



CSUS 848

Community-Based Natural Resource Management in Developing Countries¹

3 credits, Spring 2020

Thursdays, 3:00 – 5:50 PM

A158 Plant & Soil Science Bldg

Final: April 30, 5:45 to 7:45

Instructor Dr. Maria Claudia Lopez
Department of Community Sustainability
326 Natural Resources Building
mlopez@msu.edu

Office Hours Available by email request.

Class Materials All Class Materials Available on D2L, No Textbook Required

**Catalog Course
Description**

Course Description

This course examines the prospects for natural resource management that succeeds in meeting productivity, conservation and poverty alleviation objectives in rural areas of developing countries. Weekly themes in the course include:

- Human and natural system interactions
- Definition of institutions and their role in natural resource management
- The role of natural resources in rural livelihood systems
- Environmental values, risks and perceptions
- Property rights regimes: overview
- Management of natural resources: an introduction
- Common Property, and Collective Management
- Polycentricity and Co-Management
- Gender and Resource Management

¹ This syllabus has drawn on the syllabus developed by John Kerr from CSUS, Michigan State University.

- Promoting cooperation through community development and growth of social capital
- Insights about collective action from experimental economics
- Encouraging conservation where benefits are off site: overview
- Payment for environmental services
- Tourism, conservation, and local livelihoods

Throughout the course there will be an emphasis on understanding how institutional arrangements governing natural resource management operate in the context of given cultural, economic, legal, policy and biophysical conditions.

Introduction, Aims, Objectives

Billions of people in developing countries earn their livelihoods from direct utilization of natural resources such as agricultural land and water, rangelands, forests and fisheries. Widespread degradation of these resources has made them less productive, causing disproportionate hardships on the poorest people who depend on them most directly. Theories abound about the causes of and possible solutions to natural resource degradation problems, covering issues such as population growth, technology, markets, economic policies and social institutions. Efforts to improve natural resource management often have involved government controls on local people's access and use, while numerous development projects have undertaken financial investments to introduce improved technology. Price policies and market reforms also have been used to influence resource management. Elements of these approaches have contributed to improved natural resource management, but evidence suggests that lasting solutions will remain elusive unless they include locally acceptable and enforceable institutional arrangements governing the use of natural resources.

Important institutional issues include:

- The specification and assignment of *rights* that dictate who may use a natural resource in a given way, and *responsibilities* that guide people to manage natural resources and protect them from degradation;
- The extent of *collective action* whereby people jointly protect or improve a natural resource;
- The extent to which government policy and practice plays a supporting role in specifying rights and responsibilities and promoting collective action.

Since the late 1980s the literature on property rights and collective action for natural resource management has grown steadily. It points to a range of natural resource management successes and failures under different property regimes, and it is steadily gaining insights into the elements of effective management institutions. This literature is highly interdisciplinary, drawing on all the social sciences and applied to a great variety of biophysical, socioeconomic and cultural contexts. It offers students interested in natural resource management and development exposure to a wide range of conceptual tools and analytical methods associated with both single discipline and interdisciplinary inquiry.

At the same time, it is also important to recognize that “community-based natural resource management” has become a development buzzword. At times policymakers and project managers promote it unquestioningly, without sufficient understanding of what conditions are necessary to make it likely to succeed in promoting productivity, conservation, and equity. In fact, it is at least as easy to find cases of failures as successes in community-based natural resource management. Debates about how to promote better natural resource management are as strong as ever.

Aims: This course has three specific aims:

- To introduce students to the role of institutional arrangements in natural resource management and the forces behind the evolution of property regimes.
- To encourage students to think critically about the characteristics of appropriate and inappropriate institutional arrangements under a variety of socioeconomic and biophysical conditions.
- To expose students to a large and growing literature and a range of concepts and analytical methods associated with the interdisciplinary study of institutional arrangements in natural resource management.

Objectives: On completion of this course, students should be able to:

- Critically evaluate the strengths and weaknesses of various theories and arguments related to rural natural resource management in developing countries.
- Explain the links between institutional arrangements including governance and the incentives that guide people, individually or collectively, to conserve or degrade natural resources.
- Understand links among productivity, conservation and equity under a range of institutional arrangements for natural resource management.
- Apply these concepts to a natural resource management problem of particular interest to them.

Format

Class sessions will follow a seminar format. Class discussion will focus on concepts and problems raised in weekly readings that each student is expected to have read prior to each session. Each week a group of students will make a short presentation on the week’s topic and help guide the discussion. Please contact me ahead of time if you must miss a class.

Assignments and Evaluation

Short reaction papers

Each student is expected to write 3 short papers reacting to a week's readings to be shared with classmates at least 48 hours in advance of class. The selection of the topic should be on a first come, first serve basis, thus I suggest sending me an email with your three preferred topics as soon as possible. I reserve the right to assign you a particular week in case I do not hear from you and the other topics are already scheduled or covered.

Each reaction paper should be 2-3 pages (excluding references, 1 inch margins, 12 Times Roman font, 1.5 space). Students should reflect on the readings for that week and related topics. The main idea is just to spend some time thinking about some key issues raised in a week's readings; to help generate discussion. The student should demonstrate that he/she has actually read the papers (individual pieces), and also understood the overall content of the readings. There is no need to summarize, instead think about some key issues raised in that week's readings; this will help generate discussion. It's important to focus on broad issues rather than, for example, just focus narrowly on one small detail. From time to time, I might ask for comments on a particular subject during class. At the end of your reaction papers you should conclude with a few discussion questions, that can be used as part of the class discussion.

Reaction papers should be posted under the corresponding Forum in D2L for all class participants to read. Reaction papers are due Tuesdays at 3 PM. If this poses a problem for you, please let me know and we can discuss. But the idea is to make sure others (the ones writing the reactions papers for that week and the ones not writing for that week, and me) have time to read them before Thursday. I will use the reactions papers as part of my presentation in class. These reaction papers are individually graded.

However, regardless of the week, all students are supposed to do the readings for each week.

Presentations

Three times during the semester each student will give a short presentation on key issues related to a week's topic. The student should either email me his/he ideas or meet with me before class, so that I plan the class according to the topics covered in those presentations.

Normally we will have two-three students presenting. Each presentation will be timed and part of the grade is to keep it to between 7 and 8 minutes. The main purpose of this assignment is to: 1) raise some good points for discussion, and 2) to practice giving a good, short oral presentation.

As for the reaction papers, those spots will be assigned on a first come first served basis, thus I suggest to send me an email with that information as soon as possible.

The presentations are worth 5 points each. Assessment criteria are that it should be clearly presented, be well organized, linked clearly to other readings so that other students understand, get interesting points across, stay within the time allotted, and have useful visual aids.

(Sometimes visual aids aren't needed and you don't have to use "powerpoint" if you prefer not to.)

Helping organize one session

Once during the semester, you will be responsible for working with me to organize a week's class. You can do this by raising useful discussion questions and/or coming up with an interesting and instructive approach that raises interesting points, by doing an activity that is related to the readings, etc. It can involve identifying an interesting video, helping lead a useful discussion session, designing a role play activity that demonstrates some useful points, doing an experiment, or some combination of these things. You will be able to choose the week that you want to co-organize the class activity. As for the reaction papers and presentations, those spots will be assigned on a first come first served basis, thus I suggest to send me an email with that information as soon as possible. Of course, I'll work closely with students in this. I am completely open to suggestions about customizing this assignment if someone has a good idea.

This class commitment implies that you will need to meet with me ahead of class time to discuss how we are going to organize the section. Budget this time in your agenda! The idea here is not to make you do my job but to give everyone a chance to help set the agenda for what we do in class, and prepare you for teaching a similar course in the future. The organization of the section is worth 15 points.

We will do this except for the week that we cover institutions since we will have a special guest.

A short paper

Each student will write a paper on a topic of their choice, subject to the condition that it should be relevant to the main topics of the course. This condition is really not very constraining – if you have an idea and don't think it really fits, I suspect that I can help you frame it in a way that does fit. So don't be shy about proposing your ideas. Regardless of your idea, I ask you to please share it with me because hopefully I will be able to give you useful feedback and you need my approval on your topic before you start the paper.

There are a lot of different ways to pursue this assignment. One useful approach is to take a topic that you are interested in researching, possibly for your Masters or PhD thesis, and add an angle related to ideas covered in the class (such as property rights, gender, collective action, institutions or experimental economics) that you had not previously considered. Another approach would be to write a literature review on a specific topic that you are interested in; or you could also write a project proposal – presumably a hypothetical one. If you write a proposal, the part that you turn in for the class should only be the substantive academic part – no budget and no logistical details.

Frequently there are special journal issues that focus on a topic relevant to this class; you could review the articles in such a special issue if you wanted to. (Examples are the recent World Development Report (March 2014) on forest conservation, including REDD+ activities; several recent issues of Ecological Economics with special sections on payments for environmental services and another one in 2014 on “forests and livelihoods”; The International Journal of the Commons had a special issue on 2014 dedicated to large socio-ecological systems and another one in 2011 on resilience and adaptation in the governance of social-ecological systems; Ecology and Society and Journal of Economic Behavior and Organization had special issues in 2015 in

the topic of field experiments as well. You could also review a book or books. Again, please share your ideas with me; most likely whatever you really want to do will work.

Papers should have between 3000 and 3500 words (excluding references, 1 inch margins, 12 Times Roman font) and be analytical, focusing more on applying concepts relevant to this class to a selected research problem and less on describing the case. Papers that are more analytical and original will earn a higher score than those that are not. I will work closely with each student on how to make this assignment as useful as possible to you and to make sure you understand what I am asking for. The word limit of 3500 words is strict!

For the paper, each student must turn a memo with a proposed topic and why it is important to study it and an outline of the paper they want to write on by **February 25th**. I will meet with you to discuss your ideas ahead of time, please do not wait until the very last minute to do that. By **April 1st** you need to submit a first draft of that paper. The first draft will not be graded, but you will receive feedback from me and from somebody else in the class. The revision that you do of somebody's else paper is worth 10 points. The revision of somebody's else draft is due on **April 10th**. The final draft will receive a score worth 30 points. The final paper is due **April 21st**.

Final paper's presentation

The final paper will be presented on **April 30th** by someone other than the author (different from the person that did the comments on the first draft). The presenter, will first present the paper and then will provide a critique. This presentation is worth 10 points.

Participation

There are many ways to participate and this is less a matter of speaking up all the time and more about being engaged and making a good effort.

Other

I reserve the right to raise the overall grade a bit for students who have worked hard and demonstrated that they have learned during the semester.

Overall grading for the class

Assignment	Total points
Reaction papers (3)	20
Presentation (3 x 5):	15
Help organize section	15
1 st draft of final paper (not graded)	
Comments of somebody's first draft	10
Final paper	30
Final presentation	10
Total:	100

Grading scale for the course

93 to 100%	4.0
87 to 93%	3.5
80 to 87%	3.0
75 to 79%	2.5
70 to 74%	2.0
65 to 69%	1.5
60 to 64%	1.0
<60%	no credit

Assignments

Assignments will be turned in electronically in D2L. Assignments should be written in Times New Roman or Arial (12 point) font. For all written assignments, make sure you include a bibliography with all the sources you are citing.

Consistent with MSU's efforts to enhance student learning, foster honesty, and maintain integrity in our academic processes, I have chosen to use a tool called Turnitin to compare your papers with multiple sources. The tool will compare each paper you submit to an extensive database of prior publications and papers, providing links to possible matches and a 'similarity score.' The tool does not determine whether plagiarism has occurred or not. Instead, I will make a complete assessment and judge the originality of your work. All submissions to this course may be checked using this tool. You should submit papers to Turnitin Dropboxes without identifying information included in the paper (e.g., name or student number), the D2L system will automatically show this information to me when I view the submission, but the information will not be retained by Turnitin.

Late Assignments

Since learning how to meet deadlines is an essential skill for all academics and professionals, all deadlines are taken as seriously here as in the real world of work.

Late submissions of assignments will be discounted 20% of the total possible points. This is only fair to those in the class who made every effort to meet deadlines; otherwise they would be disadvantaged relative to those who took more time.

Unexpected events take place and factors out of our control can obstruct our plans. I will be highly sensitive to such things, and any students with personal circumstances that hamper their ability to carry out certain tasks on time are encouraged to contact me in advance. On the other hand, I will be much less flexible if students do not contact me in advance.

Communication Policy

Email is the best method for sharing information with me. I will do my best to respond within 24-48 hours of your email. **Please include "CSUS 848" in all email subject lines so it gets prompt attention.**

Cellphones

You are allowed to maintain cellular devices in a silent mode during this course, in order to receive emergency SMS text, phone or email messages distributed by the university. Please do not text or send emails during class. This is a collective action problem, calls, texts and emails only “benefit” you, but cause discomfort to others. So please don’t.

Academic Integrity:

[Article 2.III.B.2](#) of the Academic Freedom Report states: “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards.” In addition, the Department of Sustainability adheres to the policies on academic honesty specified in General Student Regulation 1.0, [Protection of Scholarship and Grades](#); the all-University Policy on [Integrity of Scholarship and Grades](#); and [Ordinance 17.00](#), Examinations.

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in this course. Students who violate MSU regulations on Protection of Scholarship and Grades will receive a failing grade in the course or on the assignment. Contact your instructor if you are unsure about the appropriateness of your course work. (See also <http://www.msu.edu/unit/ombud/dishonestyFAQ.html>). **There will be no warnings – the maximum sanction allowed under University policy will occur on the first offense.** Turnitin.com will be used for all written assignments.

Accommodations for Students with Disabilities

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to an instructor during the second week of class and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

Bereavement

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If you require a grief absence, you should complete the “Grief Absence Request” web form (found at <https://www.reg.msu.edu/sitemap.aspx?Group=7>) no later than one week after knowledge of the circumstance. I will work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

Disruptive Behavior

Article 2.III.B.4 of the Academic Freedom Report (AFR) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and

learning process for all concerned." Article 2.III.B.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." General Student Regulation 5.02 states: "No student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process.

Campus Emergencies

In the event of an emergency arising within the class, the Professor will notify you of what actions may be required to ensure your safety. It is the responsibility of each student to understand the evacuation, "shelter-in-place," and "secure-in-place" guidelines posted in each facility and to act in a safe manner. You are allowed to maintain cellular devices in a silent mode during this course, in order to receive emergency SMS text, phone or email messages distributed by the university. When anyone receives such a notification or observes an emergency situation, they should immediately bring it to the attention of the Professor in a way that causes the least disruption. If an evacuation is ordered, please ensure that you do it in a safe manner and facilitate those around you that may not otherwise be able to safely leave. When these orders are given, you do have the right as a member of this community to follow that order. Also, if a shelter-in-place or secure-in-place is ordered, please seek areas of refuge that are safe depending on the emergency encountered and provide assistance if it is advisable to do so.

Title IX

"Michigan State University is committed to fostering a culture of caring and respect that is free of relationship violence and sexual misconduct, and to ensuring that all affected individuals have access to services. For information on reporting options, confidential advocacy and support resources, university policies and procedures, or how to make a difference on campus, visit the Title IX website at www.titleix.msu.edu."

Limits to Confidentiality

Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues based on external legal obligations or that relate to the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices if you share it with me:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and
- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more

confidential setting you are encouraged to make an appointment with the MSU Counseling Center.

Reading Materials

All the readings for this course are available electronically.

CSUS 848. Detailed Course Outline and Reading List

Note: some of this will be subject to change depending on students' interests and if I find new readings during the course of the semester. Also, you will see that I have listed a large number of recommended readings. Let me know if sometimes you would prefer to read one of the recommended readings in place of one of the required readings so that I can let you know in which cases they are interchangeable, as opposed to when one of the required readings contain key messages I want to make sure everyone gets.

If you want to read ahead, please check with me in advance. That will help me make sure you don't read one thing only to have me change the reading list.

1. January 9: Introduction to the class

2. January 16: Human and natural system interactions

Required:

Liu, J., Dietz, T., Carpenter, S. R., Folke, C., Alberti, M., Redman, C. L., ... & Taylor, W. W. (2007). Coupled human and natural systems. *AMBIO: a journal of the human environment*, 36(8), 639-649.

Vlek, C. a J., & Steg, L. (2007). Human behavior and environmental sustainability: Problems, driving forces, and research topics. *Journal of Social Issues*, 63(1), 1–19. <https://doi.org/10.1111/j.1540-4560.2007.00493.x>

Binder, C. R., Bots, P. W. G., Hinkel, J., & Pahl-Wostl, C. (2013). Comparison of Frameworks for Analyzing Social- ecological Systems Comparison of Frameworks for Analyzing Social- ecological Systems, 18(April 2015). <https://doi.org/10.5751/ES-05551-180426>

Colding, J., & Barthel, S. (2019). Exploring the social-ecological systems discourse 20 years later. *Ecology and Society*, 24(1).

Bain, P. G., Milfont, T. L., Kashima, Y., Bilewicz, M., Doron, G., Garðarsdóttir, R. B., ... & Corral-Verdugo, V. (2016). Co-benefits of addressing climate change can motivate action around the world. *Nature climate change*, 6(2), 154.

Recommended:

Epstein, G., Vogt, J. M., Mincey, S. K., & Cox, M. (2013). Missing ecology: integrating ecological perspectives with the social- ecological system framework. *International Journal of the Commons*, 7(2), 2013. <https://doi.org/10.18352/ijc.371>

- Partelow, S. (2018). A review of the social-ecological systems framework: applications, methods, modifications, and challenges. *Ecology and Society*, 23(4).
- Liu, J., Dietz, T., Carpenter, S. R., Alberti, M., Folke, C., Pell, A. N., ... Taylor, W. W. (2007). Complexity of Coupled Human and Natural Systems. *Science*, 317(5844), 1513–1516. <https://doi.org/10.1126/science.1144004>
- National Research Council (U.S.). Committee on the Human Dimensions of Global Change. (1999). *Human dimensions of global environmental change: research pathways for the next decade*. National Academy Press. Retrieved from <http://ezproxy.msu.edu:2047/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=e000xna&AN=14143&scope=site>
- Ostrom, E. (2007). A diagnostic approach for going beyond panaceas. *Proceedings of the National Academy of Sciences of the United States of America*, 104(39), 15181–15187. <https://doi.org/10.1073/pnas.0702288104>
- Vogt, J. M., Epstein, G. B., Mincey, S. K., Fischer, B. C., & Mccord, P. (2015). Putting the “ E ” in SES : unpacking the ecology in the Ostrom social- ecological system framework. *Ecology and Society*, 20(1), 55. <https://doi.org/10.5751/ES-07239-200155>
- Liu, J., Dietz, T., Carpenter, S. R., Folke, C., Alberti, M., Redman, C. L., ... Provencher, W. (2007). Coupled Human and Natural Systems. *AMBIO: A Journal of the Human Environment*, 36(8), 639–649. [https://doi.org/10.1579/0044-7447\(2007\)36\[639:CHANS\]2.0.CO;2](https://doi.org/10.1579/0044-7447(2007)36[639:CHANS]2.0.CO;2)

3. January 23: Definition of institutions and their role in natural resource management **For the last hour of the class Dr. Abby Bennett will visit the class.**

Required:

- North, D. (1990). Informal Constraints. In *Institutions, institutional change, and economic performance* (pp. 36–45). Cambridge University Press.
- Ostrom, E. (1992). Irrigation, Institutions and Development. In *Crafting institutions for self-governing irrigation systems* (pp. 1–18). San Francisco: ICS Press.
- Ostrom, E. (1992). Institutions as Rules in Use. In *Crafting institutions for self-governing irrigation systems* (pp. 19–40). San Francisco: ICS Press.
- Schlüter, A., & Theesfeld, I. (2010). The grammar of institutions: The challenge of distinguishing between strategies, norms, and rules. *Rationality and Society*, 22(4), 445-475.
- Kahsay, G. A., & Bulte, E. (2019). Trust, regulation and participatory forest management: Micro-level evidence on forest governance from Ethiopia. *World Development*, 120, 118-132.

Recommended:

- Coleman, E. A., & Steed, B. C. (2009). Monitoring and sanctioning in the commons: an application to forestry. *Ecological Economics*, 68(7), 2106-2113.
- Ostrom, E., & Basurto, X. (2011). Crafting analytical tools to study institutional change. *Journal of Institutional Economics*, 7(3), 317–343. <https://doi.org/10.1017/S1744137410000305>
- Cox, M., Villamayor-Tomas, S., & Hartberg, Y. (2014). The Role of Religion in Community-based Natural Resource Management. *World Development*, 54, 46–55. <https://doi.org/10.1016/j.worlddev.2013.07.010>

- Gibson, C. C., Williams, J. T., & Ostrom, E. (2005). Local enforcement and better forests. *World Development*, 33(2 SPEC. ISS.), 273–284. <https://doi.org/10.1016/j.worlddev.2004.07.013>
- Hanna, S. S. (2008). Institutions for managing resilient salmon (*Oncorhynchus* spp.) ecosystems: The role of incentives and transaction costs. *Ecology and Society*, 13(2), 35. [https://doi.org/10.1890/1052-3175\(2008\)13\[35:II\]2.0.CO;2](https://doi.org/10.1890/1052-3175(2008)13[35:II]2.0.CO;2)
- Ostrom, E. (2005). Understanding the Diversity of Structured Human Interactions. In *Understanding institutional diversity* (pp. 1–31). Princeton University Press.
- Barrett, C. B., Lee, D. R., & McPeak, J. G. (2005). Institutional arrangements for rural poverty reduction and resource conservation. *World Development*, 33(2), 193–197. <https://doi.org/10.1016/j.worlddev.2004.07.008>

See the special issue of *World Development* (Volume 33, Number 2, February 2005) on institutional arrangements for rural poverty reduction and resource conservation. *All the articles are available electronically on the MSU Library web page.*

January 30: The role of natural resources in rural livelihoods systems

Required:

- Bebbington, A. (1999). Capitals and Capabilities, A Framework for Analyzing and rural livelihoods. *World Development*, 27(12), 2021–2044. [https://doi.org/10.1016/S0305-750X\(99\)00104-7](https://doi.org/10.1016/S0305-750X(99)00104-7)
- Angelsen, A., Jagger, P., Babigumira, R., Belcher, B., Hogarth, N. J., Bauch, S., ... Wunder, S. (2014). Environmental Income and Rural Livelihoods: A Global-Comparative Analysis. *World Development*, 64, 12–28. <https://doi.org/10.1016/j.worlddev.2014.03.006>
- Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy*, 25(5), 377–388. [https://doi.org/10.1016/S0308-597X\(01\)00023-9](https://doi.org/10.1016/S0308-597X(01)00023-9)
- Biggs, E. M., Bruce, E., Boruff, B., Duncan, J. M., Horsley, J., Pauli, N., ... & Haworth, B. (2015). Sustainable development and the water–energy–food nexus: A perspective on livelihoods. *Environmental Science & Policy*, 54, 389–397.

Recommended:

- Ellis, F. (2000). The determinants of rural livelihood diversification in developing countries. *Journal of Agricultural Economics*, 51(2), 289–302.
- McCord, P. F., Cox, M., Schmitt-Harsh, M., & Evans, T. (2015). Crop diversification as a smallholder livelihood strategy within semi-arid agricultural systems near Mount Kenya. *Land Use Policy*, 42, 738–750. <https://doi.org/10.1016/j.landusepol.2014.10.012>
- Chambers, R. (1983). Rural poverty unobserved: the six biases. In *Rural development putting the last first* (pp. 13–26). Longman.
- Chambers, R. (1997). Poor people's realities: local, complex, diverse, dynamic, and unpredictable. In *Whose Reality Counts? Putting the First Last* (pp. 162–187). London: Intermediate Technology.
- Hanna, S., & Jentoft, S. (1996). Human use of the natural environment: an overview of social and economic dimensions. In S. Hanna & Folke (Eds.), *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment*. Beijer International Institute of Ecological Economics, the Royal Swedish Academy of Science. Island Press.

- Sunderlin, W. D., Angelsen, A., Belcher, B., Burgers, P., Nasi, R., Santoso, L., & Wunder, S. (2005). Livelihoods, forests, and conservation in developing countries: An Overview. *World Development*, 33(9), 1383–1402. <https://doi.org/10.1016/j.worlddev.2004.10.004>
- Tomich, T. P., Chomitz, K., Francisco, H., Izac, A.-M. N., Murdiyarso, D., Ratner, B. D., ... van Noordwijk, M. (2004). Policy analysis and environmental problems at different scales: asking the right questions. *Agriculture, Ecosystems & Environment*, 104, 5–18. <https://doi.org/10.1016/j.agee.2004.01.003>
- Ferrol-Schulte, D., Wolff, M., Ferse, S., & Glaser, M. (2013). Sustainable Livelihoods Approach in tropical coastal and marine social-ecological systems: A review. *Marine Policy*, 42, 253–258. <https://doi.org/10.1016/j.marpol.2013.03.007>
- See the special issue of *World Development* (Volume 64, Supplement 1, December 2014) on *Forests, Livelihoods, and Conservation*. The required article by Angelsen et al is part of that special issue. All the articles are available electronically on the MSU Library web page. Some of them come up later in the semester.

4. February 6. Environmental values, risks and perceptions

Required:

- Latulippe, Nicole. "Situating the work: A typology of traditional knowledge literature." *AlterNative: An International Journal of Indigenous Peoples* 11.2 (2015): 118-131.
- Murtinho, F., Tague, C., de Bievre, B., Eakin, H., & Lopez-Carr, D. (2013). Water Scarcity in the Andes: A Comparison of Local Perceptions and Observed Climate, Land Use and Socioeconomic Changes. *Human Ecology*, 41(5), 667–681. <https://doi.org/10.1007/s10745-013-9590-z>
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- Davis, a, & Wagner, J. R. (2003). Who Knows? On the Importance of Identifying “Expert” When Researching Local Ecological Knowledge. *Human Ecology*, 31(3), 463–489. <https://doi.org/10.1023/A:1025075923297>
- Gore, M. L., & Kahler, J. S. (2012). Gendered risk perceptions associated with human-wildlife conflict: implications for participatory conservation. *PLoS One*, 7(3), e32901.

Recommended:

- Baland, J.-M., & Platteau, J.-P. (2000). Were people traditionally conservationists? In *Halting degradation of natural resources: is there a role for rural communities?* Food and Agriculture Organization of the United Nations. <http://www.fao.org/docrep/x5316e/x5316e00.htm>
- Cavendish, W. (2000). Empirical regularities in the poverty-environment relationship of rural households: Evidence from Zimbabwe. *World Development*, 28(11), 1979–2003. [https://doi.org/10.1016/S0305-750X\(00\)00066-8](https://doi.org/10.1016/S0305-750X(00)00066-8)
- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review Environmental Resources*. <https://doi.org/10.1146/annurev.energy.30.050504.144444>

- Eakin, H. (2005). Institutional change, climate risk, and rural vulnerability: Cases from Central Mexico. *World Development*, 33(11), 1923–1938. <https://doi.org/10.1016/j.worlddev.2005.06.005>
- Kimmerer, R. N. (2000). Native knowledge for native ecosystems. *Journal of Forestry*, 98(8), 4–9.
- Xiao, C., & Hong, D. (2010). Gender differences in environmental behaviors in China. *Population and Environment*, 32(1), 88–104. <https://doi.org/10.1007/s11111-010-0115-z>
- Slovic, P., 1987. Perception of risk. *Science* (80-.). 236, 280–285.
- Suryawanshi, K.R., Veer Bhatnagar, Y., Redpath, S., Mishra, C., 2013. People, predators and perceptions: patterns of livestock depredation by snow leopards and wolves. *J. Appl. Ecol.* 50, 550–560. doi:10.1111/1365-2664.12061

6. February 13. Property rights regimes: overview

Required:

- Schlager, E., & Ostrom, E. (1992). Property-Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics*, 68(3), 249–262.
- Sikor, T., He, J., & Lestrelin, G. (2017). Property rights regimes and natural resources: a conceptual analysis revisited. *World Development*, 93, 337-349.
- Mwangi, E. (2007). Subdividing the Commons: Distributional Conflict in the Transition from Collective to Individual Property Rights in Kenya's Maasailand. *World Development*, 35(5), 815–834. <https://doi.org/10.1016/j.worlddev.2006.09.012>
- Moritz, M., Behnke, R., Beitzl, C. M., Bird, R. B., Chiaravalloti, R. M., Clark, J. K., ... & Scholte, P. (2018). Emergent sustainability in open property regimes. *Proceedings of the National Academy of Sciences*, 115(51), 12859-12867.
- Vélez, M. A., Robalino, J., Cardenas, J. C., Paz, A., & Pacay, E. (2020). Is collective titling enough to protect forests? Evidence from Afro-descendant communities in the Colombian Pacific region. *World Development*, 128, 104837.

Recommended:

- Agarwal, B. (1995). Gender and Command over Property: A Critical Gap in Economic Analysis and Policy in South Asia. *World-Development; 1994, 22, 10, Oct, 1455-1478.*, 22(10), 1455–1478.
- Bromley, D. W. (2009). Formalising property relations in the developing world: The wrong prescription for the wrong malady. *Land Use Policy*, 26(1), 20–27. <https://doi.org/10.1016/j.landusepol.2008.02.003>
- Deininger, Klaus. 2003. *Land policies for growth and poverty reduction (English)*. A World Bank policy research report. Washington, DC : World Bank Group. <http://documents.worldbank.org/curated/en/485171468309336484/Land-policies-for-growth-and-poverty-reduction>
- Demsetz, H. (1967). Toward a Theory of Property Rights. *The American Economic Review*, 57(2), 347–359. Retrieved from <http://www.jstor.org/stable/1821637>
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- Fitzpatrick, D. (2005). “Best practice” options for the legal recognition of customary tenure. *Development and Change*, 36(3), 449–475. <https://doi.org/10.1111/j.0012-155X.2005.00419.x>
- Peters, P. E. (2009). Challenges in Land Tenure and Land Reform in Africa: Anthropological Contributions. *World Development*, 37(8), 1317–1325. <https://doi.org/10.1016/j.worlddev.2008.08.021>
- Place, F. (2009). Land Tenure and Agricultural Productivity in Africa: A Comparative Analysis of the Economics Literature and Recent Policy Strategies and Reforms. *World Development*, 37(8), 1326–1336. <https://doi.org/10.1016/j.worlddev.2008.08.020>
- Platteau, J.-P. (1996). The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment. *Development and Change*, 27(1), 29–86. <https://doi.org/10.1111/j.1467-7660.1996.tb00578.x>
- Sikor, T., & Müller, D. (2009). The Limits of State-Led Land Reform: An Introduction. *World Development*, 37(8), 1307–1316. <https://doi.org/10.1016/j.worlddev.2008.08.010>
- Heltberg, R. (2002). Property rights and natural resource management in developing countries. *Journal of Economic Surveys*, 16(2), 189–214. <https://doi.org/10.1111/1467-6419.00164>
- Ribot, J. C., & Peluso, N. L. (2003). A theory of access. *Rural sociology*, 68(2), 153–181.

7. February 20: Management of Natural Resources: an introduction

Required:

- Coria, J., & Sterner, T. (2011). Natural Resource Management: Challenges and Policy Options. *Annual Review of Resource Economics*, 3(1), 203–230. <https://doi.org/10.1146/annurev-resource-083110-120131>
- Weeratunge, N., Béné, C., Siriwardane, R., Charles, A., Johnson, D., Allison, E. H., ... & Badjeck, M. C. (2014). Small-scale fisheries through the wellbeing lens. *Fish and Fisheries*, 15(2), 255–279.
- Kerr, J., Milne, G., Chhotray, V., Baumann, P., & James, A. J. (2007). Managing watershed externalities in India: Theory and practice. *Environment, Development and Sustainability*, 9(3), 263–281. <https://doi.org/10.1007/s10668-005-9022-3>
- Cinner, J. E., Lau, J. D., Bauman, A. G., Feary, D. A., Januchowski-Hartley, F. A., Rojas, C. A., ... & Ben, J. (2019). Sixteen years of social and ecological dynamics reveal challenges and opportunities for adaptive management in sustaining the commons. *Proceedings of the National Academy of Sciences*, 116(52), 26474–26483.

Recommended:

- Cole, D. H., Epstein, G., & McGinnis, M. D. (2014). Digging deeper into Hardin’s pasture: The complex institutional structure of “the tragedy of the commons.” *Journal of Institutional Economics*, 10(3), 353–369. <https://doi.org/10.1017/S1744137414000101>
- Damon, M., & Sterner, T. (2012). Policy Instruments for Sustainable Development at Rio +20. *Journal of Environment and Development*, 21(2), 143–151. <https://doi.org/10.1177/1070496512444735>

Newell, P. (2009). Varieties of CDM Governance: Some reflections. *The Journal of Environment & Development*, 18(4), 425–435. <https://doi.org/10.1177/107049650347089>

8. February 27: Common Property and Collective Management

Required:

- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649–1672. [https://doi.org/10.1016/S0305-750X\(01\)00063-8](https://doi.org/10.1016/S0305-750X(01)00063-8)
- Cox, M., Arnold, G., & Villamayor-Tomas, S. (2010). A Review of Design Principles for Community-based Natural Resource. *Ecology and Society*, 15(4).
- Doss, C. R., & Meinzen-Dick, R. (2015). Collective action within the household: Insights from natural resource management. *World Development*, 74, 171–183.
- Cox, M., Villamayor-Tomas, S., Epstein, G., Evans, L., Ban, N. C., Fleischman, F., ... & Garcia-Lopez, G. (2016). Synthesizing theories of natural resource management and governance. *Global Environmental Change*, 39, 45–56.

Recommended:

- Lemos and Agrawal. (2006). Environmental Governance. *Annual Review of Environment and Resources* 31: 297–325
- Agrawal, A., & Chhatre, A. (2006). Explaining success on the commons: Community forest governance in the Indian Himalaya. *World Development*, 34(1), 149–166. <https://doi.org/10.1016/j.worlddev.2005.07.013>
- Baggio, J. A., Barnett, A. J., Perez-Ibarra, 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), 417–439. <https://doi.org/10.18352/ijc.634>
- Baland, J. M., & Platteau, J. P. (1996). Conditions for successful collective action: insights from field experiences. In *Halting degradation of natural resources: is there a role for rural communities?* Rome: Food and Agriculture Organization of the United Nations.
- Doss, C. R., & Meinzen-Dick, R. (2015). Collective Action within the Household: Insights from Natural Resource Management. *World Development*, 74, 171–183. <https://doi.org/10.1016/j.worlddev.2015.05.001>
- Kerr, J. (2007). Watershed Management: Lessons from Common Property Theory. *International Journal of the Commons*, 1(1), 89–109.
- Meinzen-dick, R., Raju, K. V., & Gulaty, A. (2002). What affects organization and collective action for managing resources? *World Development*, 30(4), 649–666.
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science (New York, N.Y.)*, 325(5939), 419–22. <https://doi.org/10.1126/science.1172133>
- Ostrom, E. (1992). Design Principles of Long-Enduring, Self-Organized Irrigation Systems. In *Crafting institutions for self-governing irrigation systems* (pp. 67–80). San Francisco: ICS Press.
- Poteete, A. R., Janssen, M., & Ostrom, E. (2010). Small-N case studies: putting the commons under a magnifying glass. In A. R. Poteete, M. Janssen, & E. Ostrom (Eds.), *Working*

together: collective action, the commons, and multiple methods in practice (pp. 31–63). Princeton University Press.

Steins, N., Edwards, V., & Roling, N. (2000). Re-designed principles for CPR theory. *The Common Property Resource Digest*, 53, 1-5

Wade, R. (1988). *Village republics: economic conditions for collective action in South India* (Vol. 40.). Cambridge [Cambridge shire]; New York: Cambridge University Press.

The International Journal of the Commons publishes two issues per year in topics relevant to the commons. In addition, the Digital Library of The Commons offers open access to thousands of articles on the topic of the commons.

9. March 5: Spring break

10. March 12: Polycentricity and Co-Management

Plummer, R., & Fitzgibbon, J. (2004). Co-management of Natural Resources: A Proposed Framework. *Environmental Management*, 33(6), 876–885. <https://doi.org/10.1007/s00267-003-3038-y>

Frey, U. J., S. Villamayor-Tomas, and I. Theesfeld (2016), A continuum of governance regimes: A new perspective on co-management in irrigation systems, *Environmental Science & Policy*, 66, 73-81.

Andersson, K. P., & Ostrom, E. (2008). Analyzing decentralized resource regimes from a polycentric perspective. *Policy sciences*, 41(1), 71-93.

Carlisle, K., & Gruby, R. L. (2019). Polycentric systems of governance: A theoretical model for the commons. *Policy Studies Journal*, 47(4), 927-952.

Baldwin, E., McCord, P., Dell'Angelo, J., & Evans, T. (2018). Collective action in a polycentric water governance system. *Environmental Policy and Governance*, 28(4), 212-222.

Recommended:

Baland, J. M., & Platteau, J. P. (1996). Co-Management as a New Approach to Regulation of Common Property Resources. In *Halting degradation of natural resources: is there a role for rural communities?* Rome: Food and Agriculture Organization of the United Nations. (Sections 13.1 only, about 2 pages).

Moreno-Sánchez, R. del P., & Maldonado, J. H. (2010). Evaluating the role of co-management in improving governance of marine protected areas: An experimental approach in the Colombian Caribbean. *Ecological Economics*, 69(12), 2557–2567. doi:10.1016/j.ecolecon.2010.07.032

Farrington, J., & Lobo, C. (1997). Scaling up participatory watershed development in India: Lessons from the Indo-German watershed development programme. *Natural Resource Perspectives*, 17(6).

Mayaka, T. B. (2002). Wildlife co-management in the Bénoué National Park-Complex, Cameroon: A bumpy road to institutional development. *World Development*, 30(11), 2001–2016. doi:10.1016/S0305-750X(02)00111-0

Environmental Policy and Governance had a special issue Bringing polycentric systems into focus for Environmental Governance on 2018.

11. March 19: Gender and Resource Management

Required:

- Agarwal, B. (2000). Conceptualising environmental collective action: why gender matters. *Cambridge Journal of Economics*, 24(1996), 283–310. <https://doi.org/10.1093/cje/24.3.283>
- Branch, T. A., & Kleiber, D. (2017). Should we call them fishers or fishermen? *Fish and Fisheries*, 18(1), 114–127. <https://doi.org/10.1111/faf.12130>
- Meinzen-Dick, R., Kovarik, C., & Quisumbing, A. R. (2014). Gender and Sustainability. *Annual Review of Environment and Resources*, 39(1), 29–55. <https://doi.org/10.1146/annurev-environ-101813-013240>
- Nightingale, A., 2011: Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum*, 42(2), 153-162.
- Leisher, C., Temsah, G., Booker, F., Day, M., Samberg, L., Prosnitz, D., ... & Sunderland, T. (2016). Does the gender composition of forest and fishery management groups affect resource governance and conservation outcomes? A systematic map. *Environmental Evidence*, 5(1), 6.

Recommended:

- Kelkar, M. (2007). Local knowledge and natural resource management: A gender perspective. *Indian Journal of Gender Studies*, 14(2), 295–306. <https://doi.org/10.1177/097152150701400205>
- Kleiber, D., Harris, L. M., & Vincent, A. C. J. (2015). Gender and small-scale fisheries: A case for counting women and beyond. *Fish and Fisheries*, 16(4), 547–562. <https://doi.org/10.1111/faf.12075>
- Meinzen-dick, R. S., Feldstein, S., & Quisumbing, A. R. (1997). Gender , Property Rights , and Natural Resources, 25(8), 1303–1315.
- Schroeder, R. & Suryanata, K. 2004. Gender and class power in agroforestry systems. *Liberation ecologies: environment, development, social movements*, 299-315.

12. March 26: Promoting cooperation through community development and growth of social capital

Required:

- Agrawal, A., & Gibson, C. C. (2001). Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development*, 27(4), 629–649. [https://doi.org/10.1016/S0305-750X\(98\)00161-2](https://doi.org/10.1016/S0305-750X(98)00161-2)
- Andersson, K., & Agrawal, A. (2011). Inequalities, institutions, and forest commons. *Global Environmental Change*, 21(3), 866–875. <https://doi.org/10.1016/j.gloenvcha.2011.03.004>
- Pretty, J. (2003). Social capital and the collective management of resources. *Science*, 302(5652), 1912-1914. doi:10.1126/science.1090847
- Brondizio, E. S., Ostrom, E., & Young, O. R. (2009). Connectivity and the Governance of Multilevel Social-Ecological Systems: The Role of Social Capital. *Annual Review of Environment and Resources*, 34(1), 253–278. <https://doi.org/10.1146/annurev.envIRON.020708.100707>
- Gutiérrez, N. L., Hilborn, R., & Defeo, O. (2011). Leadership, social capital and incentives promote successful fisheries. *Nature*, 470(7334), 386.

Recommended: These focus on heterogeneity and inequality

- Krishna, A. (2007). How Does Social Capital Grow? A Seven-Year Study of Villages in India. *Journal of Politics*, 69(4), 941–956. doi:10.1111/j.1468-2508.2007.00600.x
- Adhikari, B., & Lovett, J. C. (2006). Institutions and collective action: does heterogeneity matter in community-based resource management? *The Journal of Development Studies*, 42(03), 426–445. doi:10.1080/00220380600576201
- Baland, J.-M., & Platteau, J.-P. (1999). The ambiguous impact of inequality on local resource management. *World Development*, 27(5), 773–788. doi: 10.1016/S0305-750X(99)00026-1
- Cleaver, F. (1998). Incentives and informal institutions: Gender and the management of water. *Agriculture and Human Values*, 15(4), 347–360. doi: doi:10.1023/A:1007585002325
- Leach, M., Mearns, R., & Scoones, I. (1999). Environmental entitlements: dynamics and institutions in community-based natural resource management. *World Development*, 27(2), 225–247. doi: 10.1016/S0305-750X(98)00141-7.
- Naidu, S. C. (2009). Heterogeneity and collective management: evidence from common forests in Himachal Pradesh, India. *World Development*, 37(3), 676–686. doi: 10.1016/j.worlddev.2008.07.001

These focus on organizing communities:

- Mathie, A., & Cunningham, G. (2003). From clients to citizens: Asset-based Community Development as a strategy for community-driven development. *Development in Practice*, 13(5), 474–486. doi:10.1080/0961452032000125857
- Mathie, A., & Cunningham, G. (2005). Who is driving development? reflections on the transformative potential of asset-based community development. *Canadian Journal of Development Studies/Revue Canadienne d'Études Du Développement*, 26(1), 175. doi:10.1080/02255189.2005.9669031
- Pettit, J. (2000). Strengthening Local Organisation: “Where the Rubber Hits The Road.” *IDS Bulletin*, 31(3), 57–67. doi:10.1111/j.1759-5436.2000.mp31003006.x
- Pretty, J., & Smith, D. (2004). Social capital in biodiversity conservation and management. *Conservation Biology*, 18(3), 631–638. doi:10.1111/j.1523-1739.2004.00126.x

13. April 2: Insights about collective action from experimental economics

Required:

Please read the Wikipedia entry on the prisoner’s dilemma. Read the initial overview and the short section called “strategy for the classical prisoners dilemma,” and then anything else you want. (This will help give useful background for what follows.)

- Anderies, J. M., Janssen, M. A., Bousquet, F., Cardenas, J.-C., Castillo, D., Lopez, M.-C., ... Wutich, A. (2011). The challenge of understanding decisions in experimental studies of common pool resource governance. *Ecological Economics*, 70(9), 1571–1579. doi:10.1016/j.ecolecon.2011.01.011

- Poteete, A. R., Janssen, M. A., & Ostrom, E. (2010). Experiments in the Laboratory and the Field. In *Working together: collective action, the commons, and multiple methods in practice* (pp. 141–170). Princeton: Princeton University Press.
- Meinzen-Dick, R., Janssen, M. A., Kandikuppa, S., Chaturvedi, R., Rao, K., & Theis, S. (2018). Playing games to save water: Collective action games for groundwater management in Andhra Pradesh, India. *World Development*, *107*, 40-53.
- Finkbeiner, E. M., Micheli, F., Saenz-Arroyo, A., Vazquez-Vera, L., Perafan, C. A., & Cárdenas, J. C. (2018). Local response to global uncertainty: Insights from experimental economics in small-scale fisheries. *Global Environmental Change*, *48*(May 2017), 151–157. <https://doi.org/10.1016/j.gloenvcha.2017.11.010>
- Salk, C., Lopez, M.-C., & Wong, G. (2016). Simple Incentives and Group Dependence for Successful Payments for Ecosystem Services Programs: Evidence from an Experimental Game in Rural Lao PDR. *Conservation Letters*. <http://doi.org/10.1111/conl.12277>

Recommended:

- Baland, J. M., & Platteau, J. P. (1996). *Halting degradation of natural resources: is there a role for rural communities?* Rome: Food and Agriculture Organization of the United Nations. The following chapters: 2, 4, 5, 6 and 7
Chapter 2 has some simple beginnings about game theory related to the prisoners' dilemma.
Chapter 4 has more detail on the prisoners' dilemma.
Chapter 5 becomes more complex, presenting alternative contexts that change incentives.
Chapter 6 looks at moral norms and cooperation
Chapter 7 goes into more game theory based on experimental psychology.
- Bouma, J., Bulte, E., & van Soest, D. (2008). Trust and cooperation: Social capital and community resource management. *Journal of Environmental Economics and Management*, *56*(2), 155–166. doi:10.1016/j.jeem.2008.03.004
- Camerer, C., & Fehr, E. (2004). Chapter 3: Measuring social norms and preferences for using experimental games: a guide for social scientists. In J. Henrich, R. Boyd, S. Bowles, C. Camerer, E. Fehr, & H. Gintis (Eds.), *Foundations of human sociality: Economic experiments and ethnographic evidence from fifteen small-scale societies* (pp. 55–95). Oxford University Press.
- Meinzen-Dick, R., Chaturvedi, R., Domènech, L., Ghate, R., Janssen, M. A., Rollins, N. D., & Sandeep, K. (2016). Games for groundwater governance: field experiments in Andhra Pradesh, India. *Ecology and Society*, *21*(3).
- Castillo, D., Bousquet, F., Janssen, M. A., Worrappimphong, K., & Cardenas, J. C. (2011). Context matters to explain field experiments: Results from Colombian and Thai fishing villages. *Ecological Economics*, *70*(9), 1609–1620. doi: 10.1016/j.ecolecon.2011.05.011
- Falk, A., & Heckman, J. J. (2009). Lab experiments are a major source of knowledge in the social sciences. *Science*, *326*(5952), 535–538. doi: 10.1126/science.1168244
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., & Gintis, H. (2004). Chapter 2: Overview and Synthesis. In *Foundations of human sociality: Economic experiments and ethnographic evidence from fifteen small-scale societies* (pp. 8–54). Oxford University Press.
- Janssen, M. A., & Anderies, J. M. (2011). Governing the commons: Learning from field and laboratory experiments. *Ecological Economics*, *70*(9), 1569–1570. doi: 10.1016/j.ecolecon.2011.03.023

- Kopelman, S., Weber, J. M., & Messick, D. M. (2002). Factors influencing cooperation in commons dilemmas: A review of experimental psychological research. In *The drama of the commons* (pp. 113–156). Washington DC: National Academy Press Washington, DC.
- List, J. A., & Price, M. K. (2013). *Handbook on experimental economics and the environment*. Cheltenham, UK: Edward Elgar.
- Ostrom, E., Gardner, R., & Walker, J. (1994). *Rules, games, and common-pool resources*. University of Michigan Press.

14. April 9: Encouraging conservation where benefits are off-site: overview

Required:

- Brondizio, E. S., & Tourneau, F.-M. L. (2016). Environmental governance for all. *Science*, 352(6291), 1272–1273. <https://doi.org/10.1126/science.aaf5122>
- Adams, W. M., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., ... Wolmer, W. (2004). Biodiversity conservation and the eradication of poverty. *Science*, 306(5699), 1146–1149. doi:10.1126/science.1097920
- Barrett, C. B., Brandon, K., Gibson, C., & Gjertsen, H. (2001). Conserving tropical biodiversity amid weak institutions. *BioScience*, 51(6), 497–502. doi:10.1641/0006-3568(2001)051[0497:CTBAWI]2.0.CO;2
- Berkes, F. (2004). Rethinking community-based conservation. *Conservation Biology*, 18(3), 621–630. doi:10.1111/j.1523-1739.2004.00077.x
- Armitage, D., de Loë, R., & Plummer, R. (2012). Environmental governance and its implications for conservation practice. *Conservation Letters*, 5(4), 245-2

Recommended:

- Brandon, K. (2000). Moving beyond integrated conservation and development projects (ICDPs) to achieve biodiversity conservation. In D. R. Lee & C. B. Barrett, *Tradeoffs or synergies?: agricultural intensification, economic development, and the environment*. Wallingford, UK & New York: CABI Pub. doi:10.1079/9780851994352.0000
- Brandon, K., & Wells, M. (2009). Chapter 18: Lessons for REDD+ from protected areas and integrated conservation and development projects. In A. Angelsen & M. Brockhaus (Eds.), *Realising REDD+: National strategy and policy options* (pp. 225 – 235). CIFOR.
- Bray, D. B., Duran, E., Ramos, V. H., Mas, J.-F., Velazquez, A., McNab, R. Barry, D. & Radachowsky, J. (2008). Tropical deforestation, community forests, and protected areas in the Maya Forest. *Ecology and Society*, 13(2), 56.
- Coase, R. H. (2013). The problem of social cost. *The Journal of Law & Economics*, 56(4), 837-877. doi:10.1086/674872
- Ferraro, P. J. (2001). Global habitat protection: limitations of development interventions and a role for conservation performance payments. *Conservation Biology*, 15(4), 990–1000. doi:10.1046/j.1523-1739.2001.015004990.x
- Pretty, J. N., & Shah, P. (1997). Making soil and water conservation sustainable: from coercion and control to partnerships and participation. *Land Degradation & Development*, 8(1), 39–58. doi:10.1002/(SICI)1099-145X(199703)8:1<39::AID-LDR242>3.0.CO;2-F
- Randall, A. (1983). The problem of market failure. *Natural Resources Journal*, 23(1), 131.

- Rose, C. (2002). Common Property, Regulatory Property, and Environmental Protection: Comparing Community-Based Management to Tradable Environmental Allowances. In S. Stonich, P. C. Stern, N. Dolsak, T. Dietz, E. Ostrom, & E. U. Weber, *The drama of the commons* (pp. 233 – 258). Washington, D.C.: National Academies Press.
- Berkes, F. (2007). Community-based conservation in a globalized world. *Proceedings of the National academy of sciences*, 104(39), 15188-15193.

15. April 16. Payments for environmental services

Required:

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16. April 23. Tourism, conservation, and local livelihoods

Required:

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16. April 30: Students presentations