

**ECON 3535 – Natural Resource Economics**  
**University of Colorado Boulder**  
**Fall 2020**

Instructor: Matthew Burgess

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**Office hours:** Tuesday 2:30pm-4:30pm on Zoom (see Canvas for link)

TA: Diana Dorman

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**Office hours:** Wednesday 11:00am-12:00pm on Zoom (see Canvas for link)

**Lectures:** Monday, Wednesday, Friday 3:00pm-3:50pm REC B210 (rec center 2<sup>nd</sup>-floor turf gym) AND on Zoom (see Canvas for link)

**Course Description:** This course in natural resource economics will introduce students to the interlinkages between natural resources and the economic system. Classic allocation problems for renewable and nonrenewable resources will be examined. This course will also consider the fundamental role of institutions in shaping natural resource use. Understanding the incentives faced by users of natural resources will allow us to consider market failures and the important question of whether or not market interventions are justified on economic grounds. Because natural resources play a central role in many current energy and environmental policy debates, this course will also address policy issues related to climate change, renewable energy, transportation, and sustainability. The first half of the course will focus on the theory of natural resource economics. The second half of the course will focus on application to natural resource, energy and environmental policy.

**Course Organization:** This course will be hybrid—a mix of in-person and online learning. **All lectures will occur simultaneously in person (REC B210) and online (Zoom).** For in-person lectures, students will rotate in two groups, determined by last name: **If your last name starts with a letter in the A-L range, you are in Group 1; if your last name starts with a letter in the M-Z range, you are in Group 2. Each lecture, one group will be permitted to attend in person, and one will have to attend via Zoom.** However, any student may attend on Zoom at any time (i.e., you don't have to come in person when your group is assigned to). **Please stay home if you are sick, regardless of your group** (and you may attend on Zoom if you are able).

All lectures will be recorded and posted to Canvas after class. Lectures are a mix of lecture and discussion. **Please participate in the discussion via the chat if you are attending online.** If there is a reason you cannot attend lectures (e.g. attending from a different time zone), please let me know. **Please follow all public health mandates from the campus and City of Boulder (see below).**

**Link to daily health questionnaire for students attending in person:**

<https://www.colorado.edu/protect-our-herd/daily-health-form>

**Textbook:** The OPTIONAL textbook for this course is:

Tom Tietenberg and Lynne Lewis, *Environmental and Natural Resource Economics* 9<sup>th</sup> ed (or 10<sup>th</sup> ed), Prentice Hall, 2011 (2014).

## Grading:

Class Participation	5%
Assignments	30%
Midterm Exams	30%
Final Exam	35%

**Class Participation:** Students are expected to come to class and be prepared to discuss and answer questions regarding the lecture material. You may participate either in person (when your group is assigned to do so) or on Zoom (your choice will not affect your grade).

**Assignments:** There will be an assignment at the end of each of Units 1-7. Assignments will include a mix of mathematical problems and short answer questions. For each student, I will drop the lowest grade among the seven assignments and count each of the others for 5% of the final grade. Because I am dropping the lowest grade, I will not accept late assignments without a valid reason (e.g., illness, caring for an ailing relative, etc.). I will provide more details when the first assignment is assigned.

**Exams:** The exams will include a mix of multiple-choice questions, mathematical problems, and short answer questions. I will provide example questions from past exams as study aides prior to the test date. The Midterm Exams will be **take-home** (see dates above), assigned at the start of a class period (in which Diana and I will make ourselves available to answer questions about the exam via Zoom) and due one week later. For each student, **the highest score among the two will count for 30%**. Because the lowest midterm grade is being dropped, I will only allow make-ups with a valid reason, and, if possible, make-up exams will have to be taken before the rest of the class. The Final Exam date will be announced as soon as it is available. It will cover all units, but will more heavily weight Units 7 and 8, which are not covered by the midterms. It will also be a take-home exam.

## Tentative Schedule

The eight units for the class are listed below, along with readings from the textbook, with page numbers listed in roughly the order in which they will be covered in lecture. I expect to spend approximately 1-3 weeks on each unit, depending on the volume of the material and general class interest in the unit. For each unit, tentative topics are also listed.

### 1. Introduction and key concepts

Topics: market failures, discounting

Readings: 9<sup>th</sup> ed: pp. 16-27, 46-53. 10<sup>th</sup> ed: pp. 15-26, 46-53.

### 2. Non-renewable resources

Topics: minerals, oil and gas, groundwater

Readings: 9<sup>th</sup> ed and 10<sup>th</sup> ed: Ch. 6, 7, 9.

### 3. Renewable resources

Topics: fisheries, forestry, agriculture

Readings: 9<sup>th</sup> ed: pp. 320-331, 351-358, 293-306, 314-319, 262-278, 290-292.

10<sup>th</sup> ed: pp. 278-290, 309-315, 254-267, 274-277, 234-253.

Midterm 1 (Units 1-3) **tentatively Monday, Sept. 28, 2020 (due one week later)**

### 4. Property rights and institutions

Topics: open access, common property, the Resource Curse

Readings: 9<sup>th</sup> ed: pp. 28-45, 551-563. 10<sup>th</sup> ed: pp. 27-45, 520-530.

## 5. Natural resource policy

Topics: regulating externalities, property rights approaches

Readings: 9<sup>th</sup> ed: pp. 359-396, 397-423, 249-261, 307-314, 332-350.

10<sup>th</sup> ed: pp. 359-377, 378-398, 247-251, 267-273, 290-308.

## 6. Climate change

Topics: costs of climate change, climate policies, technological innovation

Readings: 9<sup>th</sup> ed: pp. 424-430, 431-441. 10<sup>th</sup> ed: 399-406, 407-419.

## Midterm 2 (Units 4-6) tentatively Friday Nov. 6, 2020 (due one week later)

## 7. Renewable energy

Topics: power sector, transportation sector

Readings: 9<sup>th</sup> ed: pp. 163-176, 442-470. 10<sup>th</sup> ed: pp. 160-169, 420-444.

## 8. Visions of the future

Topics: sustainability concepts, environmental Kuznets curve, future of growth

Readings: Papers, which will be posted on Canvas

## Final Exam (Covers all Units)

### Other Information:

#### 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 Code of Conduct](#).

#### 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 public health orders in place to reduce the risk of spreading infectious disease. Required safety measures at CU Boulder relevant to the classroom setting include:

- maintain 6-foot distancing when possible,
- wear a face covering in public indoor spaces and outdoors while on campus consistent with state and county health orders,
- clean local work area,
- practice hand hygiene,
- follow public health orders, and
- if sick and you live off campus, do not come onto campus (unless instructed by a CU Healthcare professional), or if you live on-campus, please alert [CU Boulder Medical Services](#).

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 policies on [COVID-19 Health and Safety](#) and [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please see the "Accommodation for Disabilities" statement on this syllabus.

Before returning to campus, all students must complete the [COVID-19 Student Health and Expectations Course](#). Before coming on to campus each day, all students are required to complete a [Daily Health Form](#).

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 and complete the [Health Questionnaire and Illness](#)

[Reporting Form](#) remotely. *Please let me know if you need accommodations in the class due to illness or quarantine (and please do not come to in-person lecture in either case). However, please also note that, under FERPA student privacy laws, you are not required to alert me to the nature of your illness, if you are ill, if you don't want to.*

### **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](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

### **Honor Code**

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: 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](mailto: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 at the [Honor Code Office 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 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 [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and 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 options for reporting and support resources.

### **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. Please let me know if you anticipate any challenges in this class due to religious observance, and I will do my best to accommodate your needs.

See the [campus policy regarding religious observances](#) for full details.