

Natural Resource Problems and Solutions

NR202

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Office Hours	<i>D. Warren:</i> Tuesdays 10:00-11:00, or by appointment (212 Richardson Hall) <i>R. Hajjar:</i> Mondays 3:00-5:00, or by appointment (350 Richardson Hall)
Credits and Schedule	3 credits; Lecture: T/R 12:00 – 1:20
Prerequisites	None (<i>NR201 recommended</i>)
Course web site	Canvas NR202

Course Description: This course explores the multiple components (ecological, social, political, ethical) of selected natural resource problems. It uses case studies to illustrate how social and biophysical characteristics of environmental problems influence the methods used to try to solve these problems and their potential for success.

Course Content: Natural resources can be considered from either ecological, social, or policy perspectives, but the integration and collaboration of these three approaches is key to solving complex natural resource (NR) problems. This course introduces students to the ecological and social complexity of many NR problems and will help students recognize the key factors that make these problems challenging to address and ultimately to solve. These factors include, but are not limited to, the role of time lags and feedbacks, the importance of considering ecological and social scales, and the localized versus widespread aspects of NR problems. Further, the importance of stakeholder involvement, understanding and articulating social and ecological tradeoffs, identifying the implications of asymmetrical access to power, and different forms of governance will be considered. We will cover three principle themes: biodiversity conservation, over-exploitation, and pollution. Case study examples will be used to illustrate the complexity of these NR problems and how the integration of expertise from multiple disciplines is needed to solve these issues.

Course specific measurable student learning outcomes:

By the end of this course, students will be able to:

1. Recognize the complexity of NR problems.
2. Identify the biophysical, and social/political factors within the component parts of an NR problem that influence the difficulty of solving it.
3. Recognize the limitations of single disciplinary approaches to solving NR problems and understand how a transdisciplinary approach can potentially overcome these limitations.
4. Articulate and analyze the trade-offs inherent in natural resource management decisions.

Class Schedule and Topics

	Day/date	Topic
Week 1	Tuesday, April 2 nd	Introduction to key concepts
	Thursday, April 4 th	What is Biodiversity and why does it “matter”?
	<i>Weekly Writing assignment (due Friday by 5:00)</i>	
Week 2	Tuesday, April 9 th	Prioritizing species for conservation: values and valuation
	Thursday, April 11 th	Protected areas I: biological considerations in reserve design
	<i>Weekly Writing assignment (due Friday by 5:00)</i>	
Week 3	Tuesday, April 16 th	Protected areas II: trade-offs in conservation and development
	Thursday, April 18 th	Concepts of Sustainability and Shifting Baselines
	<i>Weekly Writing assignment (due Friday by 5:00)</i>	
Week 4	Tuesday, April 23 rd	Common pool resources: forest governance
	Thursday, April 25 th	Sustainability in fishery and forest resources
	<i>Weekly Writing assignment (due Friday by 5:00)</i>	
Week 5	Tuesday, April 30 th	Participation and Pluralism: stakeholder analysis in fisheries management
	Thursday, May 2 rd	Water Resources: Groundwater depletion case study I
	<i>Weekly Writing assignment (due Friday by 5:00)</i>	
Week 6	Tuesday, May 7 th	Water Resources: Groundwater depletion case study II
	Thursday, May 9 th	Water Resources: Groundwater depletion case study III

	Group writing assignment (due Monday May 13th by 11:59pm)	
Week 7	Tuesday, May 14 th	Spatial dynamics of pollution - biophysical and social factors
	Thursday May 16 th	Climate I
	NO Weekly writing assignment – do your midterm. . .	
Week 8	Tuesday, May 21 nd	Climate II: communicating about climate change
	Thursday May 23 th	Lead Pollution and Environmental Justice
	Take-home midterm (due Thursday 5/23 by 11:59 AM – i.e. start of class on 5/23)	
	Weekly Writing assignment (due Monday 5/27 by 5:00)	
Week 9	Tuesday, May 28 th	Socio-ecological synthesis: Wolf hunt case study
	Thursday May 30 st	
	No writing assignment	
Week 10	Tuesday, June 4 th	Socio-ecological synthesis: Wolf hunt case study cont'd
	Thursday June, 6 th	
	Individual writing assignment (due Tuesday June 11th by 5pm)	
Finals Week	Monday, June 10 th – 14th	No final (hand in Week 10 assignment)

Evaluation of Student Performance (grading)

<u>Item</u>	<u>Unit points</u>	<u>Total available</u>	<u>Total in grade</u>	<u>% of grade</u>
Attendance	1 point per class	20	18	10
Weekly writings (6)	10 pts per assignment	60	50	27
Week 6 group writing assignment	25 pts	25	25	13
Week 10 writing assignment	30 pts	30	30	16
Mid-term exam	45	45	45	24
Weekly online quizzes or posts		20	20	10
TOTAL			188	100

Attendance

This is a course that relies on discussion and therefore attendance is key to achieving the learning outcomes not only for each individual student but for others in the class. Attendance will be taken. Note that there are a total of 20 possible points for attendance but the attendance grade is out of 18 points. This gives each student two unexcused absences (recognizing that occasionally unexpected issues will arise that force students to miss class). Students are still responsible for the content of the missed classes.

Weekly writing assignments

In addition to readings that apply to the concept or problem being discussed each week, we will be assigning a short individual writing assignment (<1 page) most weeks (except for Mid-term week – see below – and Week 6, when a group assignment will be due instead), which will be based on readings or on material covered in the lectures that week. **Weekly writing assignments will be due on Fridays by 5:00 PM.** Late writing assignments will be deducted by 1 point per day.

Online quizzes or posts

Prior to most classes, you will be asked to watch a lecture online and/or complete readings in preparation for class discussions. These will have a short (e.g. two-question) online quiz associated with the lecture and/or reading, which you will need to complete before coming to class to get full points. In some cases, you will be asked to post a comment online in response to a question on the lecture/reading rather than take a quiz. These are to ensure that everyone comes to class with the same level of preparation to be able to meaningfully participate in class discussions and group exercises.

Week 6 writing assignment (group exercise)

During Week 6, you will be working in groups on a case study on groundwater depletion in Guadeloupe, Mexico. The writing assignment for that week will be completed in groups, and will involve an analysis of the issue and a discussion of trade-offs associated with potential solutions. **The group assignment is due Monday May 13th at 5pm.**

Mid-term Exam

We will have a mid-term exam three-quarters of the way through term that covers key ideas, terms and concepts from the first part of the class. This exam will be take-home and will be worth a total of 45 pts (about 24% of your total grade). The exam will be handed out at the start of Week 7, and **will be due Friday May 17th at 5pm.**

Week 10 writing assignment

During Week 10, you will be working through a case study on the wolf hunt. You will work through the case in groups, but will write up an analysis and discussion of the case individually. **Individual assignments are due Wednesday June 12th at 5pm.**

Learning Resources

There is no required textbook for this class. If readings are needed for a given lecture or assignment, they will be provided by the instructors and/or posted online.

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at **541-737-4098** or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

University Policies and Expectations for Student Conduct

<http://studentlife.oregonstate.edu/studentconduct/offenses-0>

General Course Policies

Readings:

Students should prepare for lecture by reading the relevant postings or watching the online video for that lecture which will be provided well ahead of time on the course website.

Tardiness:

We intend to start classes on time. Arriving late disturbs other students already present and disrupts the learning process. Please be considerate and plan to be on time.

Cell phones:

Just put the cell phone away and pay attention in class. Your texts and emails can wait. . . Also, please remember to turn off audible cell phones, etc. during class. Repeated issues of cell phone problems will be treated on a case-by-case basis. Regular or continued disruption of the class after two warnings will affect your grade.

Incomplete grades:

A grade of incomplete will only be assigned for students who are physically unable to complete the course due to serious illness or injury. Students are responsible for understanding and following all university and departmental policies that apply to removing a grade of incomplete from their record, and for understanding the circumstance that can cause an incomplete grade to convert to a grade of F.

Course Grade General Philosophy:

- C You understand the concepts presented in the course well enough to explain them to us.
- B You understand the concepts well enough to explain them to anyone you might meet at a local café.
- A You can use your understanding of biophysical and social issues around NR problems to develop feasible and just ‘solutions’ and communicate them to scientists and non-technical stakeholders.

Rules on Civility and Honesty:

Please follow the College rules on civility and honesty. These can be found at (insert here). Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- **CHEATING** - use or attempted use of unauthorized materials, information or study aids or an act of deceit by which a student attempts to misrepresent mastery of academic effort or information. This includes unauthorized copying or collaboration on a test or assignment or using prohibited materials and texts.
- **FABRICATION** - falsification or invention of any information (including falsifying research, inventing or exaggerating data and listing incorrect or fictitious references).

- **ASSISTING** - helping another commit an act of academic dishonesty. This includes paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, or taking a test/doing an assignment for someone else (or allowing someone to do these things for you). It is a violation of Oregon state law to create and offer to sell part or all of an education assignment to another person (ORS 165.114).
- **TAMPERING** - altering or interfering with evaluation instruments and documents.
- **PLAGIARISM** - representing the word or ideas of another person as one's own OR presenting someone else's words, ideas, artistry or data as one's own. This includes copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project, then submitting it as one's own.

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

Diversity, Equity, and Inclusion:

As a course focused on NR Problems and Solutions, this class addresses many issues of diversity equity and inclusion. Within this classroom and in all classroom interactions, respect for each other and for our occasionally differing viewpoints is essential. While people may disagree, an absolute requirement in this course is to treat each other with empathy, dignity and respect. It is important that we create a learning environment in which everyone feels safe and respected (which in-turn increases everyone's potential to learn). We, like many people, are still in the process of learning about diverse perspectives and identities. We will work to be as forthright and respectful as possible in considering a diversity of perspectives and identities, and ask that you do so as well. We will work together to create an inclusive learning environment. This means holding each other, including us, accountable to this commitment. If something is said in class (by anyone) that makes you feel uncomfortable, please talk to us about it, or if you are more comfortable remaining anonymous, you may provide feedback by contacting staff at OSU Institutional Diversity office (<http://leadership.oregonstate.edu/diversity>), at the OSU Equal Opportunity and Access office (<http://eoa.oregonstate.edu/>), or at the OSU Diversity and Cultural Engagement program (<http://dce.oregonstate.edu/>). We believe the learning environment should honor your identities (including race, gender, class, sexuality, religion, ability, etc.). To help accomplish this, if you have a name and/or set of pronouns that differ from those that appear in your official OSU records, please let me know.