Instructor:
Dominic Parker
Department of Agricultural and Applied Economics
Taylor Hall, Room 413
dominic.parker@wisc.edu

Virtual (Synchronous) Class Meetings:
Monday and Wednesdays, 9:30 – 10:45 a.m

Office Hours:
By appointment.

Class Website:
We will use Canvas. Check for Zoom links, announcements, readings, and assignments.

Course Description:
This course examines the operation of markets for natural resources, including fish, forests, wildlife, water, land, and fossil fuels. Special emphasis will be given to the role that resource governance, regulation, and property rights play in affecting resource use. The course is slightly multi-disciplinary because a basic understanding of natural science processes and property law are necessary for economic analysis. For this reason, the readings present simple biological models for studying fisheries, wildlife, and forests and incorporate geological and hydrologic concepts in examining minerals and water. The readings also describe ownership rights to resources, which often are not clearly defined. In these cases the interests of some potential resource users will not be reflected in market outcomes and the scramble or “race” to acquire un-owned resources is often wasteful. Because the use of some natural resources is ultimately linked to the release of waste into the environment, there are also considerations of environmental degradation that result from certain ownership regimes. We will encounter these themes throughout the course.

The readings and lectures will introduce the tools of resource economics, which differ from standard microeconomics because of the stronger emphasis on dynamic optimization. Important concepts include open access, commons, anticommons, steady state, maximum sustained yield, and discounting. Important tools include analytical models of optimal control and numerical simulation.

Useful Textbooks


The Conrad and Clark book focuses on modelling methods, and spends relatively little time with institutional details or discussion of resource industries and policy issues. These topics will be treated in readings from journals and other books. The Conrad Resource Economics book is similar to Conrad and Clark, but a bit less technical in terms of modeling. It allocates more of the book to
discussing resource industries and policies and a fair amount of attention is given to simulation exercises.

**Journal Articles**
Much of the course content will come from classic and recent journal articles in natural resource economics. Some readings will be required, and some will be optional.

**Grading and Course Structure:**

<table>
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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Contributions as discussion leader</td>
<td>25%</td>
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<tr>
<td>Contributions as class participant</td>
<td>25%</td>
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<tr>
<td>Problem sets</td>
<td>20%</td>
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<tr>
<td>Research paper</td>
<td>30%</td>
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<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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**Reading and Participation**
Much of our class time will be spent discussing papers, but I will also lecture on core themes. When we discuss specific papers we will use the following protocol:

- One student will be assigned to act as *discussion leader* for the paper. We will take turns leading discussion.
- All students will *arrive prepared* to contribute to a thorough and in-depth discussion of the assigned readings.

Presentations by discussion leaders should span approximately 15 minutes and address the following items. 1) What research question(s) is addressed and why is this question important? 2) What is the main theoretical approach (if not purely an empirical paper) and what are the important assumptions? 3) If the paper is empirical, what is the data set and empirical estimation strategy? 4) What are the key results? 5) What did you like best about the paper? 6) What was confusing or not convincing? 7) What follow-up research questions does the article motivate? The group discussion will focus on (5), (6) and (7).

**Problem Sets:**
I will lecture from textbooks and related materials during some weeks and will assign problem sets based on the lecture material. The problem sets may require you to solve analytical models or perform numerical simulations. The problem set portion of your grade will be determined by the quality (and timeliness) of your answer sets.

**Research Paper:**
Each student will develop (or advance) an original research paper that is due on May 6. Ideally, student papers will relate to themes discussed in the class. I’ll ask you to provide a one page document early in the semester that summarizes your research plan. Please make the plan available to all students, so that we can all give feedback. I’ll also ask you to meet with me to provide a progress report later in the semester. During the last week of class students will present their research papers.

**Course Learning Objectives:**

Successful students will

- Learn to model the dynamic management of natural resources by rational economic actors;
• Apply appropriate methodologies to demonstrate the conditions under which benefits from resources are likely to be captured or dissipated by real world actors;
• Develop and hone presentation and discussion leadership skills; and
• Make progress on developing their own research agenda.

Guidelines for Doing Well in the Class:
• Attend all classes
• Keep up with reading
• Devote necessary time – the course meets two 75 minute periods per week and carries the expectation that students will work on learning activities (reading, writing, problem sets, studying, etc.) for about 3-4 hours out of classroom for every class period.

Accommodations for Students with Disabilities:
The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

Diversity and Inclusion:
Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings</th>
<th>Notes</th>
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| 1 Jan. 25, 27 | Syllabus, course organization
Tragedy of the commons | Wednesday *Hardin 1968, Demsetz 1967, *Stavins 2011 | Parker led discussion |
| 2 Feb. 1, 3   | Empirical applications
Wednesday Kaffine 2009, Hill 2014, *Copeland and Taylor 2009 | Student led discussion
Student led discussion |
| 3 Feb. 8, 10  | Tragedy of the Anticommons
Empirical application | Monday Heller 1998, Buchanan and Yoon 2000
Wednesday Leonard and Parker 2020 | Student led discussion
Parker led discussion |
| 4 Feb. 15, 17 | Brainstorm: further research on property rights
Overview of fishery economics | Monday Parker 2018
Wednesday Conrad text, Ch. 3
Conrad and Clark, Ch. 2 | Parker led discussion
Parker led discussion |
| 5 Feb. 22, 24 | Overview of fishery economics
Regulated open access & limited entry | Monday Conrad text, Ch. 3
Conrad and Clark, Ch. 2
Wednesday Homans and Wilen 1997;
Deacon et. al. 2011 | Parker led discussion
Student led discussion |
| 6 Mar. 1, 3   | Catch-Shares
Cooperation & Obstacles to Reform | Monday Hsueh 2017; Isaaksen and Richter 2019
Wednesday Deacon et al. 2013; Grainger and Parker 2013 | Student led discussion
Parker led discussion |
| 7 Mar. 8, 10  | Overview of forest economics
Land use models | Monday Conrad, ch. 4
Wednesday | Parker led discussion |
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<tr>
<th></th>
<th>Mar. 15, 17</th>
<th>Deforestation determinants</th>
<th>Monday</th>
<th>Blackman and Villalobos 2020; Abman and Lundberg 2019</th>
<th>Student led discussion</th>
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<td>Payments for Ecosystem Services</td>
<td>Wednesday</td>
<td>Alix-Garcia and Wolff 2014; Robalino et al. 2017</td>
<td>Student led discussion</td>
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<td>8</td>
<td>Mar. 22, 24</td>
<td>Conservation Easements</td>
<td>Monday</td>
<td>TBA; Parker and Thurman 2018</td>
<td>Parker led discussion</td>
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<td></td>
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<td>Brainstorm: further research on forest &amp; land conservation</td>
<td>Wednesday</td>
<td>TBD</td>
<td>Parker led discussion</td>
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<td>9</td>
<td>Mar. 29, 31</td>
<td>Overview of non-renewable resource economics</td>
<td>Monday</td>
<td>Conrad, ch. 5</td>
<td>Parker led discussion</td>
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<td>Conrad and Clark, ch. 3</td>
<td>Student led discussion</td>
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<td>Wednesday</td>
<td>Bartik et al. 2017; Boomhower 2019</td>
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<td>10</td>
<td>Apr. 5, 7</td>
<td>Resource curse</td>
<td>Monday</td>
<td>Mehlum et al. 2006</td>
<td>Student led discussion</td>
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<td>van der Ploeg 2011</td>
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<td>Wednesday</td>
<td>Michaels 2011; *Parker and Jacobsen 2016</td>
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<td>11</td>
<td>Apr. 12, 14</td>
<td>Resources and conflict</td>
<td>Monday</td>
<td>Berman et. al 2017</td>
<td>Parker led discussion</td>
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<td>Wednesday</td>
<td>Parker and Vadheim 2017; Sanchez de al Sierra 2019</td>
<td>Student led discussion</td>
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<td>12</td>
<td>Apr. 19, 21</td>
<td>Sanctions</td>
<td>Monday</td>
<td>TBA</td>
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<td>Responsible Sourcing</td>
<td>Wednesday</td>
<td>TBA</td>
<td>Parker led discussion</td>
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<td>13</td>
<td>Apr. 26, 28</td>
<td>Student research presentations</td>
<td>Monday</td>
<td>TBA</td>
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<td>Wednesday</td>
<td>TBA</td>
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Natural Resource Scarcity, Trade, and Collapse


Tragedy of the Commons and Anti-Commons

Baland, Jean-Marie and Jean-Philippe Platteau. 1996. Halting the Degradation of Natural Resources: Is there a Role for Rural Communities? *Food and Agriculture Organization of the United Nations.*


Fehr, Ernst, and Andreas Leibbrandt, 2010. A Field Study on Cooperativeness and Impatience in the Tragedy of the Commons”. Unpublished manuscript: Department of Economics, University of Chicago.


**Wildlife and Biodiversity**


Fisheries


Grainger, Corbett A. and Christopher Costello. 2014. Capitalizing Property Rights Insecurity in


### Forest Resources


Sohngen, Brent and Robert Mendelsohn. 1998. Valuing the Impact of Large-Scale Ecological Change

**Non-Renewable Resources – Minerals and Oil**


**The Natural Resource Curse**


**Land and Water Use**


**Scope of Regulation and Federalism**


