

SUSTAINABLE SOCIAL-ECOLOGICAL SYSTEMS

PLAN-676/UPA-676/PADM-676

Mondays/Wednesdays 3:30-4:45pm (Belknap Davidson Hall Room 107)

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Urban and Public Affairs (room 230)

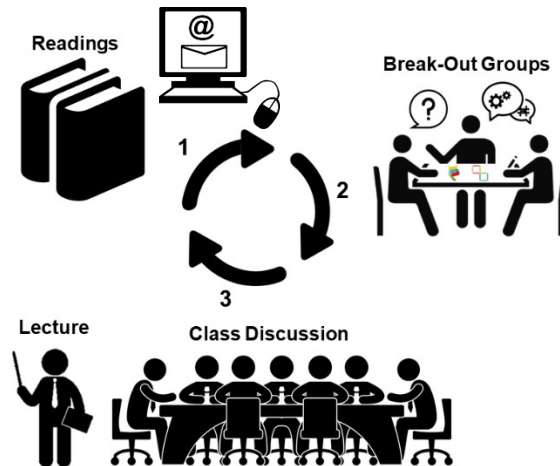
Office Hours: Please email me to make an appointment

COURSE DESCRIPTION

This course examines sustainability problems and processes as embedded within large social-ecological systems and societal frameworks in the U.S. and globally. Students will examine topics in sustainability from a holistic systems perspective, in which “sustainability” is seen to integrate multiple actors, social systems (e.g., culture, economy, politics, and governance), environmental processes, and built/technological infrastructure at multiple scales to achieve human welfare and lasting environmental prosperity (i.e., “social-ecological sustainability.”)

FORMAT

The design of this course is collaborative, exploratory learning. Class time will be used for break-out groups, discussion, and critical thinking and problem-solving activities.



- 1. Readings & Discussion Questions.** We will read and discuss interesting articles. Post your own questions to share on Blackboard. Bring your ideas to class for discussion!
- 2. Break-out Groups.** Each day we will meet to explore and discuss topics related to sustainability of complex social-ecological (societal) systems. The typical class period will start with 20-30 minutes of discussion, or activities, in small break-out groups.
- 3. Class Discussion & Lecture.** Break-out groups will be followed by about 30 minutes of class discussion and supplemental lecture, with additional time (e.g., 15 minutes) for other activities, such as preparation for future assignments.

COURSE OBJECTIVES

My primary goal for this course is that we create a lively, comfortable, and intellectually challenging learning environment. This course will facilitate your understanding of sustainability problems and solutions as part of larger, complex systems in society (i.e., social-ecological systems). This course will also facilitate your development as a responsible citizen and scientifically-informed leader in your community:

A) Sustainable Societal Systems:

1. Conceptualize *sustainability problems* in terms of multiple interacting processes and systems in society (e.g., social, built, and natural). Conceptualize “sustainability” as the interplay of these systems and processes (“*social-ecological sustainability*”).
2. Provide a critical interpretation of how modern civilization resists and can facilitate sustainability. Describe the complexity of the policy environment, power dynamics, stakeholder influences, and issues of equity and social justice in sustainability.
3. Use major principles of sustainability, and conceptual and analytical frameworks, to analyze common sustainability problems holistically: e.g., Nobel Prize winner Elinor Ostrom’s Institutional Analysis & Development Framework.
4. Evaluate sustainability of existing systems (in specific contexts) to propose changes in planning, implementation, or design that would improve sustainability.

B) Interdisciplinary Scholarship and Collaboration:

1. Practice your interdisciplinary communication, collaboration, and research skills. Use multiple perspectives to analyze sustainability problems.
2. Become familiar with sustainability research and practice from multiple disciplines. Critique their methods, to develop better informed solutions.

C) Leadership and Service:

1. Practice leadership in your own education.
2. Work with members of the community to address a sustainability problem.
3. Improve your written and oral communication skills.

STUDENT ENGAGEMENT

Whether or not you achieve these learning objectives is fundamentally dependent on your engagement and participation in the course. I think highly of students and their potential. I will expect you to take an active role in our class discussions, complete the assigned readings to the best of your ability, and regularly share your ideas. Please do what you can to improve the course by showing respect for your classmates; being prepared, on time, and ready to work when class is in session.

ASSIGNMENTS

Summary of Assignments

	<u>Percentage</u>
Project	35
Student Forum (10)	
Presentation (5)	
Paper (20)	
Midterm Exam	20
Participation	25
Discussion	20
Readings (10)	
Weekly Discussion Question (10)	
<hr/>	
Total	100%

I. RESEARCH PROJECT (35%)

The Research Project is the culminating learning experience for the course. It will invite you to combine your interests in sustainability with the concepts, analytical frameworks, and practical knowledge gained during this course to investigate a sustainability topic of your choice. The project will produce an in-class presentation that summarizes the research project and findings, and a written paper.

A. STUDENT FORUM (10%)

For the Student Forum, each graduate student will find an important research article for their project. Then, prepare and present a presentation on the article. We will discuss each article/presentation as a class, to provide feedback and insights. This is a wonderful way for you to receive feedback/insights early in the project, and your classmates to learn about new topics.

There are two components to the assignment:

(1) Reading (5%)

Choose the topic (i.e., sustainability problem/issue). **Get 1 relevant empirical reading.** This is a great opportunity to explore something not covered in the course, or dive deeper into an area already covered. Requirements:

1. Topic is relevant to **sustainability of social-ecological systems**.
2. **New** reading (you have not read it before).
3. The reading is **empirical (i.e., research based)** from a reputable source.
4. **Provide a copy** for me to post to Blackboard for interested students.

Before the assignment is due, provide me with copies of 2-3 possible readings. I will review and help you select the most useful one. Late work will be deducted 25% for each 24-hour period beyond the due date (prorated).

(2) Presentation and Discussion (5%)

Deliver a **10-minute presentation**. Your primary goal for the presentation is to introduce the sustainability topic and the main ideas, contributions, and practical and/or scientific implications of the reading. **Afterward, we will all discuss.**

** See the **Student Forum Grading Rubric** for full assignment details.*

B. PROJECT PRESENTATION (5%)

This will be a presentation of your final project, delivered in the last days of the semester (typically during the “final exam” period).

- The presentation elements are the same as the paper (it’s a summary presentation of your paper), with additional requirements (e.g., clear/effective oral communication, presentation materials).
- The purpose of having a presentation (in addition to the paper) is to share your findings with your classmates, as well as help you prepare for your paper.

C. PROJECT PAPER (20%)

I want to encourage you to develop a research-based paper that could be the foundation for your thesis/dissertation, publications, and public policy. This assignment will also provide you with opportunity for mentorship.

General Guidelines:

1. **Choose the sustainability topic/problem.** This is your opportunity to choose something you are interested in and care about.
2. **Leave ample time to identify new information and synthesize what you are learning.**
3. **You must use the State-Reinforced Self-Governance Framework (see also, Elinor Ostrom’s IAD and SESs frameworks)** as your core analytical framework, in addition to any other frameworks and methodologies you use.

Two (Common) Types of Papers:

- **Case Study.** Describe and evaluate (e.g., diagnose) the fundamental characteristics of a specific real-world problem in sustainability. Use that information to identify potential leverage points for an effective solution.
- **Research Proposal.** Conduct a literature review and gather relevant data (e.g., databases, public policies, government reports) to design a research proposal. In this paper, you would identify an important research question and develop a research design to investigate the question.

**Other types of papers are possible. Please discuss your ideas with the instructor to ensure the greatest success (and that it meets the assignment requirements).*

EXAMPLE FINAL PAPER COMPONENTS

(CASE STUDY)

Problem Introduction

Introduce the sustainability problem (e.g., city-wide energy conservation).

Introduce the sub-system or aspect your group addressed.

Describe its societal significance.

Sustainability

Define “sustainability,” for a social-ecological system.

Explain what “sustainability” would mean for your group’s sub-system, or problem.

Literature Review

Conduct a literature review on existing knowledge, science, etc. for your group’s topic. Present this background information to inform your audience.

Frameworks and Theoretical Principles

Introduce the framework(s) and theoretical principles your group used to study the problem.

Explain each framework and theoretical principle. *Ostrom’s IAD Framework is required.

Introduce the sustainability framework(s) used to evaluate sustainability.

Methods

Explain how you collected and interpreted the data.

Results

Provide an overview of the system, and findings for each sub-system

Findings will include: Ostrom IAD Analysis, sustainability evaluation, and any other findings relevant to the project’s guiding frameworks and theoretical principles.

Proposed Solution(s)

Use the information you have gathered to propose a solution to the problem. Groups will work together on the solution (i.e., solution must be integrative, considering multiple systems).

Conclusion Section

Remind the reader of the project purpose and significance.

Discuss the major (most important) lessons learned from the project.

Discuss any limitations and future directions for the project.

* Additional Elements: Good Communication, Evidence, Supporting Materials

Published Example:

Sarr, S., Hayes, B., & DeCaro, D.A. (2021). Applying Ostrom’s Institutional Analysis and Development Framework and design principles for co-production to pollution management in Louisville, Kentucky’s Rubbertown. *Land Use Policy*, 104, 105383.

<https://doi.org/10.1016/j.landusepol.2021.105383>

List of Useful Scientific Resources

*This list is not exhaustive but provides a good starting point.

Journals:

Conservation Biology
Current Research in Ecological and Social Psychology
Ecological Economics
Ecology and Society
Environment and Behavior
Journal of Environmental Management
Journal of Social Issues
Science of the Total Environment
Society and Natural Resources
Sustainability

Journal of Planning
Land Use Policy
Nature
Public Administration Review
Proceedings of the National Academy of Sciences
Science

Research Centers:

Ostrom Workshop in Political Theory and Policy Analysis
<https://ostromworkshop.indiana.edu/>
Stockholm Resilience Centre
<https://www.stockholmresilience.org/>
Center for Research on Environmental Decisions
<http://cred.columbia.edu/>

*In addition to Government Research Centers and Reports, and those by reputable Non-Profit Organizations

II. MIDTERM EXAM (20%)

The purpose of this assignment is to give you the opportunity, and practice, to synthesize everything you have learned, so you are prepared for your project.

The Midterm Exam is a take-home, essay exam:

- You can use your notes, readings, and any other materials you have available. You can also discuss ideas with your classmates and work together.
- **However, you must write your own responses, in your own words. This does not mean that you can simply paraphrase other people's answers: your responses should include your ideas and be written in your own voice.**

Format and Submission:

- Type your responses directly in the *Word* document provided, or in a separate clearly labeled document.
- Submit your completed exam by uploading your document, using the link provided with the assignment in Blackboard (SafeAssign). *NOTE: When successfully submitted, you will see a green exclamation point in the Gradebook for this assignment. If you do not see this symbol, your midterm was not submitted. It is your responsibility to ensure that the assignment is successfully submitted in Blackboard by the deadline. If you are unsure, email it to the instructor before the deadline.*

III. PARTICIPATION (25%)

This is a seminar course, which means that learning primarily occurs through your independent reading and active engagement during class. Everyone's voice is crucial. Thus, how well you learn in this class will depend on how well you and the other students contribute. This goal will be reflected in a participation grade.

Points Possible: Class meets 25 days. Each is worth 1 point, for a total of 25 points (25%).

Grading: You will receive zero points if are not actively engaging in class discussion, saying irrelevant or superficial points, or preoccupied with your electronics (e.g., phone).

- You cannot make up in-class participation points, except with special contributions (e.g., providing a supplemental learning activity for session) and with a special excuse for your absence (see Excused Absences policies).

IV. READINGS AND DISCUSSION QUESTIONS (20%)

At the beginning of the semester, you will read new readings each week (see course schedule), discuss them via *Perusall* (online reading portal), and submit 1 Discussion Question to the Blackboard Discussion Board for us to discuss in class.

A. READINGS (10%)

The readings are posted in *Perusall* as PDFs.

- **Reading assignments are due Sunday afternoon (6pm) each week.**
This gives me time to prepare (see Discussion Questions).

Perusall

Perusall is an online reading portal that encourages you to make thoughtful observations about the readings and share ideas with your classmates. It also makes grading easier by keeping track of your comments and their quality.

Why Perusall?

I am using Perusall, because it is an excellent opportunity for you to engage in meaningful discussion (and synthesis of ideas) before class.

To log into *Perusall*: Enter the Instructor's course code!

Grading:

You will be asked to make a certain number of high-quality comments on each reading. Your comments will be graded based on:

- a) **Comprehensiveness.** Comment on all the readings, and cover sections well.
- b) **Quality.** It should be clear that you are actively thinking about the readings and important concepts, at a deep level. Examples: 1) Apply new concepts to people's behavior or specific problems in society, 2) Compare and contrast different concepts or theories (e.g., reconcile competing viewpoints, combine ideas), 3) Relate new ideas to lessons learned earlier, or in other courses.
- c) **Responsiveness.** Share your ideas with other students and engage them. Respond to their questions, if you think you have a useful idea.

***See Blackboard Guides for more information:**

- How Perusall Works
- Getting Started

B. WEEKLY DISCUSSION QUESTION (10%)

At the beginning of the semester, you will be asked to post 1 well-conceived and communicated discussion question to the Blackboard Discussion Board, after reading all the readings for the week. I will compile all the student questions and use them to prepare the in-class discussion.

- **Due Sundays 8pm**
- Submit your questions online in the “Discussion Board” area of Blackboard.

GUIDELINES

Part of becoming a scientifically informed citizen and student is practicing how to form good questions—questions that guide you and others towards insight even when you do not yet know the answers.

Therefore: A good question is relevant to *all* the readings for the week and demonstrates genuine effort to understand the topics at a deeper level. In addition: always *explain* your thoughts and *try to answer any questions you pose yourself (i.e., take us as far as you can in your own thinking)*.

Examples approaches:

- **Critical comments** (e.g., “This doesn’t make sense in relation to another article we read, or key principle I learned in my disciplinary tradition, because...”).
- **Efforts to integrate** complementary theories or ideas, or reconcile competing ones.
- Efforts to **apply the readings to one’s personal experiences** and observations, for example concerning recent events.

Grading:

Questions that do not show sufficient evidence of a genuine attempt at critical thinking across all readings will earn partial credit (0, 25%, 50%, 75%), depending on the severity. Questions that are incomprehensible, irrelevant, or submitted after class (i.e., late) or not at all will earn 0 points.

What about Clarification Questions?

Clarification questions are welcome. Please post these *in addition to* the 1 required critical-thinking discussion question. Often other students will have a similar problem, and this will help me identify topics that need more attention.

ACADEMIC POLICIES

Final Grades:

A+	98-100	C+	78-79
A	93-97	C	73-77
A-	90-92	C-	70-72
B+	88-89	D+	68-69
B	83-87	D	63-67
B-	80-82	D-	60-62

MISSED ASSIGNMENTS

A. Participation

A large portion of your grades in this class comes from participation in the break-out groups and class discussion, and other in-class activity sessions. There are 25 Participation Days in this course. **You can miss 1 day, without being penalized. For any absences beyond 1 day, you will need proper documentation, and may need to complete a make-up assignment** to receive full credit for the absence (see Guidelines in next section).

B. Missed Exams, Presentations, and Project Activities

If you are unable to complete a major assignment on time, then you may receive full credit (not be penalized), if:

1. You are ill, or a personal emergency (e.g., medical emergency, death in family, etc.) causes you to miss a required graded activity, **and** you have official evidence of your illness/emergency (e.g., doctor's slip). I reserve the right to ask for documentation of the circumstances causing you to miss class.
2. You have an inflexible schedule conflict that you know about in advance (e.g., a religious holiday, medical appointment) **and** we meet about the schedule conflict in advance (i.e., at least 1 week prior). This gives me enough time to make the necessary provisions.

For all situations:

- ✓ Please **send me an email** identifying the emergency/conflict, **and tell me in person, if possible**.
- ✓ Unless stated (or agreed) otherwise, make-up assignments must be completed 1 week after the missed assignment.

Students with Special Learning Needs

The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate and complete requirements for this class, notify me immediately and contact the Disability Resource Center (Robbins Hall, 852-6938) for verification of eligibility and determination of specific accommodations. For more information, visit the [Disability Resource Center](#).

Online Access

Blackboard:

This is the main way I will provide assignments and communicate with you. Announcements, grades, assignments, etc. will be posted on the course Blackboard site. Please keep yourself well-informed and in contact throughout the semester.

***It is the student's responsibility to frequently check their university email, visit the course on Blackboard.** Familiarity with online systems (e.g., Blackboard, Email) is necessary for the course.

Helpful Links

Blackboard: www.louisville.edu/blackboard

Blackboard Student Help:

<http://louisville.edu/delphi/blackboard/help/students/students.html>

Using Blackboard:

<http://louisville.edu/delphi/blackboard/help/students/using-blackboard.html>

Adobe Acrobat Reader:

<http://get.adobe.com/reader/>

UofL Writing Center:

<http://louisville.edu/writingcenter/>

Sexual Misconduct and Gender Discrimination

As a faculty member (university employee), I am required to report and act on any information about sexual misconduct or gender discrimination you communicate to me, to help resolve the situation. Sexual misconduct (sexual harassment, sexual assault, and sexual/dating/domestic violence) and sex discrimination are violations of University policies. **Anyone experiencing sexual misconduct and/or sex discrimination has the right to obtain confidential support from the PEACC Program 852-2663, Counseling Center 852-6585 and Campus Health Services 852-6479.** Reporting your incident to any other University employee (including, but not limited to, professors and instructors) is an official, non-confidential report to the University.

To file an official report, please contact the Dean of Students Office 852-5787 and/or the University of Louisville Police Department 852-6111.

For more information regarding your rights as a victim of sexual misconduct, visit the Office for Civil Rights (<http://www2.ed.gov/about/offices/list/ocr/docs/know-rights-201404-title-ix.pdf>). For more information about resources and reporting at UofL, visit the Sexual Misconduct Resource Guide (<http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure>).

School Closings and Delays

In the case of inclement weather, please check your email and the Blackboard site to see if UofL campus is closed and/or class is cancelled. *Note: It is possible for class to be cancelled even if campus is not closed.* However, even if class does not meet, you may still receive assignments to complete before the next class meeting.

Academic Dishonesty

Academic dishonesty is prohibited at the University of Louisville. It is a serious offense because it diminishes the quality of scholarship, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty. For more information, visit the [Code of Student Rights and Responsibilities](#) (Sections 5. and 6.)

COURSE SCHEDULE*

TOPICS			READINGS
Week 1	Aug 22	Welcome! (Syllabus, Course Overview)	
	Aug 24	“Sustainability”	IUCN (1980), Mog (2011), UN (2015) *Homework!
Week 2	Aug 29	Urban Sustainability/Sustainable Cities: Case 1: Louisville’s West End	Wheeler (2009) Case: Louisville Magazine
	Aug 31		
Week 3	Sept 5	LABOR DAY BREAK	
	Sept 7	Urbanized Social-Ecological Systems (SEs): Case 2: US City Water-Energy Biodiversity Nexus	Boyd & Folke (2012) Grimm et al. (2008) Case: McManamay et al. (2017)
Week 4	Sept 12	METHOD: Conceptualizing Complex SEs: <ul style="list-style-type: none"> ▪ State-Reinforced Self-Governance Framework ▪ Adaptive Governance ▪ Case 3: Phoenix AZ’s Water System 	DeCaro et al. (2021) Dietz et al. (2003) Case: Larson et al. (2013)
	Sept 14		
Week 5	Sept 19	Co-Production and Participatory Democracy: Case 4: Air Pollution (Louisville’s West End)	Arnstein (1969), Cohen & Weik (2017) Case: Sarr et al. (2021)
	Sept 21		
Week 6	Sept 26	Transportation and Development: Case 5: Transportation and Development	Wheeler (2000) Case: Smiley et al. (2014)
	Sept 28		
Week 7	Oct 3	MIDTERM BREAK	
	Oct 5	Review for Midterm Exam	
Week 8	Oct 10	MIDTERM EXAM (TAKE HOME)	DUE: Oct 13 (11:59 midnight)
	Oct 12		
PROJECT			ASSIGNMENTS (DUE)
Week 9	Oct 17	Project Overview	2-3 Project Ideas
	Oct 19	Refine Project Ideas, Form Teams	Initial Project Outline (Team Gameplan)
Week 10	Oct 24	Begin Literature Review (Initial Search)	
	Oct 26	...Report Back and Brainstorm	2-3 Possible Forum Papers
Week 11	Oct 31	GRAD STUDENT FORUM DAY 1	
	Nov 2	GRAD STUDENT FORUM DAY 2	
Week 12	Nov 7	...	
	Nov 9	...	Initial Bibliography
Week 13	Nov 14	...	
	Nov 16	...	
Week 14	Nov 21	...	Progress Report
	Nov 23	...	
Week 15	Nov 28	...	
	Nov 30	...	
	Dec 12 Dec 14	FINAL PRESENTATION (2:30pm-5:00pm)	Final Paper (TBD)

Updated by Instructor: 8-9-2022. I reserve the right to modify the syllabus when necessary to meet learning objectives, compensate for cancelled classes, or for similar reasons. A new syllabus will be posted in Blackboard and an announcement made in class.