UNIVERSITY OF CENTRAL FLORIDA

PUP 3204 - SUSTAIN

Sectio

College of

School of Politics, Security, and I

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Course Information

Term: Summer 2026
Class Meeting Days: ASC
Class Meeting Location: Online
Modality: WW
Credit Hours: 3.00

Instructor Information

Jacopo Baggio
Office Location: HPH 302
Office Hours:
From May 14th to June 20th:

Zoom: Tuesday from 9am to 10.30pm

Zoom: Wednesday from 9am to 10.30pm

Zoom Link: https://ucf.zoom.us/j/92216037344?pwd=Hramo2z4MHeybyDprXDnzbBMdeariO.1

From June 23rd until the end of the semester:

Zoom: Tuesday from 12pm to 1.30pm

Zoom: Wednesday from 12pm to 1.30pm

Zoom Link: https://ucf.zoom.us/j/97696631562?pwd=Hx1KaTC5ibqoPUWPP3pnOektNhTDgW.1
Email: Jacopo.Baggio@ucf.edu

Teaching Assistants

TBD

Course Description

PUP 3204 COS-POLS 3(3,0)Sustainability: PR: ENC 1102 or Junior standing. Environmental politics through the lens of sustainability. Attention devoted to the relationships of culture, economics, and ecology. Odd Fall.

Introduction

Today the world is changing at an unprecedented rate. Changes are coming fast, due to environmental, technological and socio-economic changes. Sustainability, concerned with issues relating to the ability of present society to enjoy resources and levels of wealth, while not jeopardizing the ability of future generations to do so, is becoming more prominent.

The objective of this course is giving students the ability to critically think around issues related to sustainability, increase knowledge on issues related to socio-economic, political, demographic processes as well as environmental ones concerning the sustainable use of resources, and be able to present concisely and clearly problems and potential solutions to current and possible future concerns related to “sustainability”.

Description

This course is an introduction to concepts related to sustainability, resilience and common pool resources. The course will focus on introducing concepts, metrics and examples of issues and problems that fall under the umbrella of “sustainability” with a focus on managing common pool resources sustainably and an introduction to resilience and social-ecological systems. Both traditional lecture and student led lectures/presentation will be used in this class.

Expectations

It is expected that students read the material provided. Students should engage with **all the material provided and are strongly encouraged to search for additional materials**. In other words:

- Read the text assigned, think and critically assess the readings,
- Search for papers assigned and other that are important for your essay/video presentation.
- Prepare for and participate in the weekly discussions.
- Read the material
- Turn in the assignments on time.

In this course we will utilize turnitin.com, an automated system which instructors can use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you will be expected to submit assignments through the Canvas Assignment Tool in electronic format. After the assignment is processed, as an instructor I receive a report from turnitin.com that states if and how another author’s work was used in the assignment. For a more detailed look at this process, visit http://www.turnitin.com .

SYLLABUS DISCLAIMER:

All parts of this syllabus can be amended in accordance with the students based on specific educational needs and non-foreseeable circumstances. Any change to the syllabus will be announced via Webcourses@UCF.

Student Learning Outcomes

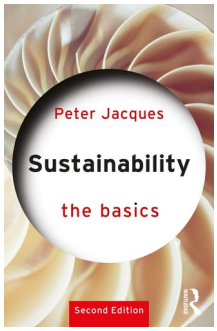
By the end of the semester student should be more familiar with pressing issues related to sustainability, understand what social dilemmas are and trade-offs that exist when dealing with “sustainability” as well as “resilience” and have a more holistic view related to problem solving and the environment. Further, by the end of the course, students should be:

- Familiar with concepts related to sustainability (sustainability, equity, legitimacy, fairness etc.), common pool resources (social dilemmas, common pool resource systems etc.), and resilience (social-ecological systems, resilience, vulnerability etc.)
- Able to read peer-reviewed literature, and critically assess it and discuss it.
- Able to search for added information using proper peer-reviewed literature (e.g. via google scholar, or the library, or ISI web of knowledge etc.)
- Ability to assess sustainability from an holistic point of view understanding trade-offs and potential unintended consequences of specific sustainability decisions.

Finally, students will be evaluated via:

- Weekly Group Discussions (10)
- One video presentation or 1000 words essay on the topic of your choice but related to sustainability
- One 1000-word essays that blends concepts learned during this course and a topic of your choice.
- Mid-Term and Final Exam

Required Course Materials and Resources



Sustainability The Basics
ISBN: 9780367365172
Authors: Peter Jacques
Publisher: Routledge
Publication Date: 2021
Edition: 2

Course Assessment and Grading Procedure

A maximum of 100 points is given in this course. You will be evaluated via 1 video presentation/essay, 1 final essays, 10 weekly discussions and 2 exams (1 mid-term and 1 final). Essay and/or video presentation will assess your ability to critically think and engage with the material proposed as well as searching for material other than the one presented in class. Exams will be based on course content that comprises the material covered in the modules and the readings assigned. Weekly discussions are build to assess and discuss current issues related to sustainability and the module/weekly topics

Weekly Discussions

Weekly you will be required to post a discussion post and reply twice to two different original discussion posts of your class-mates. Each original discussion post has to be at least 100 words in length and need to be pertinent to the topic discussed. Each "response" must be at least 50 words in length. Failure to post an original 100 words discussion post, AND 2 responses at least 50 words long will lead to 0 point for that discussion.

Video Presentation

If you choose to build a video presentation (max 5 minutes), the evaluation will take into account content (you will need to research new content that goes beyond what has been done in class), style and flow of the presentation as well as the delivery.

Presentations will be evaluated on:

- Content - based on the topic of your choice and how well you relate it to course content
- Overall logical flow of the presentation
- Use of introductory and concluding paragraph
- Consistency of the presentation (is it one presentation or is it a puzzle/collage of multiple not "well related" presentations?)

Essays

All Essays will be submitted to Turnitin, avoid plagiarism!

Essays are can be done on the topic of your choice. Essays must be:

- Maximum 1000 words
- Formatting:
  - Line spacing: 1.5
  - Font: Times New Roman or Arial or Calibri
  - Font Size: 11 or 12
- Contain at least 5 peer reviewed article outside the ones assigned. These article will need to be appropriately referenced (either APA or Chicago style referencing must be used).
- **No quotations are allowed, you must paraphrase or summarize other people work. Essay with quotation will have at least 5 points deducted.**

Essays will be evaluated on:

- Content - based on the topic of your choice and how well you relate it to course content
- Overall logical flow of the essay
- Correct use of sources (at least 5 sources outside the once assigned and optional readings of the syllabus, plus sources that are present in the syllabus)
- Concluding paragraph in which the student evaluates the argument, the views and draws her/his own conclusions.

Exams

Based on the readings assigned (books and papers) and modules' content. Exams will be in the form of multiple choice questions AND open-ended questions.

Assignment Submission

All assignments must be submitted via Webcourses@UCF. They will need to be uploaded as pdf, playable video format or word-documents. Any other file format will not be taken into consideration. All assignments must to be uploaded individually by each class participant. Exams will be on Webcourses@UCF (quizzes)

Assignments Summary

Due Date	Assignment	Max Points	Submitting Assignment
Weekly Discussions - Modules 2, 3, 4, 6, 7, 9, 10, 11, 12, 13. Discussions are due on Sundays at 11.59pm.	Discussion	3 points each (max 30 points)	Use discussion board for the module/week on Webcourses@Ucf
September 15th	1000 word First Essay or Video Presentation	15	Upload essay or video presentation on Webcourses@Ucf
October 7th	Mid-Term Exam	15	On Webcourses@Ucf
November 24th	1000 word Essay	20	Upload essay on Webcourses@Ucf
December 3rd	Final-Exam	20	On Webcourses@Ucf

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
5/15/26	1st Week Engagement Quiz	Quiz	5
5/17/26	Module 2 - Basics of Sustainability and Sustainability Principles	Discussion	3
5/20/26	Module 3 - Common Pool Resources	Discussion	3
5/24/26	Module 4 - Institutional Design Principles	Discussion	3
6/1/26	Video Presentation or Essay	Assignment	15
6/7/26	Module 6 - Measuring Sustainability and Planetary Boundaries	Discussion	3
6/7/26	Module 7 - Ethics, Fairness and Inequality	Discussion	3
6/16/26	Mid-Term Exam	Quiz	15
6/21/26	Module 9 - Social Dilemmas	Discussion	3
6/28/26	Module 10 - Complex Adaptive Systems	Discussion	3
6/28/26	Module 11 - Social Ecological Systems	Discussion	3
7/5/26	Module 12 - Resilience Principles	Discussion	3
7/12/26	Module 13 - Politics and Sustainability	Discussion	3
7/20/26	Essay	Assignment	20
7/29/26	Final Exam	Quiz	20

Grading Scale

Grade Conversion (Points -> Letter)

Grade Points Acquired	Grade
=>93	A
=>90	A-
=>87	B+
=>83	B
=>80	B-
=>70	C
=>60	D
< 60	F

Communication Expectations

All communication regarding this course will be occurring via canvas.

Email and communication will be answered within 2 business days.

Policies for Course Grade

Excusable late assignments and make up work conditions:

Only for medical reasons or for UCF excusable events.

Late assignments:

Late not-excused assignments will be penalized 1 point every 6 hours, after 48hr passed the deadline, assignments will not be considered and evaluated 0 points.

Details of the video presentations and essays will be discussed via Webcourses@UCF (Canvas) conversation boards and/or during office hours.

Make-up Exams and Assignments

Per university policy, you are allowed to submit make-up work (or an equivalent, alternate assignment) for authorized university-sponsored activities, religious observances, or legal obligations (such as jury duty). If this participation conflicts with your course assignments, I will offer a reasonable opportunity for you to complete missed assignments and/or exams. The make-up assignment and grading scale will be equivalent to the missed assignment and its grading scale. In the case of an authorized university activity, it is your responsibility to show me a signed copy of the Program Verification Form for which you will be absent, prior to the class in which the absence occurs. In any of these cases, please contact me at least one week ahead of time to notify me of upcoming needs.

Grade Dissemination

Grades will be recorded and posted in Webcourses@UCF and will follow student data classification and security standards

Extra Credit: Extra credit may be offered (5 points) for participation in a

Make-up Assignments for Authorized University Event or Co-curricular Activities

Students who represent the university an an authorized event or activity (for example, student athletes) and who are unable to meet a course deadline due to a conflict with that event must provide the instructor with documentation in advance to arrange a make-up. No penalty will be applied if the student gives advance notice and communicates with the instructor following UCF policy. In the case of an authorized university activity, it is your responsibility to show the instructor a signed copy of the Program Verification Form for which you will be absent, prior to the class in which the absence occurs or due date you need extended. For more information, see UCF Policy 4-401.

Make-up Assignments for Religious Observances

A student who desires to observe a religious holy day of his or her religious faith must notify their instructor as soon as practicable prior to the observance. Students who are absent because of religious observances will be permitted a reasonable amount of time to complete any missed work. For more information, see UCF Regulation 5-020.

Artificial Intelligence (AI) Use Policy

Use of Generative AI (GenAI) is freely permitted but must be disclosed. Students are allowed to use Generative Artificial Intelligence (GenAI) tools on assignments if the usage is properly disclosed and credited. For example, text generated from Copilot should include a citation such as: "Copilot. Accessed 2023-12-03. Prompt: 'Summarize the Geneva Convention in 50 words.' Generated using Copilot." Any attempt to represent GenAI output inappropriately as your own work will be treated as plagiarism. Ultimately, students are responsible for the accuracy and veracity of submitted work whether AI-generated or not.

Disability Access & Accommodations

The University of Central Florida is committed to providing equal access to all students with disabilities (ADHD, learning disabilities, Autism, chronic medical conditions, physical disabilities, etc.). To receive consideration for reasonable disability-related course accommodations, disabled students must contact Student Accessibility Services (SAS) and complete the steps required for SAS to review accommodation requests. More information can be found on the UCF Student Accessibility Services website under the Start Here tab or by contacting SAS directly (Ferrell Commons 185; sas@ucf.edu; Phone - 407-823-2371).

Approved accommodations are shared with course instructors via the SAS Course Accessibility Letter. Implementing certain accommodations may require discussion and specific considerations of the course design, course learning objectives, and the individual academic and course challenges experienced by the student. While students with disabilities or chronic health needs are also encouraged to discuss any course concerns with professors in addition to contacting SAS, professors are not required to facilitate disability-related adjustments to the course unless the professor has received a Course Accessibility Letter from SAS that outlines approved accommodations.

Academic Integrity

Students should familiarize themselves with UCF's Code of Conduct at Student Conduct and Integrity Office. According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

a. Academic misconduct is defined as any submitted work or behavior that obstructs the instructor of record's ability to accurately assess the student's understanding or completion of the course materials or degree requirements (e.g., assignment, quiz, and/or exam). Examples of academic misconduct include but are not limited to: plagiarism, unauthorized assistance to complete an academic exercise; unauthorized communication with others during an examination, course assignment, or project; falsifying or misrepresenting academic work; providing misleading information to create a personal advantage to complete course/degree requirements; or multiple submission(s) of academic work without permission of the instructor of record.

b. Any student who knowingly helps another violate academic behavior standards is also in violation of the standards.

c. Commercial Use of Academic Material. Selling of course material to another person and/or uploading course material to a third-party vendor without authorization or without the express written permission of the University and the instructor of record. Course materials include but are not limited to class notes, the instructor of record's slide deck, tests, quizzes, labs, instruction sheets, homework, study guides, and handouts.

d. Soliciting assistance with academic coursework and/or degree requirements. The solicitation of assistance with an assignment, lab, quiz, test, paper, etc., without authorization of the instructor of record or designee is prohibited. This includes but is not limited to asking for answers to a quiz, trading answers, or offering to pay another to complete an assignment. It is considered Academic Misconduct to solicit assistance with academic coursework and/or degree requirements, even if the solicitation did not yield actual assistance (for example, if there was no response to the solicitation).

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, *The Golden Rule*. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct and Academic Integrity, which could lead to disciplinary warning, disciplinary probation, or deferred suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a "Z" designation on one's transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Title IX

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at Let's Be Clear and UCF Cares.

For more information on access and community engagement, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – ONAC – Office of Nondiscrimination & Accommodations Compliance & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services – Student Accessibility Services & sas@ucf.edu
- Access and Community Engagement (including the Ginsberg Center for Inclusion and Community Engagement, Military and Veteran Student Success, and HSI Initiatives)
- UCF Compliance and Ethics Office – Compliance, Ethics, and Risk Office & complianceandethics@ucf.edu
- The Ombuds Office is a safe place to discuss concerns.

Reporting an Incident or Issue

If you believe you have experienced abusive or discriminatory behavior by any faculty or staff member, contact the Office of Institutional Equity online or at 407-823-1336. You can also choose to report using the UCF Integrity Line and can report anonymously or as yourself at 1-855-877-6049 or using the online form. UCF cares about you and takes every report seriously. For more information see the Reporting an Incident or Issue Webpage.

Deployed Active-Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Campus Safety

At UCF Public Safety and Police, safety is the top priority. Emergencies on campus are rare, but if one should arise, it's important to be familiar with some basic safety and security concepts.

- In an emergency, always dial 911.
- Every UCF classroom has an **Emergency Procedure Guide** posted on a wall near the door, which will show you how to respond to a variety of situations. This guide can also be found online here.
- In the event of an active threat, remember **AVOID, DENY, DEFEND**. Choose the best course of action and act immediately. Watch the video here to learn more.
    - **AVOID**. Pay attention to your surroundings and have an exit plan. Get as much distance and as many barriers between you and the threat as quickly as possible.
    - **DENY.** When avoiding is difficult or impossible, deny the threat access to you and your space. Lockdown by creating barriers, turning the lights off and remaining quiet and out of sight. Make sure your cell phone is silenced, but do not turn it off.
    - **DEFEND.** When you are unable to put distance between yourself and the threat, be prepared to protect yourself. Commit to your actions, be aggressive and do not fight fairly. Do whatever it takes to survive.
- For emergencies on campus, UCF will utilize the UCF Alert system. All UCF students, faculty and staff are automatically enrolled to receive these email and text alerts, however, it's a good idea to frequently ensure your contact information is up to date.

Financial Aid Accountability

All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete this activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Class Schedule

Module	Mode	Topic	Assignments	Readings (Bold = mandatory)
Module 0 and Module 1	Online	• Course Orientation • Searching, reading and referencing appropriately peer-reviewed papers	Syllabus Quiz - academic engagement	Check this blog out, great resource for searching, reading, writing papers: http://www.raulpacheco.org/2017/06/writingpapers/
Module 2	Online	• Sustainability Basics • Sustainability Principles	Weekly Discussion	• **Jacques,*Sustainability:TheBasics*, Chapter1** • Goodland, R. (1995). The Concept of Environmental Sustainability. *Annual Review of Ecology and Systematics*, *26*(1), 1–24. http://doi.org/10.1146/annurev.es.26.110195.000245 • Dixon, J. A., & Fallon, L. A. (1989). The concept of sustainability: Origins, extensions, and usefulness for policy. *Society and Natural Resources*, *2*(1), 73–84. http://doi.org/10.1080/08941928909380675 • Princen, T. (2003). Principles for Sustainability: From Cooperation and Efficiency to Sufficiency. *Global Environmental Politics*, *3*(1), 33–50. http://doi.org/10.1162/152638003763336374
Module 3	Online	• What are the commons?	Weekly Discussion	• **Anderies and Janssen, Sustaining the Commons, Chapter 1.1 to 1.4 (1.5 is an outline of the book)** • Hardin, G. (1968). The Tragedy of the Commons. *Science*, *162*(3859), 1243–1248. http://doi.org/10.1126/science.162.3859.1243 • Dietz, T. (2003). Struggle to Govern the Commons. *Science*, *302*(5652), 1907–1912. http://doi.org/10.1126/science.1091015 • Lambert, J., Epstein, G., Joel, J., & Baggio, J. (2021). Identifying Topics and Trends in the Study of Common-Pool Resources Using Natural Language Processing. *International Journal of the Commons*, *15*(1), 206. https://doi.org/10.5334/ijc.1078

Module 4	Online	• Design principles for Common Pool Resources	Weekly Discussion	• **Anderies and Janssen, Sustaining the Commons, Chapter 7** • **Cox, M., Arnold, G., & Tomás, S. V. (2010). A Review of Design Principles for Community-based Natural Resource Management. *Ecology & Society*, *15*(4), 19.** • **Baggio, J. A., Barnett, A. J., Perez-Ibara, I., Brady, U., Ratajczyk, E., Rollins, N., … Janssen, M. A. (2016). Explaining success and failure in the commons: The configural nature of Ostrom's institutional design principles. *International Journal of the Commons*, *10*(2). http://doi.org/10.18352/ijc.634** • Barnett, A. J., Baggio, J. A., Shin, H. C., Yu, D. J., Perez-Ibarra, I., Rubinos, C., … Janssen, M. A. (2016). An iterative approach to case study analysis: insights from qualitative analysis of quantitative inconsistencies. *International Journal of the Commons*, *10*(2), 467–494. http://doi.org/10.18352/ijc.632
Module 5	Online	• Measuring Sustainability	**Essay or Video Presentation Due**	• **Jacques,*Sustainability:TheBasics*, Chapter4** • Jacques,*Sustainability:TheBasics*,Chapter3 • Bradshaw, C. J. A., & Brook, B. W. (2014). Human population reduction is not a quick fix for environmental problems. *Proceedings of the National Academy of Sciences*, *111*(46), 16610–16615. http://doi.org/10.1073/pnas.1410465111
Module 6	Online	• Planetary boundaries • Overshoot and Collapse	Weekly discussion	• **Steffen, W., Richardson, K., Rockstrom, J., Cornell, S. E., Fetzer, I., Bennett, E. M., … Sorlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*,*347*(6223), 1259855–1259855. http://doi.org/10.1126/science.1259855** • **Jacques,*Sustainability:TheBasics*, Chapter 7** • **Tainter, J. A. (2006). Archaeology of Overshoot and Collapse. *Annual Review of Anthropology*, *35*(1), 59–74. http://doi.org/10.1146/annurev.anthro.35.081705.123136** • Rockström, J., Steffen, W. L., Noone, K., Persson, Å., Chapin, F. S., Lambin, E., … Foley, J. (2009). Planetary Boundaries: Exploring the Safe Operating Space for Humanity Recommended Citation. *Ecology and Society*, *14*(2), 472–475. http://doi.org/10.1038/461472a • Wackernagel, M., Schulz, N. B., Deumling, D., Linares, A. C., Jenkins, M., Kapos, V., … Randers, J. (2002). Tracking the ecological overshoot of the human economy. *Proceedings of the National Academy of Sciences*, *99*(14), 9266–9271. http://doi.org/10.1073/pnas.142033699 • Arrow, K., Dasgupta, P., Goulder, L., Daily, G., Ehrlich, P., Heal, G., … Walker, B. (2004). Are We Consuming Too Much? *Journal of Economic Perspectives*, *18*(3), 147–172. http://doi.org/10.1257/0895330042162377
		• Ethics, justice		• **Jacques,*Sustainability:TheBasics*, Chapter 5**

Module 7	Online	and fairness	Weekly Discussion	• Adger, W. N., Brown, K., Fairbrass, J., Jordan, A., Paavola, J., Rosendo, S., & Seyfang, G. (2003). Governance for sustainability: Towards a "thick" analysis of environmental decisionmaking. *Environment and Planning A*, *35*(6), 1095–1110. http://doi.org/10.1068/a35289
Module 8	Online	**Midterm Exam**	**Mid-Term exam (online)**	
Module 9	online	• Social Dilemmas	Weekly Discussion	• **Anderies and Janssen, Sustaining the Commons, Chapter 4** (**Disclaimer**: some concepts presented here are introduced in chapter 2 and 3 of the same book, so you may want to quickly skim those chapters as well). • **Anderies and Janssen, Sustaining the Commons, Chapter 5, 6, 7 and 8** • Janssen, M. A., Holahan, R., Lee, A., & Ostrom, E. (2010). Lab experiments for the study of social-ecological systems. *Science*,*328*(5978), 613–617. http://doi.org/10.1126/science.1183532 • Baggio, J. A., Rollins, N. D., Pérez, I., & Janssen, M. A. (2015). Irrigation experiments in the lab: Trust, environmental variability, and collective action. *Ecology and Society*, *20*(4), 12. http://doi.org/10.5751/ES-07772-200412 • Janssen, M. A., Bousquet, F., Cardenas, J. C., Castillo, D., & Worrapimphong, K. (2012). Field experiments on irrigation dilemmas. *Agricultural Systems*, *109*, 65-75.
Module 10	Online	• Complex Adaptive Systems	Weekly Discussion	• **Glouberman, S., & Zimmerman, B. (2002). *Complicated and Complex Systems: What Would Successful Reform of Medicare Look Like? Commission on the Future of Health Care in Canada*(Vol. 8). https://doi.org/0-662-32778-0** • **Baggio, J. A. (2017). Complex Adaptive Systems, Simulations and Agent-based Modeling. *Quantitative Methods in Tourism: A Handbook*, 223–244. https://doi.org/https://doi.org/10.21832/BAGGIO6195** • Sellberg, M. M., Quinlan, A., Preiser, R., Malmborg, K., & Peterson, G. D. (2021). Engaging with complexity in resilience practice. *Ecology and Society*, *26*(3), 8. • Janssen, M. (1998). Use of complex adaptive systems for modeling global change. *Ecosystems*, *1*(5), 457–463. https://doi.org/10.1007/s100219900041 • Lansing, J. S. (2003). Complex Adaptive Systems. *Annual Reivew of Anthropology*, *32*(1), 183–204. https://doi.org/10.1146/annurev.anthro.32.061002.093440

Module 11	Online	• Social-Ecological Systems	Weekly Discussion	• **Anderies and Janssen, Sustaining the Commons, Chapter 12 and 13** • **Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., … Walker, B. H. (2021). *Our future in the Anthropocene biosphere*. *Ambio* (Vol. 50). https://doi.org/10.1007/s13280-021-01544-8** • Folke, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, *16*(3), 253–267. http://doi.org/10.1016/j.gloenvcha.2006.04.002 • Holling, C. S., Folke, C., Gunderson, L., & Mäler, K.-G. (2000). *Resilience of Ecosystems, Economic Systems and Institutions - Final Report* • Anderies, J. M., Janssen, M. A., & Ostrom, E. (2004). A framework to analyze the robustness of social-ecological systems from an institutional perspective. *Ecology and society*,*9*(1), 18.
Module 12	Online	• Resilience "principles" for ecosystem management	Weekly Discussion	• **Baggio, J. A., Brown, K., & Hellebrandt, D. (2015). Boundary object or bridging concept? A citation network analysis of resilience. *Ecology and Society*, *20*(2), 2.** • **Biggs, R., Schlüter, M., Biggs, D., Bohensky, E. L., BurnSilver, S., Cundill, G., … West, P. C. (2012). Toward Principles for Enhancing the Resilience of Ecosystem Services. *Annual Review of Environment and Resources*, *37*(1), 421–448. http://doi.org/10.1146/annurev-environ-051211-123836** • **Carpenter, S., Walker, B., Anderies, J. M., & Abel, N. (2001). From Metaphor to Measurement: Resilience of What to What? *Ecosystems*,*4*(8), 765–781. http://doi.org/10.1007/s10021-001-0045-9** • Carpenter, S. R., Brock, W. A., Folke, C., van Nes, E. H., & Scheffer, M. (2015). Allowing variance may enlarge the safe operating space for exploited ecosystems. *Proceedings of the National Academy of Sciences*, *112*(46), 14384–14389. http://doi.org/10.1073/pnas.1511804112 • Anderies, J. M. (2015). Managing variance: Key policy challenges for the Anthropocene. *Proceedings of the National Academy of Sciences*, *112*(46), 14402–14403. http://doi.org/10.1073/pnas.1519071112
Module	Online	• Politics, Resilience and Sustainability	Weekly Discussion	• **Folke, C., Biggs, R., Norström, A. V., Reyers, B., & Rockström, J. (2016). Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society*, *21*(3), art41. http://doi.org/10.5751/ES-08748-210341** • **Jacques, Sustainability the Basics, Chapter 6** • **Schoon, M., & Cox, M. E. (2018). Collaboration, adaptation, and scaling: Perspectives on environmental governance for sustainability. *Sustainability (Switzerland)*,*10*(3). http://doi.org/10.3390/su10030679**

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Module 14	Online	• Relating resilience, sustainability and common pool resources	**Essay Due**	**Optional readings on tipping points and transformation for those interested:** • Otto, I. M., Donges, J. F., Cremades, R., Bhowmik, A., Hewitt, R. J., Lucht, W., … Schellnhuber, H. J. (2020). Social tipping dynamics for stabilizing Earth's climate by 2050. *Proceedings of the National Academy of Sciences*, 201900577. https://doi.org/10.1073/pnas.1900577117 • Milkoreit, M., Hodbod, J., Baggio, J., Benessaiah, K., Calderón-Contreras, R., Donges, J. F., … Werners, S. E. (2018, March 1). Defining tipping points for social-ecological systems scholarship - An interdisciplinary literature review. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/aaaa75 • Lenton, T. M. (2020). Tipping positive change. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, *375*(1794), 20190123. https://doi.org/10.1098/rstb.2019.0123 • Lade, S. J., Walker, B. H., & Jamila Haider, L. (2020). Resilience as pathway diversity: Linking systems, individual, and temporal perspectives on resilience. *Ecology and Society*, *25*(3), 1–14. https://doi.org/10.5751/ES-11760-250319 • Abel, N., Wise, R. M., Colloff, M. J., Walker, B. H., Butler, J. R. A., Ryan, P., … O'Connell, D. (2016). Building resilient pathways to transformation when “no one is in charge”: insights from Australia's Murray-Darling Basin. *Ecology and Society*, *21*(2), art23. https://doi.org/10.5751/ES-08422-210223 • Moore, M. L., Olsson, P., Nilsson, W., Rose, L., & Westley, F. R. (2018). Navigating emergence and system reflexivity as key transformative capacities: Experiences from a Global Fellowship program. *Ecology and Society*, *23*(2). https://doi.org/10.5751/ES-10166-230238 • Moore, M.-L., Tjornbo, O., Enfors, E., Knapp, C., Hodbod, J., Baggio, J. A., … Biggs, D. (2014). Studying the complexity of

				change: toward an analytical framework for understanding deliberate social-ecological transformations. *Ecology and Society*, *19*(4), art54. https://doi.org/10.5751/ES-06966-190454
Module 15	Online	• Study Guide and Recap for Final Exam		
	Online	**Final Exam**		