

EAS 741 Research Paradigms¹

School for Environment and Sustainability, University of Michigan

Revised August 2021

Instructor:	Dr. Pam Jagger (she/her/hers)
Office:	3532 Dana Building/Zoom
Email:	pjagger@umich.edu
Class Meeting Time:	Thursday 5-7 PM (In person)
Class Location:	Room 3038 Dana Building
Jagger Office Hours:	Monday 1 PM to 4 PM (In person unless otherwise indicated)

Course Description: EAS 741 is currently the only required in-house course for SEAS Doctoral Students. It is taken over the course of three semesters, one credit per semester, for a total of three credits. It is the only course that all SEAS students have together, and thus is one of the main opportunities for both learning about interdisciplinary high impact environmental and sustainability research, developing a common understanding of PhD level environment and sustainability research, and for cohort building.

Learning Objectives:

- Learn about the foundations, theories and methods of integrated social-environmental systems research
- Develop a shared understanding of popular press presentation and academic scholarship on climate change
- Become familiar with the craft of PhD level research

Course Website: <https://umich.instructure.com/courses/467484>

Course Communication: All course materials are posted on the Canvas website. Announcements are sent to your e-mail accounts from the Canvas site. If you email me, I will do my best to get back to you within 24 hours. I generally do not respond to emails over the weekend or after regular business hours. **Please note EAS 741 in your subject line.** The best emails are short and to the point, for longer more involved questions or comments please come to office hours or arrange a time to meet.

Required Texts:

Common Reading

Fall Semester: Kolbert, E. (2021). *Under a White Sky*. New York, NY: Random House. (Available at UM Bookstore)

Winter Semester: Stanley Robinson, K. (2020). *The Ministry for the Future*. New York, NY: Orbit for Hachette Book Group.

¹ I reserve the right to make updates and changes to the Syllabus during the course of the semester. I will inform the class of updates to the syllabus on during class, via email, and through updates on Canvas.

Social Ecological System Research Paradigms (Available on Canvas)

The Routledge Handbook of Research Methods for Social-Ecological Systems

<https://www.routledge.com/The-Routledge-Handbook-of-Research-Methods-for-Social-Ecological-Systems/Biggs-Vos-Preiser-Clements-Maciejewski-Schluter/p/book/9780367898403>

CLASS SCHEDULE

We will meet 7 times this semester.

Week	Date	Main Activity
1	Sept 2	Introductions and plan for the semester
2	Sept 9*	Kolbert. Down the River Student Lightning Talks – Part 1 (2 nd year cohort)
3	Sept 23*	Kolbert. Into the Wild Student Lightning Talks – Part 2 (1 st year cohort)
4	Oct 14*	Biggs et al. (eds). What are social-ecological systems and social-ecological systems research? Chapter 1 Kramer et al. (2017). Top 40 questions in coupled natural and human systems (CHANS) research.
5	Oct 21*	Biggs et al. (eds). Complexity-based social-ecological systems research: philosophical foundations and practical implications. Chapter 2 Baerwald et al. (2016). The dynamics of coupled natural and human systems program at the U.S. National Science Foundation: lessons learned in interdisciplinary funding program development and management.
6	Nov 18*	Kolbert. Up in the Air Biggs et al. (eds). The practice and design of social-ecological systems research. Chapter 3 Reilly Henson et al. (2020). A practical guide for managing interdisciplinary teams: Lessons learned from coupled natural and human systems research.
7	Dec 2	Dean Overpeck – to discuss climate change and key topics and approaches for climate change research Planning for Winter Semester

*Reading reflections are due to Pam via email pjagger@umich.edu by 11:59 PM the Wednesday prior to class.

ASSIGNMENTS

Lightning Talk: Early in the semester, each student will give a 5 minute, 5 slide (5x5!!!) talk addressing the following questions:

Slide 1: What is your main research interest? If you have a research questions – tell us what it is.

Slide 2: What is your landscape/geographic/species focus and why? What has led you/motivated you to pursue your research interest/question in this space?

Slide 3: What disciplinary focus/research methods will you use to approach your topic/answer your question?

Slide 4: Are you seeking disciplinary depth or interdisciplinary experience while undertaking your doctoral work at SEAS? (no right answer here – we need both)

Slide 5: What are your 5, 10 and 20 year ambitions?

After each 5 minute lightening talk there will be 5 minutes for questions/discussion.

Reading and reflection: Each semester of EAS 741 we will read either a non-fiction or fiction book about climate change, the most pressing environmental challenge of our time. I have selected two books for the 2021 academic year – the first is non-fiction – *Under a White Sky, The Nature of the Future*. The second (to be read in Winter 2022) is fiction *Ministry for the Future*. Both books come highly recommended by Dean Overpeck.

During the Fall 2021 semester we will read the first section of Riggs et al. (2021) *The Routledge Handbook of Research Methods for Social-Ecological Systems*. This book provides a useful introduction to research approaches used in social-ecological systems research. You will become an expert in only one or two areas, but as the future brain trust for interdisciplinary environmental science you should be familiar with the suite of approaches used by natural, social and engineering scientists using systems approaches to solve environmental problems.

We will also read three academic papers that summarize the experience and lessons learned of the seminal National Science Foundation Coupled and Natural Human Systems Program (now revamped as the Dynamics of Integrated Socio-Environmental Systems (DISES) Program).

Based upon the assigned reading you should prepare a 1-page memo for each of the five indicated weeks (e.g., see Class Schedule above) that provides a critical reflection of each of the readings for that week. If you can make connections in the readings within or across weeks please do that. Your memo should include at least one question you would like to discuss when we meet as a group.

Memos are due via email to myself by 11:59 PM on Wednesday prior to class for the five indicated weeks. For example, Week 2 Memo is due by 11:59 PM on Wednesday 8 September.

Participation: As long as you and your family/room mates are healthy please attend and engage! Your attendance and participation is required, encouraged, expected, appreciated and noted. Participation includes being well prepared for class and making valuable (i.e. learned, inquisitive, contestation etc.) contributions to discussions and debates on a regular basis. If you must miss a class, you should notify me well ahead of time and explain why you are missing the class. I understand that this is a complex and uncertain time. I'm confident that we will work together to make the most of this semester.

GRADING

Lightening Talk	20%
Reading reflections (do 5 – submit Weds PM before class)	25%
Class participation (attend 7)	55%

Grade grievances: you must submit requests for a re-grade within one week of receiving the original grade. You must attach the original graded item and provide a clear written explanation of what you would like to be re-evaluated and why. Your adjusted grade may be higher or lower than the original.

Work ethic/plagiarism: If you paraphrase or copy work that is not your own you must reference that work. The risk of plagiarizing is not worth the reward. More generally, cheating and academic dishonesty of any form will not be tolerated. Any student found to have cheated or behaved dishonestly will be given a zero on the assignment or exam involved and referred to the appropriate disciplinary committees at the University of Michigan.

RESOURCES (a non-comprehensive list of things I find useful and/or important)

Seminal Works – Coupled Natural and Human Systems, Sustainability Science, The Anthropocene, Planetary Boundaries

Baerwald et al. (2016). The dynamics of coupled natural and human systems program at the U.S. National Science Foundation: lessons learned in interdisciplinary funding program development and management. *Current Opinion in Environmental Sustainability* 19:123-133.*

Biermann and Kim. (2020). The boundaries of the planetary boundary framework: A critical appraisal of approaches to define a “safe operating space” for humanity. *Annual Reviews of Environment and Natural Resources* 45:497-521.*

Clark and Harley. (2020). Sustainability science towards a synthesis. *Annual Reviews of Environment and Natural Resources* 45:331-386*

Folke et al. (2020). Our Future in the Anthropocene Biosphere: Global Sustainability and Resilient Societies. Beijer Discussion Paper Series No. 272. Royal Swedish Academy of Science: Stockholm, Sweden.*

Kramer et al. (2017). Top 40 questions in coupled natural and human systems (CHANS) research. *Ecology and Society* 22(2).*

National Science Foundation. 2020. Dynamics of Integrated Socio-Environmental Systems (DISES) Program Solicitation. Washington, DC: National Science Foundation.*

Reilly Henson et al. (2020). A practical guide for managing interdisciplinary teams: Lessons learned from coupled natural and human systems research. *Social Sciences* 9:119

How to do Good Research

Angelsen. (~2005). How to write a research proposal. Unpublished Note.*

Booth et al. (2016). *The Craft of Research* (4th Edition). Chicago, IL: University of Chicago Press.**

Haddaway et al. (2020). Eight problem with literature reviews and how to fix them. *Nature Ecology and Evolution* 4:1582-1589*

*Posted on EAS 741 Canvas Site.

**Ordered to the UM bookstore as optional. The book aims to provide a basic overview of how to research, from the process of selecting a topic and gathering sources to the process of writing results.

OTHER INFORMATION

Classroom Culture of Care

SEAS is committed to delivering our mission while aiming to protect the health and safety of the community, which includes minimizing the spread of COVID-19. Our entire SEAS community is responsible for protecting the collective health of all members by being mindful and respectful in carrying out the guidelines laid out in our Wolverine Culture of Care and the University's Face Covering Policy for COVID-19. Individuals seeking to request an accommodation related to the face covering requirement under the Americans with Disabilities Act should contact the Office for Institutional Equity.

In our classrooms all students are expected to adhere to the required safety measures and guidelines of the State of Michigan and the University of Michigan, wearing a face covering that covers the mouth and nose in all classrooms, and not coming to class when ill or in quarantine. It is important to also be thoughtful about group gatherings as well as about classroom activities and exercises that require collaboration.

Any student who is not able and willing to comply with campus safety measures for this in-person course should contact the course instructor or their academic advisor to discuss alternate participation or course options. Students who do not adhere to these safety measures while in a face-to-face class setting, and do not have an approved exception or accommodation, may be asked to disenroll from the class.

Inclusivity: Members of the SEAS and the broader UM community represent a rich variety of backgrounds and perspectives. We are committed to providing an atmosphere for learning that respects diversity. While working together to build community we ask all members to:

- share their unique experiences, values and beliefs
- be open to the views of others
- honor the uniqueness of their colleagues
- appreciate the opportunity that we have to learn from each other in this community
- value one another's opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- use this opportunity together to discuss ways in which we can create an inclusive environment in Ford classes and across the UM community

Mental Health and Wellbeing Resources: The University of Michigan is committed to advancing the mental health and wellbeing of its students. We acknowledge that a variety of issues, such as strained relationships, increased anxiety, alcohol/drug problems, and depression, directly impact students' academic performance. If you or someone you know is feeling overwhelmed, depressed, and/or need support, services are available. For help, contact [Counseling and Psychological Services](#) (CAPS) and/or [University Health Service](#) (UHS). For a listing of other mental health resources available on and off campus, visit <http://umich.edu/~mhealth/>.

Accommodations for Students with Disabilities: I am happy to accommodate students with documented disabilities. Please let me know about your situation within the first two weeks of our class meetings so that we can make appropriate arrangements. Some aspects of the course may be modified to facilitate your participation and progress. As soon as you make your instructor aware of your needs, they can work with the Services for Students with Disabilities (SSD) office to help determine appropriate academic accommodations. Any information you provide is private and confidential.