Syllabus: AEB 3450, Introduction to Natural Resources and Environmental Economics, Fall 2025

Alternatively, download pdf format of the syllabus.

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AEB 3450, Introduction to Natural Resources and Environmental Economics, Fall 2025[1]

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Office Hours: Tuesday/Thursday 2:00-4:00 pm
Location: Physically at my office (1193 McCarty Hall A) and virtually via Zoom at https://ufl.zoom.us/j/99893556318

Teaching Assistant: Mr. Md Sayemul "Sayum" Islam
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Office Hours: Monday 11 - 12:30 am (online and in person location TBD); Friday 9:30 - 11 am (online only)
Location: In person location TBD, and virtually via Zoom at https://shorturl.at/7IfpJ

Undergraduate Advisor: Ms. Michelle Baldwin; 1170B McCarty Hall A; (352)294-7640;
E-mail: baldwin.ma@ufl.edu; Schedule an appointment

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Teaching Mode

This class is taught completely online. Lectures, assignments, and exams are available asynchronously on eLearning. Synchronous discussion sessions run on every other Wednesday afternoon (3:00 - 3:50 pm).

Synchronous discussion sessions are held every other Wednesday, 3:00-3:50 pm via Zoom: https://ufl.zoom.us/j/92768266966. You are expected to attend all synchronous sessions. Video recordings will be available on eLearning for those who cannot attend the synchronous sessions.

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? 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

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[1]Disclaimer: part of this syllabus is generated by Microsoft CoPilot, v1.104.341.

ways to prevent that? How should we address the ongoing climate crisis, and what are the best ways to mitigate and adapt to it?

Human society is intrinsically connected with nature. This course aims to provide an introduction to the economics of natural resources and the environment. Students will gain an understanding of how economists approach environmental and resource problems from philosophical, methodological, and analytical perspectives. Key topics include market failures, policy instruments to correct them, property rights, and methods to evaluate the benefits and costs of environmental protection.

This course is a core component of the Environmental Science major, designed to equip students with essential economic knowledge for addressing environmental issues. For economics majors, it offers a practical application of economic theories and paradigms to real-world environmental challenges. Additionally, it is valuable for students interested in environmental policy, natural resource management, and sustainable development. By integrating economic principles with environmental concerns, the course fosters a multidisciplinary approach to problem-solving.

Understanding environmental economics is crucial for anyone concerned about the future of our planet, as most major environmental problems stem from an economic root and require an economic solution. This course empowers students to critically analyze the impact of individual behaviors, social institutions, and government policies on the environment. By the end of the course, students will be better equipped to contribute to discussions and decision-making processes related to sustainable development, environmental conservation, and climate change mitigation.

Student Learning Goals

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 by critically analyzing arguments and evidence.
2. Understand and explain the key concepts and frameworks used by economists to address natural resource and environmental problems.
3. Apply economic tools and methods to critically evaluate and compare natural resource and environmental policies and alternatives.
4. Develop and demonstrate an economic mindset by analyzing and proposing solutions to real-world environmental problems using economic reasoning.

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 knowledge regarding the concepts and the analytical and graphic tools to analyze supply and demand, consumer and producer surplus, and opportunity cost. Please schedule a meeting with me if you are not sure you meet the prerequisites of the course.

Textbook

Required
No textbook is required for this course. All readings will be provided on eLearning or Perusall.

Optional   `Markets and the Environment (2nd Edition), by Nathaniel Keohane and Sheila Olmstead, Island Press (2016)`
`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)`
`Pricing the Priceless, by Spencer Banzhaf, Cambridge University Press (2023)`

Readings Additional readings will be posted on Perusall, an interactive reading and discussion software available via eLearning. Here is Perusall's privacy policy.

Technology

Minimum Technology Requirements The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam
- Microphone
- Broadband connection to the internet and related equipment (cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations, which students should review before starting their program.

Supplemental Technology Requirements In addition to the minimum technology requirements, this course requires the use of the following technology:

- Zoom Video Conferencing: This course will use Zoom for synchronous discussion sessions and office hours. You can download Zoom from the UF Zoom website. Accessibility information for Zoom can be found here: Zoom Accessibility.
- Perusall: This course will use Perusall for reading assignments. You can access Perusall through the eLearning course page. Accessibility information for Perusall can be found here: Perusall Accessibility.

Minimum Technical Skills To complete your tasks in this course, you will need a basic understanding of operating a computer and using word processing software.

In Case of a Technical Failure We understand that technology failures can happen and may disrupt your ability to participate in course activities. In case that happens, the following accommodations are available:

- If a learning platform (Canvas/Perusall/Mediasite) is partially or completely unavailable, notify the instructor immediately. Assignment due dates will be extended as necessary to accommodate such platform outage.
- If you experience a technical issue during an exam (i.e., issues unrelated to the content of the exam), notify the instructor immediately. Appropriate accommodations will be made to ensure that you are provided with the opportunity to complete the exam.
- Make-up assignments (in the form of Perusall reading) will be provided for any synchronous discussion sessions that you are unable to attend due to a technical and/or scheduling issue. Notify the instructor as soon as possible to request a make-up assignment.

Grading

You will be evaluated with a total of 500 points, which consist of the following:

1. **Reading and reflection (via Perusall) (75 points, 15% of your grade)**
   - You will be reading a number of documents for each module and reflect on them via Perusall.
   - For these assignments, login to eLearning and go to the Perusall tool. Here is a help page and a getting started guide should you need it.
   - Your grade will be automatically determined by Perusall. Grading criteria include careful reading, writing constructive comments and/or questions, and interacting with your peers through upvoting and responses.
   - The two lowest scores for Perusall reading assignments will be dropped.
2. **Synchronous Discussion (75 points, 15% of your grade)**

- 6 synchronous sessions will be held throughout the semester. Active participation in each session earns a maximum of 15 points.
- A tracking assignment will be posted on eLearning and due two hours after each synchronous session.
- Synchronous discussion sessions are held on Wednesday 3:00-3:50 pm via Zoom (https://ufl.zoom.us/j/92768266966)[https://ufl.zoom.us/j/92768266966] on the following dates: 8/27; 9/10; 9/24; 10/15; 10/29; 11/12.
- The lowest grade will be dropped (meaning you need to attend at least 5 out of the 6 meetings to receive full grades).

3. **Assignments (150 points, 30% of your grade)**
   - There will be 10 assignments throughout the semester, one for each module.
   - All assignments are individual unless otherwise stated.
   - The lowest two grades will be dropped.
   - Assignments will be returned within a week of the original due date (except for UF holidays).

4. **Interview a Professional (75 points, 15% of your grade)**
   - You will interview a professional whose job function has something related to natural resources, the environment, economics, or policy. They could be a professor, a government official, a management/environmental consultant, or anyone else whose job is related to the environment and/or economic policy.
   - This person cannot be a direct family member (i.e., your parents or a sibling). You are encouraged to use your network (including your family network) to find someone who is willing to be interviewed. If you are not sure whether your interviewee is appropriate, reach out to the instructor to double check.
   - The interview can be conducted in person or virtually.
   - The interview could take two forms:
     - A professional interview, during which you ask the professional about their career path. For example, their career journey that leads to their current job, their job responsibilities, and the best and worst parts of their job. Also seek advice from the professional on how to prepare for a career in their field.
     - An intellectual interview, during which you ask the professional about a challenging/debatable issue within their area of specialization. For example, you could ask a wetland hydrologist about the benefits, costs, and challenges of wetland restoration, or a macroeconomist about the best way to address climate change using fiscal/monetary tools. Be prepared to be an advocate of the devil if necessary.
   - You will need to schedule the interview on or before 10/6, with the actual interview taking place no later than 10/9. Submit proof of schedule to earn 10% of the grade.
   - Submit a reflection paper of about 3 pages profiling the interviewee earn the remaining 90% of the grade, due on 10/12 by 11:59 pm.

5. **Exam (125 points, 25% of your grade)**
   - One mid-term exam will be issued on the week of 11/17.
   - You can attempt to take the exam during any time of that week. Once you started the attempt, you have two hours to finish the exam. You are only permitted with one attempt. Make sure you have stable internet connection before you start the attempt.
   - The exams are open book and open notes. Additionally, you are permitted to use any internet resources, including class resources, search engines, and generative AI, that may help you answer the questions.
   - Receive assistance from another human being during the exam is considered cheating. You will receive an automatic 0 plus be referred to the Dean of Students Office for further disciplinary actions.

6. **Three-minute video project (125 points, 25% of your grade)**
   - You may choose to complete a three-minute video project on a topic of your choice to replace your exam grade.
   - If you completed both the exam and the video project, only the highest grade will enter your final grade.

- The video project is due on December 3rd.

Translating Points to Letter Grades   Points will be translated into grades strcitly according to the following table. For information on current UF policies for assigning grade points, see here for details

Grade	Points	Grade Points
A	>465 (93%)	4.00
A-	450-464 (90%-92.9%)	3.67
B+	430-449(86%-89.9%)	3.33
B	415-429(83%-85.9%)	3.00
B-	400-414(80%-82.9%)	2.67
C+	380-399(76%-79.9%)	2.33
C	365-379(73%-75.9%)	2.00
C-	350-364(70%-72.9%)	1.67
D+	330-349(66%-69.9%)	1.33
D	315-329(63%-65.9%)	1.00
D-	300-314(60%-62.9%)	0.67
E	<300(<60%)	0.00

Canvas Calculated Grades   While I have tried my best to setup the Canvas gradebook to be as close as your actual grade, there might be some discrepancies due to the limitations of the Canvas gradebook, including but not limited to drops, extra credits, and missing assignments. You should always calculate your own grade based on the grading composition listed above.

Grade Bump Requests   Since your letter grade is mechanically calculated using the above rubric, I will not entertain any grade bump requests.

Class Policies

General Policies   This course adheres to all UF Academic Policies in addition to the class-specific policies listed below.

Late Assignments   Late work (including readings and assignments) are accepted with a 10% penalty each day.

Use of Generative AI and Large Language Models   I view AI as a foundational tool in this post-AI world, just like calculators and search engines. Ways to generative AI effectively is an emerging skill that could, and should, be learned, just like you learned how to use a calculator in middle school. Hence, unless otherwise stated, you are welcome to complete work with the help of artificial intelligence tools and large language models (LLMs) unless otherwise stated (ChatGPT, GPT, DALL-E, Stable Diffusion, Midjourney, GitHub Copilot, and anything after) in an unrestricted fashion, for any purpose, at no penalty.

You should note that many large language models still have a tendency to make up incorrect facts and fake citations, code generation models have a tendency to produce inaccurate outputs, and solve mathematical problems with incorrect intermediate steps and final solutions.[2] You will be responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or a generative AI.

The university's policy on plagiarism still applies to any uncited or improperly cited use of work by other human beings, or submission of work by other human beings as your own.

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[2]During the Fall 2023 semester, I asked chatGPT (version 3.5 to 4) to solve six Principles of Economics problems in class. ChatGPT got 4 out of the 6 problems wrong at the intial attempt, and 2 out of 6 wrong after iteration.

Here are some best practices on understanding and using generative AI (Gagnon 2023)[3]:

- AI can be a valuable tool for augmenting human decision-making and critical thinking, but it is not a replacement.
- If you provide minimum effort prompts, you will get low quality results. You will need to refine your prompts to get better outcomes. This will take time and practice.
- Don't trust anything the systems says. Assume it is wrong, unless you already know the answer and can verify with trusted sources. It works best for topics you deeply understand.
- Use your best judgement to determine if/where/when to use these tools. They don't always make products easier and/or better.
- Large language models and chatbots are " "look back" " machines. They don't advance knowledge (yet).

Treasure Hunt You will be awarded 3 extra credit points if you submit the correct answer to the treasure hunt question. The treasure hunt is located as a quiz called "treasure hunt". You have until the end of the semester to complete the treasure hunt.

Please fill in: in which year was the University of Florida (specifically, UF's oldest predecessor the East Florida Seminary) founded?

Netiquette Statement Effective and respectful communication is vital for a productive online learning environment. The following guidelines outline expectations for all forms of communication within this course, including email, discussion forums, assignments, and other asynchronous interactions.

- Respectful Tone: All community members must use a respectful tone in all forms of communication. This includes being considerate, kind, and polite, even when disagreeing with others.
- Written Communication: Use the official language of instruction for all written communications. Avoid popular online abbreviations, netspeak, or chatspeak. For example, use "you" instead of "u" and "are" instead of "r."
- Synchronous and online Discussion: Engage in discussions thoughtfully and constructively. Listen to others' viewpoints and respond respectfully. Avoid interrupting others and allow everyone the opportunity to contribute. Respect the diversity of perspectives and experiences shared by classmates.
- Email Communication:
  - Use a clear and descriptive subject line.
  - Start with a proper greeting and sign off with your name. You could address me as James, Dr. Ji, Professor Ji, or variations of those. Please do not start your email with "hey".
  - Allow up to 24-48 hours for a response, except on weekends and holidays.

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.

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[3]The quoted texts are written by Dr. Ryan Gagnon (Clemson University) and shared via X.

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.

Lauren's Promise: I will listen and believe you if someone is threatening you. Lauren McCluskey, a 21-year old honors student athlete, was murdered on October 22, 2018, by a man she briefly dated on the University of Utah Campus. We must all take actions to ensure this never happens again. Any form of sexual harassment or violence will not be excused or tolerated at the University of Florida.

If you are experiencing sexual assault, relationship violence, or stalking, you can take the following actions:

- If you are in immediate danger, call 911.
- Report it to me, and I will connect you to resources.
- Seek confidential sources of support and help:
- UFPD Office of Victim Services: 51 Museum Road, 352-392-5648
- Sexual Assault Recovery Services (SARS): Infirmary Building, 352-392-1161
- Alachua County Rape Crisis Center (confidential): 352-264-6760

Tentative Class Schedule

Week	Module	Perusall Reading	Assignments	Synchronous Discussion
18-Aug				
25-Aug	Getting Started	Perusall Starter	Syllabus Quiz	8/27: Getting Started
1-Sep	Module 1: Why environmental economics	Reading #1	GHG Endangerment Essay	
8-Sep	Module 2: The efficiency standard	Reading #2	Econ Primer	9/10: Discussion: Sustainable development
15-Sep	Module 3: When do markets fail	Reading #3	Externality problem	
22-Sep	Module 4: Property rights and environmental implications	Reading #4	Public good problem	9/24: Dani v. Jon Debate
29-Sep	Module 5: Correcting Market Failures	Reading #5	Policy instrument problem	
6-Oct	Professional Interview Week	X	Interview Scheduling Due 10/5; Interview Paper Due 10/12	

Week	Module	Perusall Reading	Assignments	Synchronous Discussion
13-Oct	Module 6: Tragedy of the Commons and its Remedy	Reading #6	Fishery problem	10/15: The Goldfish game
20-Oct	Module 7: Measuring benefits	Reading #7	Cost-benefit Analysis	
27-Oct	Module 8: Measuring costs	Reading #8	DOE Energy Report Assessment Essay	10/29: Discussion: the Value of Statistical Life
3-Nov	Module 9: Benefit-cost analysis and dynamic efficiency	Reading #9	Discounting	
10-Nov	Module 10: Non-renewable resources	Reading #10	Resources Essay	11/12: Model Climate Simulator
17-Nov	Exam week	X	X	
24-Nov	Thanksgiving week	X	X	
1-Dec	Video Project Due	X	X	