the web to actively seek out other resource and environmental economics resources that fit your learning style and help you better understand the material.
4. Be prepared for exams.

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## GRADING

Your grade for the semester will be a weighted average of homework assignments, term paper, four equally weighted exams, and a comprehensive final exam.

Homework assignments	10%
Term paper	10%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Exam 4	15%
Final Exam	20%
<b>TOTAL</b>	<b>100%</b>

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89.99%

C = 70%-79.99%

D = 60%-69.99%

F = 59.99% or below

### **Assessments**

**HOMEWORK ASSIGNMENTS (HAs):** Homework assignments are assigned regularly (see the course outline at the end of the syllabus) and must be completed individually. As a form of experiential learning, HAs help students sharpen their analytical skills. Students must turn in their HAs via D2L according to the course outline. HAs must be submitted by 11:30 p.m. on the due date. No late HAs will be accepted and a grade of zero will be assessed for missed HAs.

**TERM PAPER:** All students are required to write an individual term paper. Please make sure to select a topic at least the second week into the semester by emailing it to the instructor. See the course outline for the due date of the term paper. Students are encouraged to submit completed term papers in advance. Term papers must be submitted electronically via D2L in Microsoft Word format. Your task is to pick an environmental or natural resource topic of interest and to analyze the issue from an environmental/natural resource economics perspective using the methods and models presented throughout the semester.

**For your term paper, please choose a topic from the following:**

1. Analyzing policies to monitor and improve air quality
2. Analyzing effective water management policies
3. Examining the way natural, rural and urban land is used and managed
4. Why sustainable land use is important to environmental conservation?

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5. Exploring the socioeconomic and environmental impacts of oil and gas development
6. Evaluating fisheries management programs and policies
7. Evaluating regional forest management policies, considering costs and goals
8. Analyzing effective solid waste management policies
9. Analyzing effective hazardous waste management policies
10. What are the environmental and economic benefits of promoting renewable energy in emerging economies?
11. Food deserts have economic, environmental and health costs
12. How is sustainable tourism important to resource renewal?
13. How can consumer decisions be effectively changed to achieve sustainable consumption?

The following websites can be useful in selecting a topic and providing general information for the term paper required for this class (not limited to the following).

1. United States Department of Agriculture, Natural resource Conservation Service (hover over the word "Topics" in the menu at the top and a drop-down menu will appear with information on various topics (air, water, soils...):  
<https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/#>
2. National Center for Environmental Economics (EPA) Site:  
<http://www.epa.gov/economics/>
3. Free U. of Brussels Sustainable Development Site:  
<http://www.ulb.ac.be/ceese/meta/sustvl.html>
4. The Organisation for Economic Co-operation and Development (OECD):  
<http://www.oecd.org/>
5. United Nations Development Program:  
<http://www.undp.org/>

Your term paper must contain the following sections:

**Title Page (1 page in length)**

Include the following information on the title page: a title for your term paper; your name; the code and the name of this course; and the date.

**Introduction (at least 1 page in length)**

In this section, a brief introduction including the description of the environmental or natural resource topic and its development must be presented. Also, this section has to include a clearly worded research objective (what is it that you are going to analyze).

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### **Analysis (at least 2 pages in length)**

In this section, describe the political and economic aspects of the situation. In particular describe what/who the interests/players (industries, vulnerable populations, developers, residents, etc.) are, and how does the issue affect their interests?

Also, discuss whether, how, and to what extent the situation is "bad" from an economic perspective. Is it inefficient, unsustainable, or inequitable? Why or why not? (Be clear as far as from what stakeholder's perspective you are making these judgements).

### **Recommendations (at least 1 page in length)**

In this section, propose/discuss a policy and/or market solution that uses or leverages economic relationships and behavior to, potentially, solve or at least mitigate "bad" outcomes.

### **References**

References may include a mix of academic and non-academic sources, but you should not rely exclusively on material from the popular press. Include a listing of references that were used in the paper in an alphabetical order. Use the following format for citing the source in a bibliographical listing:

*For a book:* Kennedy, P. A Guide to Econometrics. 4th ed., Cambridge, MA: MIT Press, 1998.

*For a journal article:* Godfrey, L.G. "Instrument Relevance in Multivariate Linear Models." Review of Economics and Statistics 81(1999):550-52.

*For Internet source:* U.S. Department of Agriculture, Economic Research Service. ERS Information. June 2002. Available online at <http://www.ers.usda.gov/News/June2002Media.pdf>.

Include your references in the text as "(Smith, 2015)" when citing at the end of a sentence, or "According to Smith (2015)" when citing at the beginning of a sentence. For example,

Negative publicity is a key determinant affecting consumers' buying decisions (Ahluwalia, Burnkrant, and Unnava, 2000).

According to Cawley and Rizzo (2005), pharmaceutical products in the same therapeutic class experienced negative spillover in terms of lost sales.

Additional help with your paper is available from the Writing Center at TAMU-Commerce <http://www.tamuc.edu/academics/colleges/humanitiesSocialSciencesArts/departments/literatureLanguages/writingCenter/onlineWritingLab.aspx>

### **Writing and Formatting Style**

The term paper should be at least 5 pages in length. Term papers must be typed using Times New Roman, 12 point, double-spaced and have 1-inch margins all around. Before submitting the final paper, use the "Spelling & Grammar" function of the MS Word to correct grammar. Number pages consecutively beginning with the "Introduction" as page 1.

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## Grading Rubric

Your term paper will be graded using the following rubric:

### 1. Writing and Formatting Style within the Discipline

Evaluates grammar, sentence structure, spelling, flow of information/ideas, language, and reference and formatting style (Points: 20).

### 2. Consistency of the Subject Material

The extent to which ideas are presented coherently and with clear progression from introduction through conclusion (Points: 20).

### 3. Use of Environmental and Natural Resource Economics Information to Sustain Argument

The extent to which information (economic concepts, principles, and fundamentals) and/or data collected are integrated and used/analyzed to sustain the argument (Points: 20).

### 4. Importance and/or Relevance and/or Contribution

The extent to which the paper highlights its importance/contribution (Points: 20).

### 5. Originality and/or Creativity

The extent to which the paper shows originality and/or creativity (Points: 20).

**EXAMS:** Exams will be administered through D2L (see the course outline at the end of the syllabus for specific exam dates). Exams have to be completed by 11:30 p.m. (Central Time) on the due date. Exams will be timed and you will have 1 hour and 30 minutes to complete the exam. Make sure you have internet access ahead of time and that your laptop battery is fully charged. No make-up exams will be given. If an exam is missed a grade of zero will be assessed for it. Exams have to be completed individually using your own student account and there should be no collaboration or sharing of work with your classmates on the exams. Final exam is **comprehensive** and you will have 2 hours to complete it.

## TECHNOLOGY REQUIREMENTS

### LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

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## **ACCESS AND NAVIGATION**

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## **COMMUNICATION AND SUPPORT**

### **Technical Support**

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

### **Interaction with Instructor Statement**

The instructor's communication response is stated clearly (see page 1).

## **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

### **Course Specific Procedures/Policies**

No late assignments will be accepted and a grade of zero will be assessed for them.

### **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

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## **University Specific Procedures**

### **Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

### **TAMUC Attendance**

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>



## **AI Use in Course**

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

## ***Students with Disabilities - ADA Statement***

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce

Gee Library - Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

## **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

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## ***Campus Concealed Carry Statement***

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

## ***A&M-Commerce Supports Students' Mental Health***

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit [www.tamuc.edu/counsel](http://www.tamuc.edu/counsel)

## **COURSE OUTLINE**

**AEC 445.01W: Resource and Environmental Economics**

**Spring 2024**

**WEB-BASED**

<b>Weeks</b>	<b>Topic/All assignments are due on specific dates listed below by 11:30 p.m via D2L. For example, homework assignment 1 is due January 14 by 11:30 p.m., or homework assignment 2 is due January 21 by 11:30 p.m., or EXAM 1 is due February 4 by 11:30 p.m.</b>
<b>Week 1</b> Jan 10 – Jan 14	Syllabus & D2L Tutorial, CHAPTER 1: The Role of Economics in Environmental Management, Homework Assignment (HA) 1
<b>Week 2</b> Jan 15 – Jan 21	CHAPTER 2: Modeling the Market Process: A Review of the Basics, HA 2 Email the instructor your term paper topic (see the Term Paper section above)
<b>Week 3</b> Jan 22 – Jan 28	CHAPTER 3: Modeling Market Failure, HA 3

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<b>Week 4</b> Jan 29 – Feb 4	<b>EXAM 1. Chapters 1, 2, 3</b>
<b>Week 5</b> Feb 5 – Feb 11	CHAPTER 4: Conventional Solutions to Environmental Problems: The Command-and-Control Approach, HA 4
<b>Week 6</b> Feb 12 – Feb 18	CHAPTER 5: Economic Solutions to Environmental Problems: The Market Approach, HA 5
<b>Week 7</b> Feb 19 – Feb 25	<b>EXAM 2. Chapters 4, 5</b>
<b>Week 8</b> Feb 26 – Mar 3	CHAPTER 6: Environmental Risk Analysis, HA 6
<b>Week 9</b> Mar 4 – Mar 10	CHAPTER 7: Assessing Benefits for Environmental Decision Making, HA 7
<b>Week 10</b> Mar 11 – Mar 17	<b>No Class: Spring Break</b>
<b>Week 11</b> Mar 18 – Mar 24	<b>EXAM 3. Chapters 6, 7</b>
<b>Week 12</b> Mar 25 – Mar 31	CHAPTER 8: Assessing Costs for Environmental Decision Making, HA 8
<b>Week 13</b> Apr 1 – Apr 7	CHAPTER 9: Benefit-Cost Analysis in Environmental Decision Making, HA 9
<b>Week 14</b> Apr 8 – Apr 14	CHAPTER 10: Air, Water, Solid Waste and Toxic Substances (for this chapter, do not read the textbook, just read the PowerPoint presentation for chapter 10), HA 10
<b>Week 15</b> Apr 15 – Apr 21	<b>EXAM 4. Chapters 8, 9, 10</b>
<b>Week 16</b> Apr 22 – Apr 28	<b>Study week: Preparing for Final Exam</b>
<b>Week 17</b> Apr 29 – May 5	<b>FINAL EXAM. Chapters 1 through 10 &amp; Term paper submission via D2L</b>

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