

Economics 4535
Natural Resource Economics
Fall 2021

Instructor: Dr. Billy Mertens
Office: Econ 12 and Zoom: <https://cuboulder.zoom.us/j/5838330659>
E-mail: mertens@colorado.edu Email is by far the best way to contact me. I check my email and respond (if time) every T,R and most M,W,F between 9 and 10am. If there is not enough time to respond to all emails during that time, then I will respond in the afternoon (usually between 3:30 and 4pm). I typically do not check emails over the weekend, but there are some exceptions, and we can set up times to Zoom over the weekend if you give me plenty of advance notice.
Web: canvas.colorado.edu
Office Hours: M,F 1:30-2:45p; W 9-10a; R 8:45-9:45a, and by appointment (please give 5 days' notice for appointments). Because of COVID restrictions, for the time being, all office hours will be on Zoom (link above). If conditions improve, I hope to hold the M,F hours in person.

Course Description:

This course is designed to give you an introduction to the implications of natural resources as economic concepts. It presents theories of efficient utilization of natural resources and discusses issues related to current practices of use of resources. Those practices are constantly changing, so we focus on the skills to analyze any set of policies. We will study natural resources used in the economy, the value of natural resources to society, and the allocation of renewable and non-renewable resources. We also discuss issues of sustainability, conservation, and preservation. The course extensively uses graphical analyses and some mathematical models. In addition to learning about the methods that economists use to analyze natural resource problems and issues, you will be challenged to frame problems in economic terms and propose solutions to these problems.

A much more detailed outline of covered material is posted separately.

Prerequisites:

Students must have completed ECON 3070 and ECON 1088 (or its equivalent). It is NOT sufficient to take these courses concurrently. You not only need to have taken the class, but you must also understand and remember the content. The prerequisites must be strictly enforced – if you did not do well in 3070, it will be difficult to do well in this course!

While this is not a micro-theory course, economics without theory is not economics. You will need micro theory to understand and explain some of the topics. Some of the theory and terms you will need to know include: the *theory of the firm*, the *theory of the consumer*, *efficiency*, when the market equilibrium will and won't be efficient, *market failure*, types of market failures, and corrections for market failure.

A strong math background will make this course easier. Math involves rigor and a way of thinking that facilitates economic thinking. In addition, graphs and simple mathematical descriptions of economic problems provide insights that would be difficult to convey with only words.

Readings & Required Materials:

1. The required text for this course is “Environmental and Natural Resource Economics” by Tietenberg and Lewis (T&L) is pretty good. The T&L text has enough relevant material that I have specified the corresponding chapters in the course outline. We will skip around and omit some material (especially the material targeted to the environmental class), and some of what will be covered is above this text. We will spend extra class time on that more difficult material. There will be additional assigned readings for nearly every topic we cover. These readings will be posted separately on the course website.
2. You will need a 4-function or financial (not a graphing) calculator for some exams.
3. Your face-covering (see COVID requirements below)

Policy on Cheating:

If you are suspected of cheating, I will immediately and without notification forward your case to the honor code office. This is actually the fairest way to proceed. In these instances, if I took it upon myself to make the decision of whether you violated the honor code, there could be bias involved. The honor code council has both students and faculty members, and they are trained to deal with these types of situations. I will accept the honor code decision as final. If the honor code finds that you did not violate the code, then there will be no repercussions, and all grades will be entered based on your submitted work. If you are found to have violated the honor code (see below), by both the honor code council and I, you will automatically fail the course!

Material from a Missed Lecture: If you miss a class, you are responsible for obtaining notes from a classmate and reading the relevant material in the textbook. I encourage you to come to my office hours to discuss the material you missed, but only after you have reviewed the relevant material and prepared specific questions.

Class format

The first portion of the course will be a fairly basic introduction to the tools used in analyzing natural resource issues. We will then cover some general natural resource topics, and analysis techniques. Finally, we turn to applied problems, and public policy issues. A **much** more detailed course outline will be posted on the course website.

A Note on Learning Systems and Assessments

Please note that all exams will be semi-cumulative, and we will spend at least a little time reviewing for each exam and even more time going over the exams in class (on Zoom). A little more detail on learning systems is given below:

Learning systems:

1. Lecturing: explaining difficult material not easily learned on your own with text, groups, etc.
2. Exams: exams should be learning tools as well as assessment tools! We will go over each exam in depth in class. Reviewing exams is one area where in-class discussion and explanation are most effective.
3. Group-Led-Discussions: we will cover both classic and more recent relevant articles from scholarly journals. The more creative you can be with these, the more you will get out of

them (and the better will be your grade). Finding interesting ways to engage the class in discussion of these articles will teach you critical skills that will not only solidify the current information but will also aid in your learning for other classes. Presentation of material is one of the most instructive learning systems because:

- a. *If you are going to inform others about what you know, you must first fully understand it yourselves. If you cannot explain a concept to others you may not fully understand it yourself.*
 - b. *You must research the topic, which may expose you to new ideas and sources of material. These sources could help in other coursework.*
 - c. *Most “real-world” careers require some form of presentation skills.*
 - d. *You will start to learn how to defend specific points of view in front of others. This is a critical professional skill!*
 - e. *Help you learn to organize information in a clear & concise way. Your audience will want to hear the most relevant information in the most clear and understandable fashion.*
 - f. *Help you learn presentation tools, formats and devices.*
 - g. *You learn how to practice presentations and fit information into a set time period (very important in business).*
 - h. *You can discern what it takes to teach others.*
 - i. *It will teach you how to respond to critical questions in front of others.*
 - j. *Learn to analytically and reasonably justify a specific economic rationale.*
4. Group scholarship: we will work some practice problems in groups, which can help your understanding of the material whether you already understand it well or are struggling a bit. The Group-Assignment dates are listed in the course outline – do **not** miss these days!
 5. Discussion: discussing the articles we cover will help make the information more concrete and add to long-term learning.
 6. Self-study: reading the articles and solving the review questions.

Assessment systems:

1. Cumulative Exams: shown to improve learning more than virtually every other technique. As noted above, exams are a part of the learning process, not just a part of assessment – we will go over every exam (except, unfortunately, the final) in class (on Zoom). *It is important to review and relearn the material as we build upon that information. This increases long-term learning!* There will be three exams and a cumulative final. All exams are somewhat cumulative, and the material does build on itself, so it is important to understand all the concepts as we go.
2. Group-Led Discussion: to give incentives for giving high quality discussions and informing the class, these will be graded.
3. Quizzes on Article Readings: to motivate actually reading the articles. Since this is an upper-level course involving much discussion, your quiz grade can be improved by your efforts to add to that discussion. This is a “be here” class. If you put in the effort, you will do well. If you prefer a class where you can just get the notes, skip a lot of classes, and take some tests, then another course would be more appropriate.
4. Group assignments will account for part of your grade (see below).

More Information on Assessment:

Exams

There will be three cumulative exams and a cumulative final. These will be given in class on the days listed. No exams will be dropped. To be fair to everybody, I will not answer ANY

questions during exams (even about typos) – this puts everyone on equal footing during the exams. Tests will consist of short-answer questions and some longer problems. The exams will all be cumulative, and the material does build on itself, so it is important to understand all the concepts as we go. **Exams will be given in class on the days listed. If you miss an exam with a valid excuse (e.g., illness), then the weight of your final will be increased. Note that the exam dates below are not tentative – exams will be given in class on the days listed. NO EXAMS WILL BE DROPPED!!**

Exam Schedule: *all exams will be taken in class!*

Exam 1: Friday, September 24th

Exam 2: Wednesday, November 3rd

Exam 3: Friday, December 3rd

Final Exam: In our usual classroom

https://www.colorado.edu/registrar/sites/default/files/attached-files/fall2021final_exam_schedule.pdf

Final Exam Conflicts

Official University Policy states that: If you have three or more final exams scheduled on the same day, you are entitled to arrange an alternative exam time for the **last** exam or exams scheduled on that day. To qualify for rescheduling final exam times, you must provide evidence that you have three or more exams on the same day, and arrangements must be made with your instructor no later than the standard last day to drop a course.

Group Assignments:

These cooperative learning exercises (detailed above) are extremely important. The group assignment dates are listed in the course outline. It is important not to miss these days without an excused absence. The object of these assignments is to work together and engage your brains in the learning process. The goal is NOT to try and finish the assignments quickly, or in most cases, to even finish them at all. You will receive a passing score of 90% just for being present and working on the in-class problems with your group. Additionally, I will sometimes have a random member of a random group demonstrate a problem at the board, and if you are a member of the group that presents, it can raise your grade for that assignment.

Group-Led Article Discussions (optional), Quizzes and Participation

We will review several relevant academic articles on different issues in natural resource economics. You will be required to understand these articles, and you will work in teams to present and lead a discussion on one of the articles. When you are not in the discussion-leading group you are still expected to have read the article and there will be a short quiz.

Your goal with the group-led discussions is to make one article of your choosing very understandable to the class. The class will have read the article (there will be a short quiz on the readings that will count toward the final grade), so it is your job to make the paper even more clear, and primarily to motivate a successful discussion about the article. You should try and answer questions as the author would. It is not your job to critique the article – all of the articles have already been critiqued by PhD referees before being published. However, if you find follow-up articles that critique the paper it is fine (and even encouraged) to cite those articles. The groups leading the discussion will have studied their paper in great detail, but I expect the rest of

the class to have read all of the papers and be ready to discuss them – rude and counter-productive behavior such as texting and having your laptop open during class discussion will severely damage your own presentation or participation grade.

The class will take a roughly 10-minute quiz at the beginning of the hour to be sure everyone is ready to discuss, and during that time, you will set-up and prepare your discussion (you get 125% for that day's quiz!). Participation/discussion on GLD days will add to your quiz grade. You should be able to keep the class engaged in discussion for 30 to 40 minutes (30 minute minimum; if you think you might need more than 40 minutes, just let me know in advance). **You will be graded down if you cannot keep the class engaged in an interesting and informative discussion about the paper for that time. If you choose to have an activity or game as a part of your GLD, it is important to have that activity portray what is being explained in the article (there should not be much uncertainty, unless the paper calls for it).** I will also discuss some major points of the paper after the GLD on the following class day. More guidance for the GLDs is posted separately.

If you are not leading the GLD that day, then **you cannot use any form of electronic device during Group-Led Discussions (it is rude to those leading the activities). If you use them on those days, you will automatically receive a zero for that day's quiz.** If you are expecting an important call or text, then simply put your phone on vibrate, sit near the door, and step out when the call/text comes through.

There will also be quizzes on some days that we will be covering already posted notes. On those days, you should read the notes in advance and be ready to discuss the topics involved. **On all quizzes, I use the No-Nonsense rule, meaning that if you did not do the required reading, it is better for you to simply state that than to try and guess your way through the quiz.** You may use handwritten (not photocopied) notes of your own for quizzes. Quizzes are given at the beginning of class, so do Not be late!

There will be some minor changes to GLD and quiz procedures this term due to the COVID logistics.

Weights of Assignments:

OPTION I

Group Assignments	10%
Quizzes (and Participation)	8%
Exam I	18%
Exam II	19%
Exam III	20%
Final Exam	25%

OPTION II

Group Assignments	10%
Quizzes (and Participation)	8%
Group-Led Discussion	10%

You can decrease the weight of any of the exams by 10% (or distribute over multiple exams)

Exam I	18%
Exam II	19%
Exam III	20%
Final Exam	25%

Incompletes, Extra Credit, etc.

I adhere strictly to the University guidelines on Incompletes (“An I is given only when students, *beyond their control*, have been unable to complete course requirements. A substantial amount of work must have been *satisfactorily completed* before approval for such a grade is completed.”).

Bad grades, unsatisfactory performance, too many credit hours, work conflicts, etc. are not reasons for an incomplete.

I am adamant about giving each student an equal opportunity to perform well in the course, so there will be no extra credit opportunities that are not offered to the entire class. You should focus your efforts on learning the material and doing well on the exams.

Grading Scale:

Your Score	Grade
92% to 100%	A
90% to 91%	A-
88% to 89%	B+
82% to 87%	B
80% to 81%	B-
78% to 79%	C+
72% to 77%	C
70% to 71%	C-
68% to 69%	D+
62% to 67%	D
60% to 61%	D-
Below 59.5%	F

Additional Notes:

Requirements for COVID-19

As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is a temporary precaution during the delta surge to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. **In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.**

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined, please let me know ASAP so that we can make appropriate arrangements.

Strictly speaking, you do not have to inform me that you have tested positive (because there are too many lawyers in this country), but you are certainly free to do so. Since there is no fathomable reason for anyone to judge you in any way for having contracted Covid (especially since everyone in class must already be vaccinated), I do not see why you wouldn't want to let us know of your situation.

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about OIEC, university policies, [reporting options](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, please give me a few weeks advance notice if you have any religious holidays that conflict with class times, so that we can make appropriate arrangements. See the [campus policy regarding religious observances](#) for full details.

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

Any University policies that are in conflict with my own policies will supersede my policy!

A reply from one student to another on the discussion board for one of my colleague's online classes: "If you read the course syllabus you will find the answer to your questions. If you do not understand what you read, I recommend you read multiple times. After reading the syllabus if you still have questions come back and I will try to help you as much as possible."

