

Syllabus

AEB 3450, Introduction to Natural Resources and Environmental Economics, Fall 2022

Lecture: M/W/F 9:35-10:25 am

Location: Griffin-Floyd 0100

Instructor: Dr. Xinde “James” Ji

Email: xji1@ufl.edu

Office Hours: Wednesday 11am - 1pm

Location: Physically at my office (MCCA 1181) and virtually via Zoom <https://ufl.zoom.us/j/97284739634>

Teaching Assistant: Kelvin Amon

Email: kamon@ufl.edu

Office Hours: Monday 3-4 pm

Location: Virtually via Zoom: <https://ufl.zoom.us/j/92958828590?pwd=eHRCaWhjRnJzanhtV0RnazlOUTZaUT09>

Undergraduate Advisor: Ms. Danielle Shu; 1170B McCarty Hall A; (352) 294-7640;

E-mail: dshu@ufl.edu Office Hours: daily 9:00 am - 12:30 pm and 1:30 pm - 4:30 pm

Undergraduate Coordinator: Dr. Misti Sharp; 1189 McCarty Hall A; (352)294-7632;

E-mail: mistisharp@ufl.edu Office Hours: Mon and Wed 2:00 - 3:30 pm

FRE Technology Assistance: Dave Depatie; 1197 McCarty Hall A; (352) 394-7641; E-mail: ddepatie@ufl.edu

Teaching Mode

This class will be taught fully in person unless otherwise notified.

Course Description

Introduces natural and environmental resource economics. Emphasizes understanding economic concepts such as resource scarcity, market failure, externality, property rights and common property resources and their application to studies of forest, land, water, energy and coastal resources. Prerequisite: AEB 3103 or ECO 2023. Credit cannot be received for both AEB 3450 and ECP 3302.

Overview

How much is an endangered species worth? Are we going to run out of fuel in the next 50 years? How damaging is air pollution to our health, and how should we deal with it? Why are so many fisheries over-exploited, forests cut down, aquifers depleted, and are there ways to prevent that?

Human society is intrinsically connected with nature. This course aims to provide an introduction to the economics regarding natural resources and the environment. In the first part of the course, we will talk about how economists think about environmental and resource problems from philosophical, methodological, and analytical perspectives. Topics include market failures and policy instruments to correct them, property rights, and ways to evaluate the benefits and costs of protecting the environment. In the second part of the course, we will dive into specific real-world environmental problems and analyze them using economic methods and tools. Topics will include non-renewable resources, air, water, climate, and others.

Student Learning

After successful completion of the course, you should be able to:

1. Distinguish between facts and rhetoric in public policy debates related to natural resources and the environment
2. Know the concepts of which economists think about natural resource and environmental problems
3. Develop skills to critically evaluate natural resource and environmental policies and alternatives using economic tools
4. Develop an economic mindset that can be applied to analyze real-world environmental problems

Prerequisites

Students are expected to have the knowledge of microeconomics at the level of AEB 3103 (Principles of Food and Resource Economics) or ECO 2023 (Principles of Microeconomics). I will assume that you have basic knowledge regarding supply and demand, consumer and producer surplus, opportunity cost, etc. Please come to see me if you are not sure you meet the prerequisites of the course.

Textbook

Required

Markets and the Environment (2nd Edition), by Nathaniel Keohane and Sheila Olmstead, Island Press (2016)

The textbook is available for purchase at the UF Bookstore.

Optional

Environmental and Natural Resource Economics (11th Edition), by Tom Tietenberg and Lynne Lewis, Prentice Hall (2018)

Economics and the Environment (7th Edition), by Eban Goodstein and Stephen Polasky, Wiley (2013)

Readings

Additional readings will be posted on Canvas.

Grading

You will be evaluated with a total of 100 points, which consist of the following:

1. Thoughts and Questions (10%)
A collection of readings will be assigned for each module. Please read them and reflect on the following question, unless otherwise specified:
What did you find most challenging, confusing, or noteworthy about the reading?
 - You get 1 point for each TQ you submit as long as it is a good-faith effort.
 - Each TQ is due by 10 pm on the day before we start a new module.
 - I will drop the lowest two TQ scores.
2. Class Debate (20%)
 - See instructions below
3. Problem Sets (20%)
 - There will be 7 assignments throughout the semester.
 - You will have one week to complete each assignment. Late assignments are accepted, though it reduces your grade by 10% each day.
 - All assignments are individual unless otherwise stated.
4. Exams (50%)
 - There will be three exams over the semester: two in-class midterm exams, and one final exam.
 - The lowest score of the three exams will be dropped.
 - All exams are closed book.

- The exams are semi-cumulative - you are expected to be able to apply concepts and tools covered in the earlier part the class, though you will not be directly tested.
- Midterms are tentatively blocked on Fridays, 9/30 and 11/4, 9:35 - 10:25 am. Dates are subject to change based on class progression. If there is any change to midterm dates, I will notify you at least two weeks beforehand.
- Final exam will take place at the university designated time: 12/15 7:30-9:30 am.

Points will be translated into grades according to the following table. **Do not look at the canvas auto-calculated letter grade - they are not properly weighted and does not reflect the final grade that you will receive.** For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Grade	Points	Grade Points
A	>94	4.00
A-	90-93.9	3.67
B+	86-89.9	3.33
B	83-85.9	3.00
B-	80-82.9	2.67
C+	76-79.9	2.33
C	73-75.9	2.00
C-	70-72.9	1.67
D+	66-69.9	1.33
D	>63-65.9	1.00
D-	60-62.9	0.67
E	<60	0.00

Instructions on Classroom Debate

You are expected to form a debate team of 4 students. There will be 6-7 debates throughout the semester, and you will participate in one of the debate topics based on your interests. Your stance on the question will be randomly drawn, one week before the debate.

Each debate session will last 50 minutes. The debate session will start with opening statements from the two sides (3 minutes each), followed by a free-fire session when teams will take turns to ask the other side questions. The debate ends by a two minute closing statement from the two sides (2 minutes each).

I will be moderating the debate, and the rest of the class will serve as the jury. The team that convinces more people to **change their stances** wins the debate. The winning team will be rewarded by two extra points (out of 20). In addition, the best debater (who may not necessarily come from the winning team) will get two extra points (out of 20). Individualized grades will be issued based on your debate preparation and performance. As a benchmark, a debator with an “average” performance will get 14 out of 20 base points.

You should meet at least once with your teaching assistant as a group before the debate. The teaching assistant will provide valuable help for you to formulate arguments and think about debate strategy. It is your responsibility to contact the TA and set up the meeting.

You are allowed to use at most 3 distinct visual aids (anything that goes on to the projection screen), including pictures, tables, short videos (<30 seconds), or words. Each additional visual aid will decrease your point by 0.5 (out of 20).

Here is a list of debate topics and dates:

- Nuclear energy should be part of our future energy mix.
- Overpopulation is an impediment to sustainable development.

- Climate mitigation (reducing carbon emission) is more important than climate adaptation (coping with climate impacts).
- Provisions in the Inflation Reduction Act (IRA) are the correct steps forward to address environmental and climate challenges for the United States.
- Developing nations should be given the opportunity to develop their economy first before cleaning up the environment.
- Authoritarian governance should be preferred over democratic governance in order to effectively address environmental challenges.
- (Substitute topic) Developed countries should not be allowed to export wastes to developing countries.

Class Policies

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <https://sccr.dso.ufl.edu/process/student-conduct-code/>

Plagiarism: The Student Honor Code and Student Conduct Code states that: “A Student must not represent as the Student’s own work all or any portion of the work of another.” Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student’s own submitted work, or the simultaneous submission of the Student’s own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author.”

If you plagiarize any part of your submitted material, you will receive an automatic zero on that particular item, plus be referred to university for further disciplinary actions.

COVID-19 University Policy: As Gators, we are characterized by our resilience as well as our commitment to caring for one another. In that vein, the university welcomes - but does not require - people to wear masks on campus. Further, in alignment with guidance from the Centers for Disease Control and Prevention as well as UF Health, we continue to encourage everyone to vaccinate to minimize their risk of COVID-19. To learn more about COVID-19 vaccines, testing and related topics, visit coronavirus.uflhealth.org.

Attendance and Make-Up Work: Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/>

academic-regulations/attendance-policies/ In general, you are expected to be in class each day and submit all work on time on e-Learning.

Students Requiring Accommodations Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students are notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

In-Class Recording Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled.

The only allowable purposes are: (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A class lecture is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To publish means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy UF students are bound by The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: On my honor, I have neither given nor received unauthorized aid in doing this assignment. The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Click here to read the Conduct Code. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Plagiarism: The Student Honor Code and Student Conduct Code states that: “A Student must not represent as the Student’s own work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student’s own submitted work, or the simultaneous submission of the Student’s own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author.”

Software Use All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the Notification to Students of FERPA Rights.

Campus Resources:

Health and Wellness U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Academic Resources E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

On-Line Students Complaints: View the Distance Learning Student Complaint Process.

Diversity, Equity, and Inclusion: The University of Florida's College of Agricultural and Life Sciences (CALS) supports the University of Florida's commitment to diversity, equity, and inclusion. By fostering a sense of belonging for students, staff, and faculty, while leveraging the uniqueness of the people who study and work at the university, we believe our campus community is enriched and enhanced by diversity, including but not limited to, race, ethnicity, national origin, gender, gender identity, sexuality, class, and religion. This course will support an understanding of the diversity of our distance and campus communities as well as our agricultural and natural resource communities, locally and globally.

This course will strive to create a learning environment for students that supports a diversity of thoughts, perspectives, and experiences while honoring your identities. In this class we will take the following approaches to help achieve this:

- All course participants will use the names and pronouns provided by students for use in class. If these differ from those that appear in official university records, you can change your Display Name at One.UF.
- If your performance in this course is being impacted by your experiences inside and/or outside the classroom, do not hesitate to contact the instructor and/or teaching assistant (TA). Instructors in CALS are a great resource for you and you may provide feedback anonymously. Feedback may result in general announcements to the class, if necessary, or reporting to appropriate UF personnel to address your concerns.
- CALS instructors and TAs, like many people, are still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that makes you feel uncomfortable, please discuss with your instructor or TA or contact the CALS Dean's Office (cals-dean@ufl.edu).

Important Dates

- 8/24 First day of class
- 9/5 No class - Labor Day
- 9/9 **Debate 1**
- 9/16 No class - Instructor Traveling to Ithaca, NY
- 9/23 **Debate 2**
- 9/30 **Midterm Exam 1**
- 10/7 No class - UF Homecoming
- 10/14 **Debate 3**
- 10/21 **Debate 4**
- 10/28 **Debate 5**
- 11/4 **Midterm Exam 2**
- 11/11 No class - Veteran's day
- 11/18 **Debate 6**
- 11/21 No class - Instructor Traveling to Miami, FL
- 11/23 No class - Thanksgiving
- 11/25 No class - Thanksgiving
- 12/2 **Debate 7**(if necessary)
- 12/7 Last day of class
- 12/15 **Final Exam**

Course Outline

Note: the course outline is alive and breathing, so it may evolve spontaneously as the course goes along.

1. Why Environmental Economics? (Week 1)
 - Why Adam Smith is not entirely correct
 - The need for environmental economics

- The current state of business
Readings: Fullerton and Stavins (1998); Boyle and Kotchen (2018); McCarthy (2019)
2. The Efficiency Standard (Week 2)
 - The demand
 - The supply
 - The equi-marginal principle
 - Benefit-cost analysis and program evaluation
Readings: Keohane and Olmstead Chapter 2 (pp 11-30); Do you think like an economist (LA Times)
 3. When Do Markets Fail (Week 3-4)
 - Externality
 - Property rights
 - The open-access problem
 - The public good problem
Readings: Keohane and Olmstead Chapter 5; Hardin(1968) **—Midterm 1 about here—**

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 4. How to Correct Market Failures (Week 5-6)
 - Command and control regulation
 - Pigovian taxes
 - Subsidies
 - Coase theorem, cap and trade
 - Policy instruments under uncertainty
 - Ostrom, common-pool resources
Readings: Keohane and Olmstead Chapter 8; Ronald Coase and the Misuse of Economics (New Yorker); Ostrom(2009)'s Nobel Prize Press Release
 5. Command-and-Control vs. Market-based Policy (Week 7, optional)
 - Cost-effectiveness
 - Innovation
 - The US Sulfur Trading Scheme
 - Do we ever prefer command-and-control?
Readings: Keohane and Olmstead Chapter pp 168-184; Keohane and Olmstead pp 200-207; The Invisible Green Hand (The Economist)
 6. Measuring Benefits (Week 9)
 - Estimating causal effects
 - Estimating dollar values
 - stated preference
 - revealed preference
Readings: Goodstein and Polasky Chapter 5; EPA Plans to Revisit a Touchy Topic (New York Times)
 7. Measuring Costs (Week 10)
 - Engineering vs. opportunity cost
 - Measuring social welfare losses
 - Who bears the cost?
 - Employment
 - Innovation
Readings: Keohane and Olmstead pp. 35-40, 43-44; Give me green, and jobs, but not green jobs (the Economist); Why Green Energy Can't Power a Job Engine (NYTimes) **—Midterm 2 about here—**
 8. Dynamic Efficiency (Week 11)

- Discounting and present value
 - Dynamic decision-making
 - Decision under uncertainty
- Readings: Keohane and Olmstead pp. 55-62; Goodstein and Polasky pp 146-150; Cunningham (2009)
9. Non-renewable Resources (Week 12-13)
- The two-period problem
 - The infinite horizon problem
 - Hotelling's rule
 - The Simon-Ehrlich bet
- Readings: Tietenberg and Lewis pp 107-116; Betting on the Planet (NYTimes)
10. Water (Week 14)
- Who owns the water?
 - The economics of water resources
 - Water transfers
 - When will we run out of water
- Readings: Tietenberg and Lewis pp 197-207; West's Drought and Growth Intensify Conflict Over Water Rights (NYTimes)
11. The Environment and Economic Development (Week 15)
- Development and the environment
 - The Kuznets Hypothesis
 - Environmental governance and politics in the developing world

By enrolling in this course, you are agreeing to the terms outlined in this syllabus!!