

AED Economics 4330

The Sustainable Economy: Concepts and Methods

Department of Agricultural, Environmental, and Development Economics
Ohio State University
Spring 2020

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Office Hours: Wednesday 1:30-3:30pm

Time and Location: Tues & Thurs, 9:35-10:55 Agriculture Admin Building 108

Recitation: Students must be enrolled in the recitation section (listed a Laboratory section on the master schedule), which meets on Tuesday from 5:30-6:25pm in AA108 (our usual classroom). The recitation section will review material from class, provide some guidance on homework and exams, and cover additional topics.

Credits and Pre-requisites: 3 credit hours. Pre-req: AED Econ 4310 (Environmental and Resource Economics) or permission of instructor

Description and Goals: This is a core upper-level course in sustainability concepts and methods developed specifically for the EEDS major. It is based on concepts from environmental and resource economics, which is a well-established field of economics, and incorporates concepts from ecological economics, which is a more interdisciplinary field that combines elements of economics and ecology. We will consider sustainability methods used by economists, such as wealth accounting, as well as some methods used largely outside of economics, such as ecological footprint analysis. The unifying theme of the course is reflected in the title: concepts and methods for defining and assessing the sustainable economy.

Defining a sustainable economy requires that we grapple with unresolved questions about the sustainability of our current economic systems. These are some deep questions, including: What are the constraints to economic production and consumption that are imposed by the Earth's ecosystem? What is the trade-offs in terms of the economy, environment, and human well-being that are implied by these constraints? What trade-offs are we willing and able to make as individuals and as a society to achieve a more sustainable economy? What are the best policies, including the right incentives for individuals, firms, communities, and nations, to reach this goal? While there is no single "right answer" to any of these questions, there are key concepts and theories that provide a framework for defining a sustainable economy and tools and methods for evaluating the sustainability of economic activities within a given region (e.g., country or community) or by a specific enterprise (e.g., a private business or public institution). The two main goals for this course are:

- (1) To deepen your understanding of the constraints and trade-offs that are implied by a sustainable economy and the nature of the debate that surround these questions.
- (2) To help you gain a critical understanding of the tools and methods used to measure sustainability, including their strengths, weaknesses, and application to evaluate the sustainability of the economy, communities, and individual enterprises.

Background: We assume that you already have knowledge of basic microeconomic principles and concepts specific to environmental and resource economics, as well as basic knowledge of sustainability definitions, terms and concepts. These include:

- **Environmental and resource economics:** efficiency of markets and price mechanism in allocating scarce resources; sources of market failures, including externalities and public goods; role of government in correcting market failures; types of environmental policies, including market-based incentives; static and dynamic efficiency of resource use; benefit-cost criterion as a measure of efficiency.
- **Sustainability:** Basic definitions of sustainability, ecosystem services, and measures of human well-being; common sustainability indicators and metrics; global environmental and ecosystem trends, including basic knowledge of the findings of the Millennium Ecosystem Assessment (<http://www.millenniumassessment.org/en/index.html>).

Familiarity with Excel is a plus but is not a pre-requisite. You will have ample opportunity to gain knowledge and experience with using Excel through the homework assignments.

Website: Carmen

Readings: This is not a standard course and there is no textbook. We will use a number of readings and other resources. A full reading list will be provided, and all readings and other resources are posted on the Carmen website. You are strongly encouraged to keep an environmental and resource economics textbook on hand, so that you can review the relevant economic principles as needed.

Grading and Assignments: There will be a variety of assignments to guide your learning:

1. Homework assignments (10% each, 3 total) 30%
2. Midterm and final exam (20% each) 40%
3. Reading logs 6%
4. In-class presentations (class scribe and article report) 10%
5. In-class participation (in class discussions)..... 6%
6. Discussion Board Posts 4%
7. Online Participation (lecture quiz and article report board) 4%

Homework Assignments: There are three homework assignments. All assignments involve data analysis (using Excel) and written interpretation of results. The weekly recitation session will provide basic Excel instruction and all assignments will be reviewed in the recitation after they have been graded and returned. More detailed instructions will be provided ahead of the due date. Recitation will be conducted by TA Liu and all questions pertaining to homework grades should be routed through him as well.

A note on working together: You are allowed to work together on homework assignments in a small group of up to 3 people. If you choose to work together, there are a few rules that you will need to follow: (i) Indicate clearly on the front-page of your assignment or in the top row of your Excel spreadsheet all the members of your group. (ii) You may work together on the Excel homework to do the calculations, but each person must turn in their own Excel spreadsheet with the answers appropriately filled out. (iii) You may discuss the written questions and your thoughts about how to answer them with your group, but the answers that you write down must be in your OWN WORDS—i.e., do not write the answers as a group and then just cut and paste them into your own homework. Discuss your thoughts with the group and then write your answers in your own words.

See the course schedule for due dates of each assignment. Here is a list of the assignments:

- Assignment #1: Inclusive wealth accounting and test of weak sustainability
- Assignment #2: Ecosystem services trade-off analysis with InVEST model
- Assignment #3: Greenhouse gas emissions accounting

Reading Logs: These will be assigned on a regular basis for selected readings to help you keep up with the readings. You will write these outside of class as you work on a reading assignment. They are due by the beginning of class and must be uploaded electronically to the Carmen dropbox before you come to class. We will draw on these as part of class discussions so you should also bring a copy (electronic or print) to class to reference during discussion. Specific prompts for writing these will be posted on Carmen and announced in class. Reading logs are graded as a check, check-minus, or check-plus. You may drop reading log from your grade.

Class Presentations: You will have two short class presentations that you will sign up for in advance. The presentations will be at the beginning of class, so please try to show up a bit early if you are presenting that day. These presentations are meant to be informal, so feel free to bring notes up with you when you present and there is no need to make a presentation.

- **Class scribes:** We will begin most classes with a report from the class scribes. The scribes are responsible for providing a written and oral summary of the previous class. This summary should include a brief synthesis of the material presented, a summary of questions and class discussion, and a brief discussion of any other class activities. You will work with a partner and will sign up in advance to be scribe for a specific day. The two scribes should work together to create one written report. The written summary should be uploaded by **both** partners to the Carmen dropbox before the beginning of the next class. The oral summary will be delivered by both scribes at the beginning of the next class and should be no more than 3 minutes.
- **Article Report:** Every student will be responsible for finding one news article related to the sustainable economy and the topics we discuss in class. Students will sign up for a date to present the news article to the class. Articles should be recent and from a reputable news source. Articles must be approved by the instructor one week before the presentation. The presentation should be no longer than 3 minutes and draw a clear link between the article and material we have covered in class. Article reports after spring break will be posted on a discussion board. Instructions for the discussion post will be available on Carmen.

Class Participation: Your attendance and participation in class is critical. I expect you to attend every class, ask questions, and regularly participate in class discussions.

- **Attendance:** You will not be penalized for the first two classes that you miss or any university approved absences.
- **Participation:** We will have frequent class discussions as a whole class and in small groups. Participation in these discussions will be a part of your grade.

Discussion Posts: Since we will no longer be having in class discussions due to moving to online classes, there will be a discussion board post for each lecture. Every student is required to post one discussion post and comment on 2 posts by other students. Full guidelines on what should be included in discussion posts will be available on Carmen.

Lecture Quizzes: I will record lectures that will be available online. In each lecture video there will be a few multiple-choice questions for students to answer while they watch the lecture.

Article Report Board: All students will be required to comment on at least 2 of the posts in the article report board. More guidelines will be available on Carmen.

Midterm Exam: The midterm exam is in-class and may include any content from lectures, readings, homework assignments, in-class activities, and discussions. The midterm is worth 20%.

Final Exam: The final exam will be on Carmen and may include any content from lectures, readings, homework assignments, in-class activities, and discussions. The final exam will be open note and is 20% of your final grade. The final exam will be comprehensive, but the final will focus on the material covered since the previous exam.

Grading: Grades are a weighted average of your performance. Unless revised later to reflect an overall curve, letter grades will be assigned according to the following grading scheme cutoffs:

A 93 %	A- 90 %	B+ 87 %	B 83 %	B- 80 %	C+ 77 %	C 73 %
C- 70 %	D+ 67 %	D 60 %	E 0 %			

Late Assignments: All assignments are due in class at the beginning of class. Electronic copies of the written assignments or data analysis assignments may be submitted to the Carmen website (by the same deadline). Any late assignment will have 10% deducted each day it is late (including weekends). An assignment is considered late when it is submitted after the stated deadline and deductions will be taken beginning with the missed deadline. At my discretion, exceptions may be made for emergencies or other well-documented issues. These exceptions are easiest to make when you notify me before the deadline.

Technology Devices: You are permitted to use a tablet or related device to access or take notes during class. You are not permitted to use any electronic device to perform non-class related activities (social networking, instant messaging, checking email, surfing the internet, gaming, etc.). Should the use of accepted electronic devices become a distraction to other students or should it be found that the devices are used for non-class related activities; the further use of such devices will be prohibited. The use of electronic devices is strictly prohibited during exams.

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct at <http://studentconduct.osu.edu>.

Diversity: The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide

opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Disability Services: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.