

Introduction to Sustainability

ENR/AEDE 2501

Credit Hours: 4

Spring 2024

Lecture: Tuesdays/Thursdays 2:20 – 3:40 p.m., Fontana Lab 1000

Lab: As Assigned

INSTRUCTORS

Jeff Sharp – Sharp.123@osu.edu

Office: 322A Kottman Hall

Office hours: Available immediately before and after class or labs (but please schedule an appointment for in person or via zoom). Also available during other times of the week by appointment, T/W in person or via zoom on M/F.

Tim Jaquet - Jaquet.5@osu.edu

Office: Ag. Admin. Building, Room 233

Office Hours: I'm not planning to have set office hours but am happy to meet. In general, the best times to catch me for an in-person meeting is right before or after class. I should be pretty flexible on Mondays or Fridays to meet via Zoom.

TEACHING ASSISTANT

Haotian Wu – wu.5336@buckeyemail.osu.edu

Virtual Office Hours: Tuesdays 9:00-11:00 via Zoom. Haotian's Zoom link:

<https://osu.zoom.us/j/7060688063?pwd=OUxReW0zbiszVWczT1FYVnpaT29Sdz09>

COURSE DESCRIPTION

This course integrates principles from various disciplines that are related to social, economic, and environmental sustainability. Students will evaluate key concepts and examine tradeoffs that are a part of sustainability action using case studies representing sustainability challenges that can be viewed from numerous perspectives. This course is designed to integrate theories, concepts, and approaches from multiple disciplines to expose students to the diversity of ways that sustainability challenges can be conceptualized, framed, and addressed.

PREREQUISITES: Sophomore standing or permission of the instructor(s)

GOALS: Sustainability requires knowledge of human and natural systems and the skills to manage change and think holistically across scales in time and space. The course introduces skills and concepts necessary for a fruitful career in sustainability and critically evaluating key concepts and popular discourse. The primary goals of this course are to (1) develop the foundational knowledge and skills that students will require to grasp the multi-dimensional and multi-disciplinary nature of sustainability (2) introduce students to sustainability concepts from different disciplines and (3) introduce the tradeoffs that are often a part of sustainability thinking, planning, and action. The course also provides students with a common framework for additional sustainability-oriented

courses offered across campus. Students will be introduced to the fundamental principles, concepts, and knowledge from ecology and environmental science, economics and business, community and international development and sustainability science. Because sustainability can be laden with ideological thinking that can sometimes cloud important issues and avenues for advancement, we will employ a scientific perspective to examine the obstacles and opportunities for social, economic, and environmental sustainability.

COURSE LEARNING OBJECTIVES

By the end of this course, students should successfully be able to:

- Recall and critically assess various depictions, definitions, and conceptualizations of sustainability, sustainable development, and resilience.
- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Define the concepts of “justice”, “power” and “inequality”, and explain how they shape our understanding of sustainability as well as our understanding of how sustainability efforts can have different impacts on different communities.
- Describe how a scientific approach is important to examine the connections, tradeoffs, and synergies across environmental, economic, and social components that are involved in achieving sustainability goals.
- Demonstrate an appreciation of how ecosystem function changes in response to human and nonhuman influences, how humans use and impact ecosystem services, and the implications of these human-environment interactions for sustainability.
- Discuss their own ethics and values related to sustainability, the obstacles to changing their own behavior, and how those obstacles might apply to others.
- Demonstrate a basic understanding of how organizations, markets, and institutions can help and/or hinder achievement of sustainable actions from the individual level to the societal level.
- Apply sustainability concepts to evaluate case studies that explore sustainability goals and outcomes of programs or policies at individual, organizational, community, regional, and global scales.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability.

GENERAL EDUCATION EXPECTED LEARNING OUTCOMES

As part of the Sustainability Theme of the General Education curriculum, this course addresses the following goals:

1. Successful students will analyze sustainability at a more advanced and in-depth level than in the Foundations component.
2. Successful students will integrate approaches to sustainability by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.
3. Successful students will analyze and explain how social and natural systems function, interact and evolve over time; how human well-being depends on these interactions; how actions have impacts on subsequent generations and societies globally; and how human values, behaviors and institutions impact multifaceted potential solutions across time.

As part of the Sustainability Theme of the General Education curriculum, this course is designed to prepare students to:

- 1.1 Engage in critical and logical thinking about the topic or idea of sustainability.
- 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of sustainability.
- 2.1 Identify, describe, and synthesize approaches or experience as they apply to sustainability.
- 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment and creative work, building on prior experiences to respond to new and challenging contexts.
- 3.1 Describe elements of the fundamental dependence of humans on Earth and environmental systems, and on the resilience of those systems.
- 3.2 Describe, analyze, and critique the roles and impacts of human activity and technology on both human society and the natural world, in the past, present, and future.
- 3.3 Devise informed and meaningful responses to problems and arguments in the area of sustainability based on the interpretation of appropriate evidence and an explicit statement of values.

This course fulfills these learning outcomes by requiring students to synthesize material from several disciplines across the natural and social sciences so that they develop a holistic and integrative perspective on sustainability and sustainable development. More specifically, the course integrates perspectives from economics, business, and multiple social science disciplines (e.g., sociology, anthropology, psychology, geography, political science) that contribute to sustainable business practices as well as the research on, and practice of, sustainable community and international development. The course is taught from a systems perspective, encouraging students to examine how ecological systems, social systems, and the economy interact. Assessments include combination of lecture material, class discussions, lab section discussions, exam and quiz questions, class activities, and homework assignments.

TEXTBOOKS/READINGS

There are no required textbooks for this course, however lectures and class discussions will be based on required readings and videos that will be posted to Carmen.

WORKLOAD EXPECTATIONS

For each credit hour, there should be about an hour of in class meeting time and 2 hours out of class work. For a three-credit class, you can expect an average of 6 hours of work outside of class completing readings, assignments and preparing for exams.

GRADING

The course is graded A – E, with the weighted distribution outlined in the course requirements section. Transformation of numerical grade to letter grade will follow:

A	100% to 93%	B	< 87% to 83%	C	< 77% to 73%	D	< 67% to 60%
A-	< 93% to 90%	B-	< 83% to 80%	C-	< 73% to 70%	E	< 60%
B+	< 90% to 87%	C+	< 80% to 77%	D+	< 70% to 67%		

ASSIGNMENTS

Assignments	330 points
Midterm	100 points
Final Paper	100 points
Lecture Attendance	40 points
Lab Attendance	30 points
TOTAL POINTS POSSIBLE	600 points

Assignments

This category captures the variety of out-of-class activities we will be using in this course to supplement the lectures and lab sessions. This may include in-depth homework assignments, reading responses to articles for class/lab, other assignments in preparation or follow-up to labs, and lab activities themselves. Due dates for the larger homework assignments will be posted at the start of the semester but smaller assignments will be assigned over the course of the semester.

The homework assignments focus on developing your critical thinking skills by providing you with an opportunity to apply the material to real-world situations. Homework assignments are open book but must be completed individually and without the help of other individuals.

The goal reading responses are to: 1) stimulate engagement with some of the relevant research going on in the field of sustainability, 2) gain experience reading and processing academic writing, and 3) prepare the class for discussion on these topics during our lecture time. Responses may be in preparation or follow-up to lectures or labs.

Midterm

We will have one exam over the material in the first section of the course. More details on the format of this exam will be shared later in the semester.

Lecture Attendance

Students are expected to come to class prepared to discuss questions raised by the material, peers, and the instructor. However, considering the size of the course, this component of the grade will primarily be measured through attendance. Students earn 2 points for each class they attend (excluding the first day and the exam), up to a maximum of 40 points.

Lab Attendance

Labs are a critical component of this course in that they allow us to discuss topics in greater detail or work on specific applications in a smaller group setting. Because these groups are smaller, attendance is even more important, so students earn 3 points per lab attended, up to a maximum of 30 points.

Book Review Final Assessment

The final course assignment is a book review. Students should identify a book that is related to one or more topics covered during the semester and connects to their specific interests in the field of sustainability.

The review should address these elements:

- Identify the book and briefly explain why you chose it (no more than one paragraph)
- **Summarize the book** (min 400 words) Highlight the primary themes/findings/takeaways of the book.
- **Explain how the book aligns with the subject of sustainability and the material in this course.** (min 200 words) Possible questions you could answer: How does the book define sustainability? What dimensions does it choose to focus on? What are the underlying assumptions of the book's conclusions?
- **Your critical evaluation of the book.** (min 300 words) For instance: What does the book get right about sustainability? What are some of the weaknesses or limitations? Are there underlying normative values the book's conclusions are built on? (explicitly or implicitly) This is your opportunity to react critically and draw upon what you have learned during the course of the class. It may be the book or media is spot on regarding the challenges of sustainability, so explain why that is the case; perhaps it is oversimplifying; perhaps it is bringing up new information entirely overlooked in the class.
- **Final Recommendation** (1-2 sentences) Would you recommend this book to other students? Why or who?

Your overall review should not exceed 1200 words. The review will be evaluated with particular emphasis on your effectiveness in presenting key elements of the book and the quality of your evaluation of the book or media item. In the latter case, a well-argued single point or two is probably a more effective strategy of doing this than trying to react to the entire book or media item. Fundamental writing skills and how well your review is organized will also play into the overall quality of your report.

The entire review including footnotes, indented matter, and references should be double spaced. The review should be headed using the following format:

Coffee and Power: Revolution and the Rise of Democracy in Central America, by Jeffery M. Paige, Cambridge: Harvard University Press, 1997. 432 pp. \$18.95 (paper). ISBN:0-674-13648-9.

Late Assignment Policy

To receive full credit for writing assignments, work must be turned-in on time and in condition to be evaluated. Papers with excessive errors will be returned for resubmission and will be treated as if they are late. Late assignments will incur a deduction of 25% of the total point value for each 24-hour period (or portion) that they are late (including weekends).

Grade Appeals

The assigned grade is designed to show the overall quality of work performed by each student. If you believe that any grade was not properly assigned, you may write a letter explaining why you believe the grade was incorrectly assigned within one week of receiving the graded assignment back. Each appeal will be considered, and if a re-grade is performed, the entire assignment will be re-graded. The final grade may be greater, less, or equal to the original grade.

CARMEN AND ONLINE CONTENT POLICY

Carmen will be a big part of how we communicate with students and distribute material. If you have any concerns about using Carmen or are unclear on where to find any of the online content, please let us know as soon as possible so we can make sure everything is working properly. Similar to things announced in class, **it is our expectation that you keep up to date on things posted in Carmen.** You should consider taking a minute to review your notification settings in Carmen to ensure that you do not miss important updates, particularly announcements.

ACADEMIC INTEGRITY/ ACADEMIC MISCONDUCT POLICY

From: <http://oaa.osu.edu/coamfaqs.html#academicmisconductstatement>: “The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University’s [Code of Student Conduct](#) and that all students will complete all academic and scholarly assignments with fairness and honesty. Failure to follow the rules and guidelines established in the University’s Code of Student Conduct may constitute “Academic Misconduct.” Sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.”

In the Ohio State University’s [Code of Student Conduct](#), Section 3335-23-04 defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University’s [Code of Student Conduct](#) is never considered an “excuse” for academic misconduct.”

Use of AI, such as ChatGPT, to complete assignments is not allowed and will be treated similar to other forms of plagiarism or dishonesty.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web page: <http://oaa.osu.edu/coam.html>
- *Ten Suggestions for Preserving Academic Integrity*: <http://oaa.osu.edu/coamtensuggestions.html>
- *Eight Cardinal Rules of Academic Integrity*: www.northwestern.edu/uacc/8cards.html

ACCOMMODATION POLICY

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 us know immediately so that we can privately discuss options. To establish reasonable accommodations, we may request that you register with Student Life Disability

Services. After registration, make arrangements with us 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.

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief. Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing **no later than 14 days after the course begins**. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed. For more information about religious accommodations at Ohio State, visit odi.osu.edu/religious-accommodations.

In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services.

ADDITIONAL STUDENT RESOURCES

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the **Office of Student Life Counseling and Consultation Services (CCS)** by visiting ccs.osu.edu or calling 614-292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614--292--5766 and 24-hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1--800--273--TALK or at suicidepreventionlifeline.org. Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit <http://advocacy.osu.edu/>.

CFAES Embedded Counselor: David Wirt M.Ed., LPCC-S

- Call (614) 292-5766 and state that you are in CFAES

DIVERSITY VALUES

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.

TENTATIVE COURSE OUTLINE

Wk	Date	Topic	Labs	Due Dates
1	T 1/9	Session #1: Introduction and overview of the course. Why sustainability?	No lab this week	
	R 1/11	Session #2: History and Definitions of Sustainability		
2	T 1/16	Session #3: Economic Dimensions of Sustainability	Ice Breaker & Perception	
	R 1/18	Session #4: Social Dimensions of Sustainability		HW #1
3	T 1/23	Session #5: Planetary Boundaries: the environmental justification for sustainability	What is Sustainability?	
	R 1/25	Session #6 (Consumption 1): IPAT: Impact, Population		
4	T 1/30	Session #7 (Consumption 2): IPAT: Affluence	Technology vs. Behavior Activity	HW #2
	R 2/1	Session #8 (Consumption 3): IPAT: Technology		
5	T 2/6	Session #9 (Consumption 4): Circular Economy and the case of Fashion	LCA and Fashion	
	R 2/8	Session #10 (Consumption 5): Synthesis/Wrap-Up		
6	T 2/13	Session #11: Review Session	No lab this week (Exam Review)	
	R 2/15	Session #12: Exam #1		
7	T 2/20	Session #13 (Climate 1): Climate Justice	World Climate Simulator	
	R 2/22	Session #14 (Climate 2): Climate Science		
8	T 2/27	Session #15 (Climate 3): Global Climate Change Policy	Climate Action Plans	
	R 2/29	Session #16 (Climate 4): Campus/City - Climate Action Plans and Reporting		
9	T 3/5	Session #17 (Climate 5): Business – ESG Reports	ESG Reporting	HW #3
	R 3/7	Session #18 (Climate 6): Living Sustainably in Community		
	T 3/12	SPRING BREAK – NO CLASS		
	R 3/14			
10	T 3/19	Session #19 (Water 1): Source vs Point Source	Watersheds & Community Development	
	R 3/21	Session #20 (Water 2): Equity Issues and Policy		
11	T 3/26	Session #21 (Land-use 1): Urban Land Use	Land-use Lab	HW #4
	R 3/28	Session #22 (Land-use 2): Rural Land Use		
12	T 4/2	Session #23 (Land-use 3): Agriculture and Food Systems	Talking milk carton exercise	
	R 4/4	Session #24 (Land-use 4): Eco-Labels and Certifications		
13	T 4/9	Session #25 (Land-use 5): R/U Linkages and Regional Planning	Sustainable Living	HW #5
	R 4/11	Session #26 (Land-use 6): Socially Just City		Book Review
14	T 4/16	Session #27 (Land-use 7): Community Adaptation and Resilience	Book Review	
	R 4/18	Session #28: Final Synthesis		