

Term Information

Effective Term Autumn 2022
Previous Value Spring 2021

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Request to be part of Sustainability GE and updates to expected learning outcomes to meet requirements; increase in credit hours from 3 to 4, addition of lab section; addition of all campuses as available offerings as required by new GE

What is the rationale for the proposed change(s)?

To align with the new GE

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

n/a

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area Agricul Envrmtl & Develop Econ
Fiscal Unit/Academic Org Agric, Envrmtl & Devlp Econ - D1114
College/Academic Group Food, Agric & Environ Science
Level/Career Undergraduate
Course Number/Catalog 2500
Course Title Introduction to Sustainability
Transcript Abbreviation Intro Sustainbly
Course Description Introduces students to principles from various disciplines 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 diverse perspectives.
Semester Credit Hours/Units Fixed: 4
Previous Value Fixed: 3

Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? Yes
Is any section of the course offered 100% at a distance
Greater or equal to 50% at a distance
Less than 50% at a distance
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
Previous Value Lecture
Grade Roster Component Lecture
Credit Available by Exam No

Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus, Lima, Mansfield, Marion, Newark, Wooster
<i>Previous Value</i>	<i>Columbus</i>

Prerequisites and Exclusions

Prerequisites/Corequisites	Prereq: Soph standing, or permission of instructor.
Exclusions	Not open to students with credit for ENR 2500.
<i>Previous Value</i>	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings	Cross-listed in ENR.
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Subject/CIP Code

Subject/CIP Code	01.0103
Subsidy Level	Baccalaureate Course
Intended Rank	Sophomore, Junior, Senior

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors
Sustainability
The course is an elective (for this or other units) or is a service course for other units

Previous Value

*Required for this unit's degrees, majors, and/or minors
The course is an elective (for this or other units) or is a service course for other units*

Course Details

Course goals or learning objectives/outcomes

- Recall and critically assess various definitions of sustainability and sustainable development
- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Describe how a scientific approach is important for examining 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 hinder achievement of a sustainable society.
- 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.

Content Topic List

- Overview of the Anthropocene & Introduction to Sustainability: General overview, definitions and key concepts
- Economic and business concepts and overview of development, poverty, community & inequality
- Introduction to consumption and why we consume
- Business perspectives on consumption
How can we consume more sustainably?
- Introduction to Water
The economics of water quality and quantity
- Water, communities and international development
- Business and Water
- Introduction to Climate/Energy
Climate/Energy - economics and business
- Climate/Energy and international development
- Introduction to biodiversity and sustainable community development
- Communities & Conservation
- Biodiversity and economics
- Synthesis & integration - returning to the pillars of sustainability

Previous Value

- *Introduction to Sustainability I:*
General overview, definitions and key concepts
- *Introduction to Sustainability II – Economic and business concepts and overview of development*
- *Introduction to consumption and why we consume*
- *Business perspectives on consumption*
How can we consume more sustainably?
- *Introduction to Water*
The economics of water quality and quantity
- *Water, communities and international development*
- *Business and Water*
- *Introduction to Climate/Energy*
Climate/Energy - economics and business
- *Climate/Energy and international development*
- *Introduction to biodiversity and sustainable community development*
- *Biodiversity and international development*
- *Biodiversity and economics*

Sought Concurrence

No

Attachments

- ENR_AEDE _2500_ interdisciplinary-team-taught-inventory.pdf
(Other Supporting Documentation. Owner: Zimmerman, Kathleen D)
- ENR_AEDE_2500_GE_Sustainability Theme.pdf
(Other Supporting Documentation. Owner: Zimmerman, Kathleen D)
- ENR_AEDE 2500_Distance Approval Cover Sheet_For Online Section.docx
(Other Supporting Documentation. Owner: Zimmerman, Kathleen D)
- ENR_AEDE 2500_Distance Approval Cover Sheet_in person offering.docx
(Other Supporting Documentation. Owner: Zimmerman, Kathleen D)
- ENR_AEDE 2500_Syllabus for GE approval_FINAL_SF[40].docx
(Syllabus. Owner: Zimmerman, Kathleen D)
- ENR_AEDE 2500_Syllabus for GE approval_FINAL_SF_online version.docx
(Syllabus. Owner: Zimmerman, Kathleen D)

Comments

- Revise as per COAA via email message 7 February 2022
- Revise as per email 28 January 2022 *(by Osborne, Jeanne Marie on 02/07/2022 03:57 PM)*
- Sara Fries submitted on behalf of ENR. *(by Zimmerman, Kathleen D on 01/24/2022 01:52 PM)*

COURSE CHANGE REQUEST
2500 - Status: PENDING

Last Updated: Osborne, Jeanne Marie
02/11/2022

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Zimmerman, Kathleen D	01/24/2022 01:53 PM	Submitted for Approval
Approved	Roe, Brian Eric	01/24/2022 02:05 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	01/28/2022 10:53 AM	College Approval
Submitted	Zimmerman, Kathleen D	02/03/2022 02:49 PM	Submitted for Approval
Approved	Roe, Brian Eric	02/03/2022 02:56 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	02/07/2022 03:57 PM	College Approval
Submitted	Zimmerman, Kathleen D	02/11/2022 03:09 PM	Submitted for Approval
Approved	Roe, Brian Eric	02/11/2022 03:17 PM	Unit Approval
Approved	Osborne, Jeanne Marie	02/11/2022 03:23 PM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	02/11/2022 03:23 PM	ASCCAO Approval

ENR / AEDE 2500

Introduction to Sustainability Fall 2022

Course Information

- **Course times and location:**
 - Lectures: No required schedule meetings; all instruction occurs in Carmen each week
 - Laboratory: Sections will meet at specified time dictated by the section in which students enrolled
- **Credit hours:** 4
- **Mode of delivery:** Online
 - Lectures: Asynchronous
 - Laboratory: Synchronous

Instructors

- **Name:** TBD
- **Email:** TBD
- **Phone Number:** TBD
- **Office location:** TBD
- **Office hours:** TBD
- **Preferred means of communication:**
 - Our preferred method of communication for questions is **email**.
 - Our class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Teaching Assistant

- **Name:** TBD
- **Email:** TBD
- **Recitation times:** TBD

Course Prerequisites

None



Course Description

This course introduces students to 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.

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 students to skills and concepts necessary for a fruitful career in sustainability and for 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.

Learning Outcomes

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.
- 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 introduces 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.

How This Course Works

Mode of delivery: This course is 100% online. For lecture periods, there are no required sessions when you must be logged in to Carmen at a scheduled time. **Laboratory sections are synchronous so students must attend the lab section during the allotted time. This time will depend on the section in which a student enrolled.** All laboratory activities will happen online with discussions happening synchronously via zoom. Discussions may involve the full lab section or smaller peer groups that will have discussions in breakout rooms.

Pace of online activities: This course is divided into **weekly modules** that are released one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. The only regularly scheduled meetings are the laboratory sections which will be held online at the specified time.

Credit hours and work expectations: This is a 4 credit-hour course. According to [Ohio State bylaws on instruction](http://go.osu.edu/credithours) (go.osu.edu/credithours), students should expect around 5 hours per week of time spent on direct instruction (instructor content, laboratory exercises, and Carmen activities, for example) in addition to 7-8 hours of homework (reading and assignment preparation, for example) to receive a grade of [C] average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, we expect that students will attend lecture and lab sections and regularly contribute to class discussions.

- **Participating in online activities for attendance: at least once per week**
You are expected to log in to the course in Carmen every week. During most weeks you will probably log in many times. If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Zoom meetings and office hours: optional**
All live, scheduled events for the course, including my office hours, are optional. I will post recordings of synchronous sessions for those who cannot attend.



- **Participating in discussion forums: two or more times per week**
As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.
- **Participating in Laboratory meetings: weekly**
As part of your grade, you are expected to join your laboratory group on a weekly basis, at the scheduled time, to engage in lab activities and discussions.

Course Materials, Fees and Technologies

Required Materials and/or Technologies

- There is no required textbook and there are no required technologies beyond those that are necessary for logging into the course website on Carmen

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested
- **Microphone:** built-in laptop or tablet mic or external microphone
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](https://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](https://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.
- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.



If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (go.osu.edu/video-assignment-guide)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu



Grading and Faculty Response

How your grade is calculated

Assignment category	Points
Homework 1: “Six words” for sustainability	40
Homework 2: Driving patterns and consumption	40
Homework 3: Klamath basin dams	40
Homework 4: Corporate sustainability	40
Homework 5: GMOs, land use, and biodiversity	40
Homework 6: New ideas for sustainability	40
12 weekly quizzes (5 pts each)	60
Lab section assignments (7 assignments – 10 pts each)	70
Mid-term exam 1	50
Mid-Term exam 2	50
Final Exam	100
Participation in Lab Discussions	100
Total	670

See course schedule, below, for due dates.

Descriptions of Major Course Assignments

WRITTEN HOMEWORK ASSIGNMENTS

Six homework assignments will be provided during the term. These homework assignments focus on developing your critical thinking skills by providing you with an opportunity to apply the material learned in the modules to real world situations. These assignments are a combination of data analysis and written responses to questions/prompts that are provided as part of the assignment materials. See the course website for details and rubrics for each assignment.

Academic integrity and collaboration: Homework assignments are open book but must be completed individually and without the help of other individuals. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work. Plagiarized work will be reported to the Committee on Academic Misconduct; details can be found in the statement of Ohio State's Academic Integrity Policy on p.11 of this syllabus.

LABORATORY SECTION ASSIGNMENTS

On multiple occasions, written homework assignments will be discussed in lab sections. On the weeks when there is no written homework assignment, there will be short assignments (discussion questions, video submissions, etc.) that you will be required to submit before the beginning of lab. These short assignments will be used to demonstrate your understanding of the assigned reading, listening or viewing materials as well as to initiate discussions and introduce you to the topic of that week's lab. Details for these assignments can be found in the laboratory section schedule below and on the Carmen site for the course.

Academic integrity and collaboration: Your laboratory section assignments should be your own original work. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work. Plagiarized work will be reported to the Committee on Academic Misconduct; details can be found in the statement of Ohio State's Academic Integrity Policy on p.11 of this syllabus.

PARTICIPATION IN LABORATORY DISCUSSIONS

Most lab sessions will include a discussion based on the written assignments that are submitted for that lab period and/or activities that are conducted in lab on that day. These discussions will be structured around questions/prompts that are provided by the instructors and/or by students. Students will be graded based on the quality and frequency of their participation in both small group and full-class discussions and their ability to demonstrate attributes of critical thinking about the focal topic of the day. This includes participating in discussion board threads as well as synchronous zoom discussions. In the event that a student has an excused absence during a lab section, they will be permitted to submit written responses to the discussion prompts that were used in class.



WEEKLY QUIZZES

There are 12 timed and graded online quizzes during the term. They are required and will be due by 11:59pm on the Sunday of the week they are assigned. Quiz questions may consist of true/false, multiple choice and short answer questions. All quizzes will be taken online using Carmen and you will have 45 minutes to complete the quizzes. If you do not take the quiz before it closes, you will earn a grade of 0%. Quiz questions will come from lectures, reading material, or other materials (e.g., videos or podcasts) that are assigned for that week.

Academic integrity and collaboration: Each student must complete the quiz on her or his own. You are NOT permitted to receive assistance from anyone else during the quiz. You are NOT permitted to take a quiz as part of a group. You are on your honor to complete the quizzes on your own without help from another person. You ARE permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the exam. Additional details will be provided during the semester.

ONLINE EXAMS

There are 3 timed and graded online exams during the term. Examinations may consist of true/false, multiple choice, and short answer questions. All exams will be taken online using **Carmen**. Exams will be open on Carmen for approximately 24 hours and you can take the exam anytime during these 24 hours. You will be given 80 minutes to complete the exam. This is the typical time that would be allowed if the exam were given in a regular classroom setting. If you fail to complete the exam on Carmen before it closes you will earn a grade of 0%. A significant number of exam questions will come from material presented in lectures. Additional material will be drawn from the readings, videos, or other assigned materials. The final exam will be longer and comprehensive. Students will have additional time that matches the length of an in-person final exam period, to complete the final exam. Excuses for missing an exam must be presented to the instructors prior to the exam when at all possible.

Academic integrity and collaboration: Each student must complete the exam on her or his own. You are NOT permitted to receive assistance from anyone else during the exam. You are NOT permitted to take the exams as part of a group. You ARE permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the exam. Additional details will be provided during the semester.

There are **NO make-up exams** except for valid reasons (e.g., medical excuse). If you are sick, you must have a note signed by your medical doctor (i.e. a licensed physician)



and dated the same day as the exam and excusing you from the 24-hour period that the exam is open. Otherwise, you will receive a 0 on the exam. The instructor will determine if your excuse is valid. If you do **not** have a reasonable excuse for missing an exam, then you will receive a zero for the exam. Approved make-up exams will consist of multiple choice, short-answer and essay questions.

Late Assignments

Please refer to Carmen for due dates. To receive full credit, work must be turned-in on time and in condition to be evaluated. Late assignments will incur a deduction of 10% of the total point value for each 24-hour period that they are late (including weekends). Late assignments can be turned in for up to 7 days (including weekends) after they are due with the penalty described above. After that, students will receive a 0 for the assignment. Excuses for missed or late assignments – even valid ones – will not be accepted more than 7 days after the assignment due date.

Extenuating circumstances sometimes occur. Students who miss an assignment due to a legitimate reason (e.g., emergency, hospital visit, extended illness) should contact the instructors as soon as possible and provide documentation to request permission to make-up an assignment. Accommodations will be made on a case-by-case basis. If approved, the student will not be penalized for a late submission and the student must make up the missed assignment within a time frame specified by the instructor.

Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact either of us first through our Ohio State email addresses. One of us will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** We will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](http://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, we will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

93–100: A	80–82.9: B-	67–69.9: D+
90–92.9: A-	77–79.9: C+	60–66.9: D
87–89.9: B+	73–76.9: C	Below 60: E



83–86.9: B

70–72.9: C-

Other Course Policies

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online. I will provide specific guidance for discussions on controversial or personal topics.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.
- **Synchronous sessions (laboratory only):** During our Zoom laboratory sessions I ask you to use your real name and a clear photo of your face in your Carmen profile. When in breakout rooms or other small-group discussions, having cameras and mics on as often as possible will help you get the most out of activities. You are always welcome to use the [free, Ohio State-themed virtual backgrounds](https://go.osu.edu/zoom-backgrounds) (go.osu.edu/zoom-backgrounds). Remember that Zoom and the Zoom chat are our classroom space where respectful interactions are expected.]

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, 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. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

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, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

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:

- [Committee on Academic Misconduct](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu



The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Diversity Statement

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <http://mcc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://equity.osu.edu/>.

Your Mental Health

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

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Disability Accommodations

The university strives to make all learning experiences as accessible as possible. 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. 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.

Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: slds.osu.edu

- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](http://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](http://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)



Course Schedule

- Information on assigned readings can be found on the Carmen site in the module for each week. Due dates for all assignments, discussions and quizzes will be clearly indicated on the Carmen site for the class.

LECTURE SCHEDULE

Week	Topics	Assignments & Quizzes
1	Introduction to Sustainability I: General overview, definitions and foundational concepts	Weekly Quiz 1
2	Introduction to Sustainability II –introduction to economic and business concepts and overview of development, poverty, community & inequality	Weekly Quiz 2 Homework 1: Six words for sustainability
3	Introduction to consumption and social, psychological, and anthropological perspectives on why we consume	Weekly Quiz 3
4	Business perspectives on consumption How can we consume more sustainably?	Weekly Quiz 4
5	How can we consume more sustainably II?	Weekly Quiz 5 Homework 2: Driving patterns and consumption
6	Introduction to Water: The economics of water quality and quantity	Weekly Quiz 6
7	Water, communities and international development	Midterm Exam 1

Week	Topics	Assignments & Quizzes
8	Business and Water	Weekly Quiz 7 Homework 3: Klamath Dams
9	Introduction to Climate/Energy Climate/Energy - economics and business	Weekly Quiz 8
10	Climate/Energy economics and business II	Weekly Quiz 9 Homework 4: Corporate sustainability
11	Climate/Energy and community / international development	Weekly Quiz 10
12	Introduction to biodiversity and sustainable community development	Midterm Exam 2
13	Biodiversity and international development	Weekly Quiz 11 Homework 5: new ideas for sustainability
14	Biodiversity and economics	Weekly Quiz 12 Homework 6: GMOs and Biodiversity
15	Course synthesis and wrap-up	

LAB SECTION SCHEDULE

The laboratory component of this course is equivalent to 1-credit-hour. According to [Ohio State policy](#), students should expect to spend 2 hours per week in this laboratory. A student's 2-hour-work week includes direct instruction, taking notes, studying, readings, assignments, group work and completing labs.

The activities and discussions outlined below will take place individually and in online discussion groups with your lab section. Within each lab section, **peer groups** for online discussions will be created by using the Carmen Learning Management System to randomly divide enrolled students into groups of 4-5. Students will maintain group membership throughout the semester, which helps to form community within the course.

Items labeled as “Lab Section discussions” in the descriptions below will function as a common discussion for all students in a lab section. For items labeled as “Peer groups”, students in the online section will work with their smaller, peer groups within their lab section.

Laboratory Topics, Activities, and Assessments

LAB 1

Preparation: No assigned materials

Exercise: Introductions and Sustainability Graffiti.

Lab section discussion - Students introduce themselves and discuss their backgrounds, interests, and perspectives on sustainability. Students then walk around the room and write responses to a set of up to 15 posted prompts.

Peer groups will be assigned a prompt and must summarize and comment on the responses to that prompt. These summaries will be shared with the class.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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

LAB 2

Preparation: Submit homework #1

Exercise: Lab section discussion of 6 six words assignment submissions. Students will present their six words and read their justification for the phrase they chose. As a class, students will compare, contrast and categorize the phrases – including a set of past student submissions - creating a conceptual map of the different perspectives on sustainability that have emerged.

Peer groups will then link the phrases to the definitions, depictions and conceptualizations of sustainability that were introduced in lecture as well as the foundational pillars for the class.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Recall and critically assess various depictions, definitions, and conceptualizations of sustainability, sustainable development, and resilience.

LAB 3

Preparation: Watch short video on Gross National Happiness in Bhutan, re-read articles on alternative measures of GDP and submit a 1-minute video of critiques of GDP based on their own internet research.

<https://www.youtube.com/watch?v=XAaNaJQVNoY>

<https://www.youtube.com/watch?v=sAtMqwh21Eo>

https://www.youtube.com/watch?v=zhWkTiMVWVI&feature=player_embedded

<https://stories.council.science/stories-human-development/3/>

Exercise: Peer groups will use longitudinal datasets provided by the instructors to compare and contrast GDP with alternative measures of development (where alternative measures (Human Development Index, Social Progress Index, Happy Planet Index, Gross National Happiness Index, etc.). Based on their exploration of the data, **peer groups** must develop a list of pros and cons of using alternative measures as well as a summary of whether and how policy decisions would be different if based on these alternative measures.

Evaluation: Lab assignment 1 (1 min video) and participation

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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

LAB 4

Preparation: Listen to assigned Ezra Klein podcast with James Suzman:

<https://www.nytimes.com/2021/06/29/opinion/ezra-klein-podcast-james-suzman.html>

Watch the 21 hours video by NEF: <https://www.youtube.com/watch?v=580Vyl6hFmo>

After listening to, and viewing, the assigned podcast and video, individual students must submit three points of agreement and three points with which they disagree. Students must also submit three discussion questions.

Exercise: Based on materials submitted by the students, students will start in **small groups** discussing perspectives on work and employment in our society and the relationship between work, consumption and sustainability. Student groups will link their arguments to the 12 foundational pillars for the course paying special attention to *time, systems thinking, tradeoffs, the business drivers of sustainability, externalities, individual vs structural change, governance, power and inequality, and social dilemmas*. Student groups will discuss the implications of changes to normal work structures in our society.

Lab section discussion: Each group will summarize and present their discussion, which will precipitate a full class discussion

Evaluation: Lab assignment 2 (discussion questions) and participation in discussion

Learning Outcomes Met:

- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability

LAB 5

Preparation: Submit homework #2 on CO2 emissions related transportation and driving behavior

Exercise: Peer groups will discuss and critically evaluate responses to homework and link responses to the 12 foundational pillars for the course, paying special attention to *systems thinking, technology and efficiency vs behavioral change, externalities, time, tradeoffs, and individual vs structural change, and governance, power and inequality*. Small groups must then pick one of three modes of transportation for which they use data to calculate CO2 emissions for Ohio residents and outline the tradeoffs associated with increasing the use of those modes of transportation: (i) electric vehicles, (ii) airplanes, (iii) rail (light and long-distance)

Evaluation: Participation in discussion

Learning Outcomes Met:

- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- 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

LAB 6

Preparation: Read report on Economic Value of Natural Areas in Ohio and view the Youtube video "How are countries Doing Natural Capital Accounting?"

<https://aede.osu.edu/https%3A/aede.osu.edu/faculty-outreach/economic-value-natural-areas-ohio>

<https://www.youtube.com/watch?v=sg-xu31Emws>

Exercise: During the lab, individual students will use the data provided in Carmen to value natural capital on campus (e.g., the Olentangy river corridor, grassed common areas, trees, retention ponds and water courses). The lab will include instructions on how to use a worksheet to value natural capital. In addition to valuing natural capital, students will be asked to consider a set of policy scenarios that change infrastructure on campus. They will be asked to evaluate the tradeoffs associated with the policy scenarios in terms of key university outputs (e.g., improvements to educational opportunities), environmental outputs as measured by natural capital, and social and equity outputs. Students will present the results of their analysis to the whole lab section and discuss the results.

Evaluation: Lab assignment 3 (written answers submitted at the end of the section) and participation in discussion

Learning Outcomes Met:

- Describe a how a scientific approach is important for examiningto 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
- 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

LAB 7

Preparation: Submit homework #3 on tradeoffs over ecosystem services in the Klamath Basin.

Exercise: The homework will prepare students for the multi-attribute utility theory (MAUT) exercise that we will conduct during the laboratory session. The objective of the exercise is to show students how MAUT can be used effectively to identify opportunities for improved social outcomes when difficult and contentious tradeoffs exist between groups. We will focus on surface water allocation and removal of four dams in the upper part of the basin. Students were assigned a specific role when they did their homework (farmer, sport angler, commercial fishery, Native American in tribe with historical rights, and Audubon society member from Portland, Oregon), and they will work with other students in their role. Students will answer a series of questions about their objectives, their views on the outcomes associated with removing the dams, and how they rank the outcomes. The instructor will use the resulting information to quantify a preferred outcome or set of preferred outcomes based on the results. Students will then discuss, as a class, and critically evaluate whether dams should be removed based on this assessment. The final discussion will include additional review of other approaches to collaborative decision-making.

Evaluation: Participation in lab work and discussion

Learning Outcomes Met:

- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability

LAB 8

Preparation: Read assigned readings on life-cycle assessment.

Exercise: Students will be assigned one of three products (ethanol, cardboard boxes, red meat) and spend the first part of the lab researching the product on the internet to find information on the life-cycle effects on carbon-equivalent emissions. Students will then team

up with other students who assessed the same product and discuss about how life-cycle analysis can be used to influence consumption decisions, supply chain decisions, or policies that society adopts. Each student will present the results of their analysis and discussion to the rest of the group.

Evaluation: Lab assignment 4 (life cycle analysis submission) and participation in discussion.

Learning Outcomes Met:

- 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.
- 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

LAB 9

Preparation: Read McKinsey study on the evolution of sustainability metrics in business amid growing concern about whether they need to be standardized. **Submit homework #4** on the Coca-Cola company corporate sustainability report (note that the specific company report will be rotated from year to year).

Exercise: In lab, students will evaluate the sustainability criteria/metrics that Coca-Cola reported and used. **Peer groups** will work with each other to answer a series of questions about various outcomes in the report. The questions will ask students to report back on several pros and cons associated with each outcome or measurement. We will select a range sustainability goals, i.e., those that address equity and inclusion as well as environmental stewardship and students will be required to address pros and cons of each of them. Each group will then report out to the whole group for broader discussion.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Recall and critically assess various depictions, definitions, and conceptualizations of sustainability, sustainable development, and resilience.
- 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 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

LAB 10

Preparation: Read assigned article and watch assigned videos describing REDD+ and potential impacts of REDD+ on indigenous communities. Referring to lecture material on payments for ecosystem services, create a list of three pros and three cons of using REDD+ as a tool for carbon sequestration as well as three discussion questions.

<https://www.youtube.com/watch?v=4Z4TIC1ObUI>

<https://www.youtube.com/watch?v=FPFPUhsWMaQ>

Larson et al. 2013 – Land Tenure and REDD+: The Good, the Bad and the Ugly

Exercise: Based on the assigned materials and written submissions, **peer groups** will discuss the pros and cons of REDD+ and link this approach with the 12 foundational pillars for the class, playing special attention to *governance, power and inequality, systems thinking, and tradeoffs*. **Per groups** will then use data to calculate the impact on CO₂ levels and future climate change for one of three proposed strategies: (i) carbon sequestration through large-scale afforestation and forest management efforts (like REDD+), (ii) solar geoengineering, and (iii) technologically-based carbon capture and sequestration. Each group will present their calculations and the class will discuss each approach.

Evaluation: **Lab assignment 5** (pros and cons list and discussion questions) and participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 11

Preparation: Watch the documentary “Milking the Rhino” (available through university libraries) and write 3 discussion questions.

Exercise: As individuals, students will respond to a set of discussion questions about the film, including ones submitted by their classmates. **Peer groups** will then discuss their responses and critically evaluate community-based conservation and eco-tourism as strategies for biodiversity conservation. Groups will be asked to pay special attention to differences in cultural perspectives on wildlife, cross-cultural tensions created by eco-tourism, gender differences in community-level governance and the long-term effects of development. Students will also be asked to think these strategies to the 12 foundational pillars for the course, with a focus on *social dilemmas, systems thinking, tradeoffs, and governance, power and inequality*

Evaluation: Lab assignment 6 (written discussion questions) and participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 12

Preparation: Submit homework #5 on sustainability innovations. Listen to Ezra Klein Podcast with L.M. Sacasas on the 41 Questions we should ask of the technologies and tools that shape our lives.

<https://www.nytimes.com/2021/08/03/opinion/ezra-klein-podcast-lm-sacasas.html>

Exercise: Each student presents their innovation and associated write-up by submitting 2-3 minute videos on Carmen. The students in the section will discuss each innovation that has been presented in light of the information provided in the podcast above as well as the foundational pillars from class. The class will also critically analyze innovations that have been submitted by previous classes

Evaluation: Homework submission and participation

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 13

Preparation: Submit homework #6 GMOs, agriculture and biodiversity and re-read assigned articles for homework #6

Exercise: In the laboratory section, students are placed into groups with a mix of stakeholder perspectives. The stakeholder perspectives were assigned for the homework assignment, and students answered questions on the homework from the perspective of the specific stakeholder. Each group will then be assigned as an organization (and NGO, a government regulatory agency, or a company), and each group will have to devise a 25-100 word maximum policy statement about the use of GMOs on Bangladesh rice farms. Each stakeholder must agree with the policy statement. The groups will present their policy statements and defend them.

Evaluation: Homework submission and participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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

LAB 14

Preparation: No assigned materials

Exercise: Students will come to class with their original six words for sustainability assignment submission. Students will determine whether they still agree with their original six-word phrase. Students will have the opportunity to craft a new phrase based on what they have learned throughout the course. In addition, they will write an explanation of 200-400

words about why you chose to keep or change their original phrase. Students will discuss their new phrases and justifications in **peer groups** and will be asked to focus on the key aspects of the class that resulted in a new phrase and perspective – or – the reasons that their original phrase aligns with the core material from the class.

Evaluation: Lab assignment 7 (six words revision) and participation in discussion

Learning Outcomes Met:

- 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.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability



ENR / AEDE 2500

Introduction to Sustainability Fall 2022

Course Information

- **Course times and location:**
 - Lectures: Tuesdays and Thursdays, 12:45 pm – 2:05pm.
 - Laboratory: 2 hours, 1x per week; See section in which you are enrolled for time
- **Credit hours:** 4
- **Mode of delivery:** In-person or Hybrid
 - Lectures: In person
 - Laboratory: In person unless enrolled in an online section (synchronous)

Instructors

- **Name:** Jeremy Brooks
- **Email:** brooks.719@osu.edu
- **Phone Number:** 614-292-9786
- **Office location:** 469D Kottman Hall
- **Office hours:** TBD

- **Name:** Brent Sohngen
- **Email:** sohngen.1@osu.edu
- **Phone Number:** 614-688-4640
- **Office location:** 322 Ag Admin Bldg
- **Office hours:** TBD
- **Preferred means of communication:**
 - Our preferred method of communication for questions is **email**.
 - Our class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Teaching Assistant

- **Name:** TBD



- **Email:** TBD
- **Recitation times:** TBD

Course Prerequisites

None

Course Description

This course introduces students to 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.

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 students to skills and concepts necessary for a fruitful career in sustainability and for 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.

Learning Outcomes

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.
- 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 introduces 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.

How This Course Works

Mode of delivery: We will meet in person for lectures twice a week (Tuesdays and Thursdays) for 80 minutes. In addition, you will attend a two-hour laboratory section once a week. Lab sections will meet in person or online depending on the section in which you enrolled. The online lab section will be synchronous

Credit hours and work expectations: This is a 4 credit-hour course. According to [Ohio State bylaws on instruction](http://go.osu.edu/credithours) (go.osu.edu/credithours), students should expect around 5 hours per week of time spent on direct instruction (instructor content, laboratory exercises, and Carmen activities, for example) in addition to 7-8 hours of homework (reading and assignment preparation, for example) to receive a grade of [C] average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, we expect that students will attend lecture and lab sections and regularly contribute to class discussions.

Course Materials, Fees and Technologies

Required Materials and/or Technologies

- There is no required textbook and there are no required technologies beyond those that are necessary for logging into the course website on Carmen

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested
- **Microphone:** built-in laptop or tablet mic or external microphone
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](https://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](https://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.
- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)



- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (go.osu.edu/video-assignment-guide)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu



Grading and Faculty Response

How your grade is calculated

Assignment category	Points
Homework 1: “Six words” for sustainability	40
Homework 2: Driving patterns and consumption	40
Homework 3: Klamath basin dams	40
Homework 4: Corporate sustainability	40
Homework 5: GMOs, land use, and biodiversity	40
Homework 6: New ideas for sustainability	40
12 weekly quizzes (5 pts each)	60
Lab section assignments (7 assignments – 10 pts each)	70
Mid-term exam 1	50
Mid-Term exam 2	50
Final Exam	100
Participation in Lab Discussions	100
Total	670

See course schedule, below, for due dates.

Descriptions of Major Course Assignments

WRITTEN HOMEWORK ASSIGNMENTS

Six homework assignments will be provided during the term. These homework assignments focus on developing your critical thinking skills by providing you with an opportunity to apply the material learned in the modules to real world situations. These assignments are a combination of data analysis and written responses to questions/prompts that are provided as part of the assignment materials. See the course website for details and rubrics for each assignment.



Academic integrity and collaboration: Homework assignments are open book but must be completed individually and without the help of other individuals. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work. Plagiarized work will be reported to the Committee on Academic Misconduct; details can be found in the statement of Ohio State's Academic Integrity Policy on p.11 of this syllabus.

LABORATORY SECTION ASSIGNMENTS

On multiple occasions, written homework assignments will be discussed in lab sections. These assignments are a combination of data analysis and written responses to questions/prompts that are provided as part of the assignment materials. On the weeks when there is no written homework assignment, there will be short assignments (discussion questions, video submissions, etc.) that you will be required to submit at the beginning of lab. These short assignments will be used to demonstrate your understanding of the assigned reading, listening or viewing materials as well as to initiate discussions and introduce you to the topic of that week's lab. Details for these assignments can be found in the laboratory section schedule below and on the Carmen site for the course.

Academic integrity and collaboration: Your laboratory section assignments should be your own original work. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work. Plagiarized work will be reported to the Committee on Academic Misconduct; details can be found in the statement of Ohio State's Academic Integrity Policy on p.11 of this syllabus.

PARTICIPATION IN LABORATORY DISCUSSIONS

Most lab sessions will include a discussion based on the written assignments that are submitted for that lab period and/or activities that are conducted in lab on that day. These discussions will be structured around questions/prompts that are provided by the instructors and/or by students. Students will be graded based on the quality and frequency of their participation in both small group and full-class discussions and their ability to demonstrate attributes of critical thinking about the focal topic of the day. In the event that a student has an excused absence during a lab section, they will be permitted to submit written responses to the discussion prompts that were used in class.



WEEKLY QUIZZES

There are 12 timed and graded online quizzes during the term. They are required and will be due by 11:59pm on the Sunday of the week they are assigned. Quiz questions may consist of true/false, multiple choice and short answer questions. All quizzes will be taken online using Carmen and you will have 45 minutes to complete the quizzes. If you do not take the quiz before it closes, you will earn a grade of 0%. Quiz questions will come from lectures, reading material, or other materials (e.g., videos or podcasts) that are assigned for that week.

Academic integrity and collaboration: Each student must complete the quiz on her or his own. You are NOT permitted to receive assistance from anyone else during the quiz. You are NOT permitted to take a quiz as part of a group. You are on your honor to complete the quizzes on your own without help from another person. You ARE permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the exam. Additional details will be provided during the semester.

ONLINE EXAMS

There are 3 timed and graded online exams during the term. Examinations may consist of true/false, multiple choice, and short answer questions. All exams will be taken online using **Carmen**. Exams will be open on Carmen for approximately 24 hours and you can take the exam anytime during these 24 hours. You will be given 80 minutes to complete the exam. This is the typical time that would be allowed if the exam were given in a regular classroom setting. If you fail to complete the exam on Carmen before it closes you will earn a grade of 0%. A significant number of exam questions will come from material presented in lectures. Additional material will be drawn from the readings, videos, or other assigned materials. The final exam will be longer and comprehensive. Students will have additional time that matches the length of an in-person final exam period, to complete the final exam. Excuses for missing an exam must be presented to the instructors prior to the exam when at all possible.

Academic integrity and collaboration: Each student must complete the exam on her or his own. You are NOT permitted to receive assistance from anyone else during the exam. You are NOT permitted to take the exams as part of a group. You ARE permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the exam. Additional details will be provided during the semester.



There are **NO make-up exams** except for valid reasons (e.g., medical excuse). If you are sick, you must have a note signed by your medical doctor (i.e. a licensed physician) and dated the same day as the exam and excusing you from the 24-hour period that the exam is open. Otherwise, you will receive a 0 on the exam. The instructor will determine if your excuse is valid. If you do **not** have a reasonable excuse for missing an exam, then you will receive a zero for the exam. Approved make-up exams will consist of multiple choice, short-answer and essay questions.

Late Assignments

Please refer to Carmen for due dates. To receive full credit, work must be turned-in on time and in condition to be evaluated. Late assignments will incur a deduction of 10% of the total point value for each 24-hour period that they are late (including weekends). Late assignments can be turned in for up to 7 days (including weekends) after they are due with the penalty described above. After that, students will receive a 0 for the assignment. Excuses for missed or late assignments – even valid ones – will not be accepted more than 7 days after the assignment due date.

Extenuating circumstances sometimes occur. Students who miss an assignment due to a legitimate reason (e.g., emergency, hospital visit, extended illness) should contact the instructors as soon as possible and provide documentation to request permission to make-up an assignment. Accommodations will be made on a case-by-case basis. If approved, the student will not be penalized for a late submission and the student must make up the missed assignment within a time frame specified by the instructor.

Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact either of us first through our Ohio State email addresses. One of us will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** We will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](http://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, we will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

93–100: A	80–82.9: B-	67–69.9: D+
90–92.9: A-	77–79.9: C+	60–66.9: D
87–89.9: B+	73–76.9: C	Below 60: E
83–86.9: B	70–72.9: C-	

Other Course Policies

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online. I will provide specific guidance for discussions on controversial or personal topics.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, 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. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

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, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.



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:

- [Committee on Academic Misconduct](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Diversity Statement

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <http://mcc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://equity.osu.edu/>.

Your Mental Health

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

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Disability Accommodations

The university strives to make all learning experiences as accessible as possible. 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. 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.

Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: slds.osu.edu
- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](https://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](https://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)



Course Schedule

- Information on assigned readings can be found on the Carmen site in the module for each week. Due dates for all assignments, discussions and quizzes will be clearly indicated on the Carmen site for the class.

LECTURE SCHEDULE

Week	Lectures	Topics	Assignments & Quizzes
SECTION I – INTRODUCTION AND BACKGROUND			
1	Lect 1	Class overview and overview of the Anthropocene	
	Lect 2	Introduction to sustainability – definitions and perspectives	Weekly Quiz 1
2	Lect 3	Introduction to sustainability – foundational concepts	Homework 1: Six words for sustainability
	Lect 4	Introduction to economic and business concepts	Weekly Quiz 2 Six words for sustainability comments due
3	Lect 5	Overview of development, poverty, community & inequality	
SECTION II - CONSUMPTION			
3	Lect 6	Introduction to consumption	Weekly Quiz 3
4	Lect 7	Econ and business perspectives on consumption I	
	Lect 8	Econ and Business perspectives on consumption II	Weekly Quiz 4
5	Lect 9	Social, psychological, and anthropological perspectives on why we consume	Homework 2: Driving patterns and consumption
	Lect 10	How can we consume more sustainably I?	Weekly Quiz 5
6	Lect 11	How can we consume more sustainably II?	



SECTION III - WATER			
6	Lect 12	Introduction to Water	Weekly Quiz 6
7	Lect 13	The economics of water quality and quantity	Midterm Exam 1
	Lect 14	Water and community development	Weekly Quiz 7
8	Lect 15	Water and international development	Homework 3: Klamath Dams
		FALL BREAK	
9	Lect 16	Business and Water	
SECTION IV – CLIMATE & ENERGY			
	Lect 17	Introduction to Climate/Energy	Weekly Quiz 8
10	Lect 18	Climate/Energy - economics and business	
	Lect 19	Climate/Energy - economics and business	Weekly Quiz 9 Homework 4: Corporate sustainability
11	Lect 20	Climate/Energy and international development	
	Lect 21	Climate/energy and communities	Weekly Quiz 10
SECTION V – BIODIVERSITY			
12	Lect 22	Introduction to biodiversity	Midterm Exam 2
		VETERAN'S DAY	
13	Lect 23	Biodiversity and sustainable development	Homework 5: New ideas for sustainability (<i>can be submitted at any time before this date</i>)
	Lect 24	Communities and Conservation	Weekly Quiz 11
14	Lect 25	Biodiversity and community development	
		THANKSGIVING	



15	Lect 26	Biodiversity and economics	
	Lect 27	Biodiversity and economics	Weekly Quiz 12 Homework 6: GMOs and Biodiversity
16	Lect 28	Synthesis and integration – returning to the pillars of sustainability	
	Dec 14th	FINAL EXAM: 2:00 – 3:45 pm	

LAB SECTION SCHEDULE

The laboratory component of this course is equivalent to 1-credit-hour. According to [Ohio State policy](#), students should expect to spend 2 hours per week in this laboratory. A student's 2-hour-work week includes direct instruction, taking notes, studying, readings, assignments, group work and completing labs.

For students in the online, synchronous lab section: The activities and discussions outlined below will take place individually and in online discussion groups. Peer groups for online discussions will be created by using the Carmen Learning Management System to randomly divide enrolled students into groups of 4-5. Students maintain group membership throughout the semester, which helps to form community within the course.

Items labeled as “Class discussions” in the lab section descriptions below will function as a common discussion for all students in the online section. For items labeled as “Small groups”, students in the online section will work with their online peer groups.

Laboratory Topics, Activities, and Assessments

LAB 1

Preparation: No assigned materials

Exercise: Introductions and Sustainability Graffiti.

Class discussion - Students introduce themselves and discuss their backgrounds, interests, and perspectives on sustainability. Students then walk around the room and write responses to a set of up to 15 posted prompts.

Small groups will be assigned a prompt and must summarize and comment on the responses to that prompt. These summaries will be shared with the class.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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

LAB 2

Preparation: Submit homework #1

Exercise: Class Discussion of 6 six words assignment submissions. Students will present their six words and read their justification for the phrase they chose. As a class, students will compare, contrast and categorize the phrases – including a set of past student submissions - creating a conceptual map of the different perspectives on sustainability that have emerged.

Small groups of students will then link the phrases to the definitions, depictions and conceptualizations of sustainability that were introduced in lecture as well as the foundational pillars for the class.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Recall and critically assess various depictions, definitions, and conceptualizations of sustainability, sustainable development, and resilience.

LAB 3

Preparation: Watch short video on Gross National Happiness in Bhutan, re-read articles on alternative measures of GDP and submit a 1-minute video of critiques of GDP based on their own internet research.

<https://www.youtube.com/watch?v=XAaNaJQVNoY>

<https://www.youtube.com/watch?v=sAtMqwh21Eo>

https://www.youtube.com/watch?v=zhWkTiMVWVI&feature=player_embedded

<https://stories.council.science/stories-human-development/3/>

Exercise: Small groups of students will use longitudinal datasets provided by the instructors to compare and contrast GDP with alternative measures of development (where alternative measures (Human Development Index, Social Progress Index, Happy Planet Index, Gross National Happiness Index, etc.). Based on their exploration of the data, **small groups** must develop a list of pros and cons of using alternative measures as well as a summary of whether and how policy decisions would be different if based on these alternative measures.

Evaluation: **Lab assignment 1** (1 min video) and participation

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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

LAB 4

Preparation: Listen to assigned Ezra Klein podcast with James Suzman:

<https://www.nytimes.com/2021/06/29/opinion/ezra-klein-podcast-james-suzman.html>

Watch the 21 hours video by NEF: <https://www.youtube.com/watch?v=580Vyl6hFmo>

After listening to, and viewing, the assigned podcast and video, individual students must submit three points of agreement and three points with which they disagree. Students must also submit three discussion questions.

Exercise: Based on materials submitted by the students, students will start in **small groups** discussing perspectives on work and employment in our society and the relationship between work, consumption and sustainability. Student groups will link their arguments to the 12 foundational pillars for the course paying special attention to *time*, *systems thinking*, *tradeoffs*, *the business drivers of sustainability*, *externalities*, *individual vs structural change*, *governance*, *power and inequality*, and *social dilemmas*. Student groups will discuss the implications of changes to normal work structures in our society.

Class discussion: Each group will summarize and present their discussion, which will precipitate a full class discussion

Evaluation: **Lab assignment 2** (discussion questions) and participation in discussion

Learning Outcomes Met:

- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability

LAB 5

Preparation: Submit homework #2 on CO2 emissions related transportation and driving behavior

Exercise: Small groups of students will discuss and critically evaluate responses to homework and link responses to the 12 foundational pillars for the course, paying special attention to *systems thinking, technology and efficiency vs behavioral change, externalities, time, tradeoffs, and individual vs structural change, and governance, power and inequality*. Small groups must then pick one of three modes of transportation for which they use data to calculate CO2 emissions for Ohio residents and outline the tradeoffs associated with increasing the use of those modes of transportation: (i) electric vehicles, (ii) airplanes, (iii) rail (light and long-distance)

Evaluation: Participation in discussion

Learning Outcomes Met:

- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- 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



LAB 6

Preparation: Read report on Economic Value of Natural Areas in Ohio and view the Youtube video "How are countries Doing Natural Capital Accounting?"

<https://aede.osu.edu/https%3A/aede.osu.edu/faculty-outreach/economic-value-natural-areas-ohio>

<https://www.youtube.com/watch?v=sg-xu31Emws>

Exercise: During the lab, individual students will use the data provided in Carmen to value natural capital on campus (e.g., the Olentangy river corridor, grassed common areas, trees, retention ponds and water courses). The lab will include instructions on how to use a worksheet to value natural capital. In addition to valuing natural capital, students will be asked to consider a set of policy scenarios that change infrastructure on campus. They will be asked to evaluate the tradeoffs associated with the policy scenarios in terms of key university outputs (e.g., improvements to educational opportunities), environmental outputs as measured by natural capital, and social and equity outputs. Students will present the results of their analysis to the whole lab section and discuss the results.

Evaluation: Lab assignment 3 (written answers submitted at the end of the section) and participation in discussion

Learning Outcomes Met:

- Describe a how a scientific approach is important for examiningto 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
- 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

LAB 7

Preparation: Submit homework #3 on tradeoffs over ecosystem services in the Klamath Basin.

Exercise: The homework will prepare students for the multi-attribute utility theory (MAUT) exercise that we will conduct during the laboratory session. The objective of the exercise is to show students how MAUT can be used effectively to identify opportunities for improved social outcomes when difficult and contentious tradeoffs exist between groups. We will focus on surface water allocation and removal of four dams in the upper part of the basin. Students were assigned a specific role when they did their homework (farmer, sport angler, commercial fishery, Native American in tribe with historical rights, and Audubon society member from Portland, Oregon), and they will work with other students in their role. Students

will answer a series of questions about their objectives, their views on the outcomes associated with removing the dams, and how they rank the outcomes. The instructor will use the resulting information to quantify a preferred outcome or set of preferred outcomes based on the results. Students will then discuss, as a class, and critically evaluate whether dams should be removed based on this assessment. The final discussion will include additional review of other approaches to collaborative decision-making.

Evaluation: Participation in lab work and discussion

Learning Outcomes Met:

- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability

LAB 8

Preparation: Read assigned readings on life-cycle assessment.

Exercise: Students will be assigned one of three products (ethanol, cardboard boxes, red meat) and spend the first part of the lab researching the product on the internet to find information on the life-cycle effects on carbon-equivalent emissions. Students will then team up with other students who assessed the same product and discuss about how life-cycle analysis can be used to influence consumption decisions, supply chain decisions, or policies that society adopts. Each group will present the results of their analysis and discussion to the rest of the group.

Evaluation: **Lab assignment 4** (life cycle analysis submission) and participation in discussion.

Learning Outcomes Met:

- 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.
- 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



LAB 9

Preparation: Read McKinsey study on the evolution of sustainability metrics in business amid growing concern about whether they need to be standardized. **Submit homework #4** on the Coca-Cola company corporate sustainability report (note that the specific company report will be rotated from year to year).

Exercise: In lab, students will evaluate the sustainability criteria/metrics that Coca-Cola reported and used. **Student groups** will work with each other to answer a series of questions about various outcomes in the report. The questions will ask students to report back on several pros and cons associated with each outcome or measurement. We will select a range sustainability goals, i.e., those that address equity and inclusion as well as environmental stewardship and students will be required to address pros and cons of each of them. Each group will then report out to the whole group for broader discussion.

Evaluation: Participation in discussion

Learning Outcomes Met:

- Recall and critically assess various depictions, definitions, and conceptualizations of sustainability, sustainable development, and resilience.
- 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 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

LAB 10

Preparation: Read assigned article and watch assigned videos describing REDD+ and potential impacts of REDD+ on indigenous communities. Referring to lecture material on payments for ecosystem services, create a list of three pros and three cons of using REDD+ as a tool for carbon sequestration as well as three discussion questions.

<https://www.youtube.com/watch?v=4Z4TIC1ObUI>

<https://www.youtube.com/watch?v=FPFPUhsWMaQ>

Larson et al. 2013 – Land Tenure and REDD+: The Good, the Bad and the Ugly

Exercise: Based on the assigned materials and written submissions, **small groups** will discuss the pros and cons of REDD+ and link this approach with the 12 foundational pillars for the class, playing special attention to *governance, power and inequality, systems thinking, and tradeoffs*. **Student groups** will then use data to calculate the impact on CO₂ levels and future climate change for one of three proposed strategies: (i) carbon sequestration through large-scale afforestation and forest management efforts (like REDD+), (ii) solar



geoengineering, and (iii) technologically-based carbon capture and sequestration. Each group will present their calculations and the class will discuss each approach.

Evaluation: Lab assignment 5 (pros and cons list and discussion questions) and participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 11

Preparation: Watch the documentary “Milking the Rhino” (available through university libraries) and write 3 discussion questions.

Exercise: As individuals, students will respond to a set of discussion questions about the film, including ones submitted by their classmates. **Small groups** will then discuss their responses and critically evaluate community-based conservation and eco-tourism as strategies for biodiversity conservation. Groups will be asked to pay special attention to differences in cultural perspectives on wildlife, cross-cultural tensions created by eco-tourism, gender differences in community-level governance and the long-term effects of development. Students will also be asked to think these strategies to the 12 foundational pillars for the course, with a focus on *social dilemmas, systems thinking, tradeoffs, and governance, power and inequality*

Evaluation: Lab assignment 6 (written discussion questions) and participation in discussion

Learning Outcomes Met:



- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 12

Preparation: **Submit homework #5** on sustainability innovations. Listen to Ezra Klein Podcast with L.M. Sacasas on the 41 Questions we should ask of the technologies and tools that shape our lives.

<https://www.nytimes.com/2021/08/03/opinion/ezra-klein-podcast-lm-sacasas.html>

Exercise: Each student presents their innovation and associated write-up – students in the online section will submit 2-3 minute videos on Carmen. The class will discuss each innovation that has been presented in light of the information provided in the podcast above as well as the foundational pillars from class. The class will also critically analyze innovations that have been submitted by previous classes

Evaluation: Homework submission and participation

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability
- 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

LAB 13

Preparation: **Submit homework #6** GMOs, agriculture and biodiversity and re-read assigned articles for homework #6

Exercise: In the laboratory section, students are placed into groups with a mix of stakeholder perspectives. The stakeholder perspectives were assigned for the homework assignment,

and students answered questions on the homework from the perspective of the specific stakeholder. Each group will then be assigned as an organization (and NGO, a government regulatory agency, or a company), and each group will have to devise a 25-100 word maximum policy statement about the use of GMOs on Bangladesh rice farms. Each stakeholder must agree with the policy statement. The groups will present their policy statements and defend them.

Evaluation: Homework submission and participation in discussion

Learning Outcomes Met:

- Compare and contrast key concepts and ideas in sustainability, economics, business, ecology and conservation biology, and community and international development.
- 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

LAB 14

Preparation: No assigned materials

Exercise: Students will come to class with their original six words for sustainability assignment submission. Students will determine whether they still agree with their original six-word phrase. Students will have the opportunity to craft a new phrase based on what they have learned throughout the course. In addition, they will write an explanation of 200-400 words about why you chose to keep or change their original phrase. Students will discuss their new phrases and justifications in **small groups** and will be asked to focus on the key aspects of the class that resulted in a new phrase and perspective – or – the reasons that their original phrase aligns with the core material from the class.

Evaluation: Lab assignment 7 (six words revision) and participation in discussion

Learning Outcomes Met:

- 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.
- Exhibit independent thinking to understand the environmental, economic, and social components and trade-offs of sustainability

GE THEME COURSES

Overview

Courses that are accepted into the General Education (GE) Themes must meet two sets of Expected Learning Outcomes (ELOs): those common for all GE Themes and one set specific to the content of the Theme. This form begins with the criteria common to all themes and has expandable sections relating to each specific theme.

A course may be accepted into more than one Theme if the ELOs for each theme are met. Courses seeking approval for multiple Themes will complete a submission document for each theme. Courses seeking approval as a 4-credit, Integrative Practices course need to complete a similar submission form for the chosen practice. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

Please enter text in the boxes to describe how your class will meet the ELOs of the Theme to which it applies. Please use language that is clear and concise and that colleagues outside of your discipline will be able to follow. You are encouraged to refer specifically to the syllabus submitted for the course, since the reviewers will also have that document. Because this document will be used in the course review and approval process, you should be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc.

Course subject & number

General Expectations of All Themes

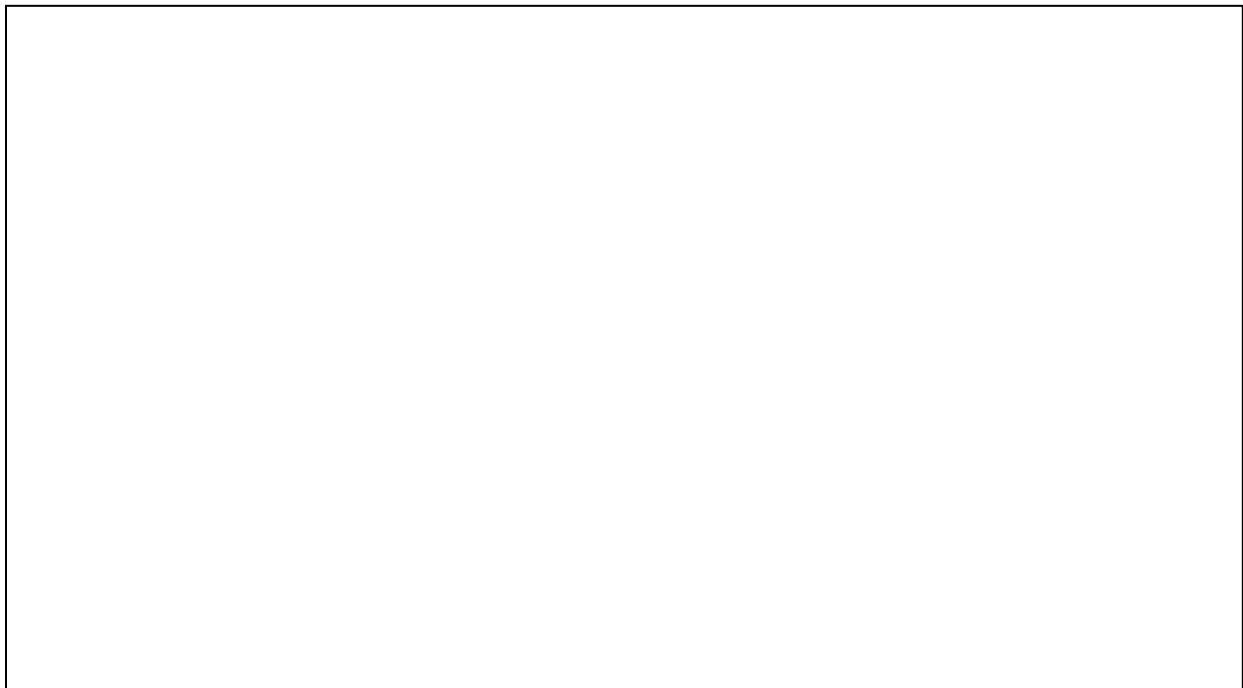
GOAL 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations.

Please briefly identify the ways in which this course represents an advanced study of the focal theme. In this context, “advanced” refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities. *(50-500 words)*

Course subject & number

ELO 1.1 Engage in critical and logical thinking about the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

A large, empty rectangular box with a thin black border, intended for the user to provide the specific activities and assignments linked to the ELOs.

Course subject & number

GOAL 2: Successful students will integrate approaches to the theme 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.

ELO 2.1 Identify, describe, and synthesize approaches or experiences as they apply to the theme.

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

ELO 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.

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course subject & number

Specific Expectations of Courses in Sustainability

GOAL 1: Students analyze and explain how social and natural systems function, interact, and evolve over time; how human wellbeing depends on these interactions; how actions have impacts on subsequent generations and societies globally; and how human values, behaviors, and institutions impact multi-faceted, potential solutions across time.

1.1 Describe elements of the fundamental dependence of humans on Earth and environmental systems and on the resilience of these systems. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course subject & number

1.2 Describe, analyze and critique the roles and impacts of human activity and technology on both human society and the natural world, in the past, currently, and in the future. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

1.3 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. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)