

**AREC/ECON 340:**  
**Introduction to Natural Resource Economics**  
**Colorado State University**  
**Fall Semester 2017**  
**Live delivery: A206 Clark Building, 12:30-1:45 TTh**  
**Simultaneous Online Delivery**

**Instructor: Dr. Andy Seidl, professor**  
**TA: Mr. Matt Flyr**

**Seidl:** B309 Clark Building. T: 970-491-7071. E: [Andrew.Seidl@colostate.edu](mailto:Andrew.Seidl@colostate.edu)  
**Flyr:** B323 Clark Building. T: 410-499-4013. E: [mflyr@rams.colostate.edu](mailto:mflyr@rams.colostate.edu)

**Office hours:**

Flyr: Wednesday 12-2:00 pm and by appointment.  
(Matt is your first point of contact for outside of class assistance)

Seidl: Tues and Thurs 2-3:00 pm and by appointment.

**Required Text:**

Field, B.C. 2015. Natural Resource Economics: An Introduction, Third Edition. ISBN 978-1-4786-2780-7. Waveland Press. 477 pp. [http://www.coursesmart.com/IR/2894093/9781577665311?\\_hdv=6.8](http://www.coursesmart.com/IR/2894093/9781577665311?_hdv=6.8)

**Course Materials:** The course Canvas website will be used to post video lectures, assignments and notes. Please post your homework submissions there. Taking pictures of your hand-written graphs with your phone is a common and completely acceptable form of submission.

**Course Description:** This course is an introduction to natural resource economics. The tools learned in the principles of economics are applied to a diverse set of natural resource issues and policies including: forestry, mining, marine, climate change, wildlife, biodiversity, agriculture and recreation. In examining these issues, students will become better acquainted with resource economics models and decision-making, applied welfare analysis and multi-generational economic problems.

**Objectives: The successful student will be...**

- 1) aware of significant natural resource issues worldwide and across socioeconomic scales;
- 2) able to cast natural resource issues within an economics analytical framework;
- 3) able to write and converse about natural resource economics in depth and with rigor;
- 4) able to apply economic tools to natural resource problems when describing the efficiency and equity of the status quo and the consequences of proposed natural resource policy alternatives.

**Grading:**

The class will be graded in the following manner:

A >90%    B >80%    C >70%    D >60%    F <60%

**Examinations (70% of total grade):**

The examinations will be weighted 20% for the first Midterm, 30% for the second Midterm, and 20% for the Final Exam.

Examination questions will be short answer and graphical or mathematical illustrations of concepts and issues covered in class. Information will be taken from the text and from classroom discussion. In writing your exams, please restrict yourselves to the economic arguments supporting your position.

Review materials will be available one week prior to the examination. Review sessions will consist of in class instructor responses to student questions. If there are no questions, there is no review. Many questions are common among a large number of students. Since there are typically 100 students enrolled in the course, we encourage you to take advantage of this group session rather than wait for individual time with the TA and/or Instructor. ALL exam answers are found within the book and lecture materials. There are no trick questions.

**Online students:** Examinations for online students will be proctored using the CSU OnlinePlus approved **live** proctoring alternatives. (<https://tilt.colostate.edu/testingCenter/csuOnline/>) Proctors must be arranged by the student and approved by CSU OnlinePlus in advance of the exam. These exams will be administered physically and (scanned and) returned electronically. Online students will have one week to complete the exam. This period will commence immediately after the review session and end 7 days later, so the acceptable exam period will always include a weekend. Typically, onsite students will be sitting for the exam in the middle of the period allowed for online students.

**In class examinations:** Examinations for live delivery students will be in class and students will be allowed no more than 75 minutes to complete each examination. This includes the final/3<sup>rd</sup> exam which is worth only 20% of the final grade and has a 120 minute block assigned to it by the university final examination protocols.

#### **Homework (30% of total grade):**

There will be two types of homework:

- 1) Graphical and/or mathematical applications of the concepts and tools taught in class. They will be due one week from the date of assignment, and submitted before 5 pm of the due date. Collaboration is anticipated and is not discouraged. However, each question submitted shall be individually authored, in the student's own words, and shall not be duplicated from another current or past student or copied verbatim from the text. Late submissions will be accepted until the exercise is returned to the class (typically within a week). Such submissions will be subject to a 10% per day decrease in total possible points obtainable. (3 @ 5% each)
- 2) Three recent (2015 to present) original analyses of a contemporary natural resource economic issue found in *The Economist* or other contemporary newspaper or magazine. These articles will be identified by the student based upon his/her interests. Submissions will provide a critical analysis of the problem *using economic concepts, graphical and/or mathematical representations* and be 1 page, single spaced, 11 pt font, in length. Please include an accurate citation of the article analyzed. Submissions will be turned in prior to **5 pm December 1, 2017**. Late submissions will receive zero credit. Grading criteria will include an assessment of writing quality including logical support, grammar, spelling and form. (3 @ 5% each) **All type 2 homework submitted before 5 pm Friday October 13, 2017 will be awarded a 10% bonus.**

**Schedule (subject to adjustment according to class needs):**

Module 1: Introduction to Natural Resource Economics and Core Concepts

- Tues, Aug 22: Class introductions. TED talk: TEEB with Pavan Sukdev  
Thurs, Aug 24: Chapter 2: Natural Resources & the Economy  
Tues, Aug 29: Chapter 3: Willingness to Pay—Demand & Chapter 4: Supply/Costs  
Thurs, Aug 31: Chapter 5: Efficiency & Sustainability  
Tues, Sept 5: Chapter 6: Markets and Efficiency

Module 2: Market failure, public policy and analytical approaches

- Thurs, Sept 7: Chapter 7: Public Policy for Natural Resources  
Tues, Sept 12: Chapter 8: Principles of Analysis  
Thurs, Sept 14: Chapter 9: Valuation of Natural Resources  
Tues, Sept 19: Millennium Ecosystem Assessment and TEEB.

**Homework #1: Due**

**Thurs, Sept 21: Review Session.**

**Tues, Sept 26: Midterm Exam (20% of grade)**

Module 3: Basic economic models of non-renewable and renewable resources

- Thurs, Sept 28: Chapter 10: Mineral economics  
Tues, Oct 3: Chapter 11: Energy economics  
Thurs, Oct 5: Chapter 12: Forest economics  
Tues, Oct 10: Chapter 13: Marine resource economics

Module 4: More advanced models and research applications of complex resources

- Thurs, Oct 12: Chapter 14: Land economics  
**Friday Oct 13: All homework eligible for 10% bonus: Due before 5 pm**

- Tues, Oct 17: Chapter 15: Water resources  
Thurs, Oct 19: Chapter 16: Economics of Agriculture.  
Tues, Oct 24: Economics of land use planning research

**Homework #2: Due**

**Thurs, Oct 26: Review Session.**

**Tues, Oct 31: Midterm Exam 2 (30% of grade)**

Module 5: Non-consumptive uses of biodiversity and ecosystem services

- Thurs, Nov 2: Chapter 17: Economics of outdoor recreation  
Tues, Nov 7: Chapter 18: Economics of wildlife management  
Thurs, Nov 9: Chapter 19: Economics of biodiversity protection  
Tues, Nov 14: Economics of outdoor recreation research  
Thurs, Nov 16: NBSAPs and Biodiversity Finance Initiative

Module 6: Economics, natural capital and development

- Tues, Nov 28: Chapter 20: Natural resources & economic growth  
Thurs, Nov 30: Chapter 21: Natural resource decisions in developing countries

**Homework #3: Due.**

**Friday, Dec 1: All remaining homework due.**

Tues, Dec 5: International natural resource and environmental policy.

**Thurs, Dec 7: Review session. Course evaluation.**

**Wed, Dec 13: Final Exam, 6:20-8:20 pm (20% of grade)**

## **Academic Integrity Policy**

This course will adhere to the CSU Academic Integrity Policies and Guiding Principles as found in the General Catalog and the Student Conduct Code.

In this course, at a minimum, violations will result in a grade of zero for the work in question and a report to the Office of Conflict Resolution and Student Conduct Services.

## **CSU Honor Pledge**

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course. *While you will not be required to affirm the honor pledge, you will be asked to affirm the following statement at the start of your exams: "I have not given, received, or used any unauthorized assistance."* Further information about Academic Integrity is available at CSU's Practicing Academic Integrity.

## **Principles of Community**

The Principles of Community support the Colorado State University mission and vision of access, research, teaching, service and engagement. A collaborative, and vibrant community is a foundation for learning, critical inquiry, and discovery. Therefore, each member of the CSU community has a responsibility to uphold these principles when engaging with one another and acting on behalf of the University.

### ***Inclusion:***

- We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents, and contributions.

### ***Integrity:***

- We are accountable for our actions and will act ethically and honestly in all our interactions.

### ***Respect:***

- We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

### ***Service:***

- We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

### ***Social Justice:***

- We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

## **Mental Health:**

### **Need Help?**

CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970.491.6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, tell someone at by calling 970.491.1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://supportandsafety.colostate.edu/tellsomeone>). Rams take care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

### Sexual Assault and Violence Elimination

CSU's Student Sexual Harassment and Violence policy, following national guidance from the Office of Civil Rights, requires that professors follow CSU policy as a "mandatory reporter" of any personal disclosure of sexual harassment, abuse, and/or violence related experiences or incidents shared with the professor in person, via email, and/or in classroom papers or homework exercises. These disclosures include but are not limited to reports of personal relational abuse, relational/domestic violence, and stalking. While professors are often able to help students locate appropriate channels of assistance on campus (e.g., see the CSU Health Network link below), disclosure by the student to the professor requires that the professor inform appropriate CSU channels to help ensure that the student's safety and welfare is being addressed, even if the student requests that the disclosure not be shared.

For counseling support and assistance, please see The CSU HEALTH NETWORK, which includes a variety of counseling services that can be accessed at: <http://www.health.colostate.edu/>. And, The Sexual Assault Victim Assistance Team is a confidential resource for students that does not have a reporting requirement and that can be of great help to students who have experienced sexual assault. The web address is <http://www.wgac.colostate.edu/need-help-support>.

### **System, Multimedia, and Software Requirements for Online Students**

Having trouble with the multimedia in this course? See the solutions below. Also, it is highly recommended that you access your course via a **high-speed Internet connection**.

- Problems with opening PDFs?
  - Download [Adobe Reader](#).
- YouTube videos not playing?
  - Download [Flash Player](#).
- Videos not opening or playing on your Mac?
  - Download [Windows Media Components for QuickTime](#).
- Can't open content created with Microsoft Office Products? Download the following viewers:
  - [Word Viewer](#)
  - [PowerPoint Viewer](#)
  - [Excel Viewer](#)
  - [Microsoft Office Compatibility Pack for Word, Excel, and PowerPoint File Formats](#)
- Still having issues:
  - Call the **CSU Help Desk at 970-491-7276** or [Email Help Desk Support](#)

You must have speakers installed and working properly on your computer before beginning the course.

You may need access to Microsoft Word, PowerPoint, and/or Excel to complete assignments. If you do not have access to the Microsoft Office applications, you may use one of the following free resources that allow you to save your files with Microsoft Office file extensions (.doc, .docs, .ppt, .xls.):

- [Google Apps for CSU](#)—a free, outsourced communications suite endorsed by The University Technology Fee Advisory Board (UTFAB)
- [Open Office](#)—an open source productivity suite