

**ECON 3535 – Natural Resource Economics**  
**University of Colorado Boulder**  
**Fall 2023**

Instructor: Matthew Burgess

Email: matthew.g.burgess@colorado.edu

**Office hours:** Wednesdays 3:30-5:00pm in Ekeley S331 (Zoom option available on request)

TA: Joseph Fry

Email: joseph.fry@colorado.edu

**Office hours:** Mondays 3:30-4:30pm in ECON 309a

**Lectures:** Mondays, Wednesdays, and Fridays 2:30-3:20pm Clare Small Arts and Sciences 207

**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, and sustainability.

**Course Organization:** This course will be a mix of lecture and discussion. The first half of the class will focus on the theory of natural resource economics. The second half of the class will focus on application to natural resource, energy and environmental policy.

**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:**

Quizzes	5%
Assignments	30%
Midterm Exams	30%
Final Exam	35%

**Quizzes:** We will have short multiple-choice quizzes weekly on Wednesdays, starting in Week 2. They will be taken on Canvas and open from 9:00am to 11:59pm on the day of. The objective of these is to practice and refresh your quantitative skills in a low-pressure setting (quizzes are worth 5% combined).

**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, we will drop the lowest grade among the seven assignments and count each of the others for 5% of the final grade (30% total). Because we are dropping the lowest grade, we will not accept late assignments without a valid reason (e.g., illness). We 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. Exams from the previous year are available on Canvas for practice. The Midterm Exams will be in class. For each student, the highest score among the two exams will count for 30%.

Because the lowest midterm grade is being dropped, we 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 will be in person, during the final exam period, and will cover all units, but will more heavily weight Units 7 and 8.

### **Tentative Schedule**

The eight units for the class are listed below, along with recommended (but optional) readings from the textbook, with page numbers listed in roughly the order in which they will be covered in lecture. We 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) **Date TBD (approximately late September)**

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, industrial policy, 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) **Date TBD (approximately late October or early November)**

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) **Monday, December 18, 2023, 1:30-4:00pm**

## **Required Syllabus Statements:**

### **CLASSROOM BEHAVIOR**

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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 [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

### **REQUIREMENTS FOR INFECTIOUS DISEASES**

Members of the CU Boulder community and visitors to campus must follow university, department, and building health and safety requirements and all public health orders to reduce the risk of spreading infectious diseases.

The CU Boulder campus is currently mask optional. However, if masks are again required in classrooms, students who fail to adhere to masking requirements will be asked to leave class. Students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct & Conflict Resolution. Students who require accommodation because a disability prevents them from fulfilling safety measures related to infectious disease will be asked to follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

For those who feel ill and think you might have COVID-19 or if you have tested positive for COVID-19, please stay home and follow the [further guidance of the Public Health Office](#). For those who have been in close contact with someone who has COVID-19 but do not have any symptoms and have not tested positive for COVID-19, you do not need to stay home.

### **Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation**

[Disability Services](#) determines accommodations based on documented disabilities in the academic environment. If you qualify for accommodations because of a disability, submit your accommodation letter from Disability Services to your faculty member in a timely manner so your needs can be addressed. 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 or required medical isolation for which you require accommodation, please contact the Instructor (Burgess). Also 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](#). Violations of the Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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 Student Conduct & Conflict Resolution: [honor@colorado.edu](mailto:honor@colorado.edu), 303-492-5550. Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

## SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who believe they have been subjected to misconduct can contact OIEC at 303-492-2127 or email [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive an outreach from OIEC about their options for addressing a concern and the support resources available. To learn more about reporting and support resources for a variety of issues, visit [Don't Ignore It](#).

## 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 contact the Instructor (Burgess) if you

require an accommodation for a religious observance. See the [campus policy regarding religious observances](#) for full details.

## MENTAL HEALTH AND WELLNESS

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#) located in C4C or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through [Academic Live Care](#). The Academic Live Care site also provides information about additional wellness services on campus that are available to students.