**Course Description:**
This introductory course will familiarize students with how economists think about global and regional environmental issues. Our main environmental concerns will be: climate change, fossil fuels and renewable energy, agriculture, deforestation, water resources, and ocean fisheries. Economic analysis will focus on how markets, policy, and institutions shape human use of natural resources and environmental outcomes. Understanding mechanisms and feedback effects between the economy and the environment will be our main objective based on the evidence that the challenge of pursuing sustainable development is existential at this stage of human history.

**Course Learning Objectives:**
Successful students will
- use appropriate tools to analyze how markets and governmental policies affect the use and conservation of natural resources;
- explain the social, economic, and/or environmental dimensions of the sustainability challenges of balancing healthy economies with environmental quality;
- analyze the causes of and solutions for the sustainability challenges of maintaining environmental quality and healthy economies.

**Grading: 200 points – Close to a standard 90-100% scheme.**
I adjust the thresholds down a bit if necessary (e.g., 92-100 = A; 88-91.9 = AB).
Weekly Quizzes: 10@10 points = 100; Weekly Problem sets: 10@5 points = 50; Final: 50

Note that I toss out the lowest 2 quiz scores and the lowest problem set score, so there are 12 quizzes and 11 problem sets.

Important examples of the language of economics include the law of demand, consumer surplus, economic efficiency, open access, public goods, technological change, and externality. We will also think about how markets and politics can deliver different opportunities and challenges for the rich and the poor, the powerful and the disenfranchised, and strong and weak countries. We will
examine how economists define environmental problems, and what they diagnose to be their source. We will investigate solutions, examining market-based, regulatory, and polycentric approaches. We will also entertain distinct views on controversial topics. We will encourage one another to think and rethink the assumptions and logic of these views. This class is rooted in basic economic theory so you can expect some diagrams, algebraic equations, abstractions, and simplifications. But the purpose of the theory and mathematics is always to help us understand the real world. Economics will not provide us with “the right answer”, but it does offer useful tools and frameworks for thinking systematically about important environmental problems.

This class meets for two 75-minute class periods each week and carries the expectation that students will work on course learning activities for about 3 hours out of classroom for every class period. The syllabus includes more information about expectations for student work.

Note: There are no economics prerequisites for this course, so I will assume that students have not had exposure to economics. The methods will be less demanding than other upper-division AAE courses, such as AAE 343, 374, or 474; it also addresses themes not covered in those courses.

Required Text: None, all materials can be access via Canvass or the web (as indicated in the syllabus and weekly modules).

Useful Texts: All of the relevant chapters are available on the course website.

Supplementary Readings (on course website):
There are supplementary readings (denoted by SR), videos, and podcasts. The readings will be a mix of academic journal articles, working papers, textbook chapters, blogs, and short essays.

Problem Sets:
There will be 11 ‘problem sets’ (some are more like reflective thought exercises). I will post these no later than Tuesday of the prior to them being due. You will have at least one week to complete them. Class and discussion sections will offer opportunities to practice solving questions similar to those in the problem sets. The goal of the problem sets is to promote active engagement with the material. Working together with other students is encouraged. However, please write up your homework in your own words. Each problem set is worth 5 points. You will earn two automatic points for attempting to answer all questions on a problem set. A randomly chosen question will be graded for quality to determine the other 3 points.

Quizzes:
There will be 12 quizzes, all given on Thursdays. You will have 12-15 minutes to complete the questions. The quizzes may contain problems as well as short-answer questions on lecture materials and assigned readings. You may be required to solve basic mathematical problems and interpret graphs. Quizzes build on classroom discussions and previous homework exercises. They are meant to help you identify when you are falling behind on the course content. I drop your two lowest scores, so that only your 10 best quizzes will count towards your final grade. I will not allow makeup quizzes unless there is a compelling reason. Because you can drop your lowest quiz scores, one/two absences on a quiz day will not be too consequential.

Final Exam: Monday, December 20th, 12:25-2:25PM (Room TBA)
The final will build directly on the problem sets and quizzes. It will be two hours.
Procedure for Appealing Grades:
To appeal your score on a quiz or exam you should visit me during my office hours. To appeal your
homework grade, please see the TA first.

Student Conduct/Academic Honesty:
Laptops are allowed, but their purpose is for taking notes or looking up material relevant to the class
(not for browsing the internet, checking social media and the like). Cell phones, iPads, and other
devices should not be used during class. All devices must be turned off and out of reach during
exams and quizzes. If I catch you cheating on a quiz or exam, you will receive zero credit for the
quiz, exam, or paper. I reserve the right to pursue harsher penalties through the University.

Guidelines for Doing Well in the Class:
• Attend all classes – quizzes, problem sets, and exams focus on material discussed in class, and
some of the lecture material will not come from the readings.
• Keep up with reading – be “on same page” – or at least on same chapters.
• Devote necessary time – the typical student should devote 2-3 hours reading, doing assignments,
and/or reviewing notes for each hour of class. That amounts to about 4-5 hours per week.

Schedule:
Week 1: Course Overview, Planetary Boundaries, and Primer 1 (Graphs, simple equations)
Reading-Video-Web Resources:
Watch Planetary Boundaries, Sachs, Jeffrey,
https://www.youtube.com/watch?v=cJYlA39UvNU&index=26&list=PLExYXELReGhWl28yl9Oyi
pk_FmKd7nLby,
Drawdown video: https://drawdown.org/climate-solutions-101/unit-1-setting-the-stage
Read: pages 1-12, from SR1 (The Drawdown Review) AND peruse chapters 1 and 2 for solutions
Math primer sections on Friday but nothing due Week 1
P Set 1 available: Wednesday, September 8 (on-line), due Tuesday, September 14

Week 2: Growth & Challenges of Sustainable Development, & Primer 2 (S, D, Discount Rates)
Reading-Video-Web Resources: WATCH: Sachs, Jeffrey, Lect 3, Chs 1-3:
https://www.youtube.com/watch?v=PF_X3_gMqxo&t=10s
https://www.youtube.com/watch?v=XvRp9LZjKc
https://www.youtube.com/watch?v=vorWeqE75_o
READ: SR2 (look mostly at Tables 1-4 and Figure 1), SR3 (for section), use syllabus link
P Set 1 due and P set 2 available: Tuesday, September 14
Quiz 1: Thursday, September 16 (beginning of class)

Week 3: Market Tradeoffs and Policy Puzzles
Readings: Wheelan, Ch 1, Mankiw, Ch 4 & 7, Peruse SR 4 (pages 641-648), Drawdown Review –
SR1, pp. 67-69 and 86-90)
P Set 2 due and P set 3 available: Tuesday, September 21
Quiz 2: Thursday, September 23 (beginning of class)

Week 4: Climate Change: Market Failure, Discounting, and Uncertainty
Watch: Drawdown unit-3-reducing sources: https://www.drawdown.org/climate-solutions-
101/unit-3-reducing-sources, use syllabus link
Readings: SR 3 (use syllabus link), SR 5, Wheelan Ch 3, P Set 3 due and P set 4 available: Tuesday, September 28
Quiz 3: Thursday, September 30

Week 5: Climate Change: Incentives to Reduce Fuel Use & Technological change
La Follette Forum: Climate Policy – Union South or On-line Weds, October 6, 8am-7pm
Readings: Wheelan Ch 2, Mankiw Ch 5,6, SR 6, Drawdown (Transport)
P Set 4 due and P Set 5 available: Tuesday, October 5,
Quiz 4: Thursday, October 7

Week 6: Climate Change: Local to National to Global Action
Readings: Wheelan Ch 4, 8, SR 7, SR8
P Set 5 due and P Set 6 available: Tuesday, October 12,
Quiz 5: Thursday, October 14

Week 7: Energy – The Fight for Clean Energy
Readings: Drawdown Review (Electricity section: https://drawdown.org/sectors/electricity), Watch: Sachs, Jeffrey, Lecture 6, Chapter 3
https://www.youtube.com/watch?v=dNrOxgABoA&index=28&list=PLExXELRcSgHwl28h9
Oyipk_FmKd7nLby
P Set 6 due and P Set 7 available: Tuesday, October 19
Quiz 6: Thursday, October 21

Week 8: Food, Farming, & Pollution: Transforming what we eat, how it’s produced/tossed
Watch: Sachs, Lecture 6, Chapter 4
https://www.youtube.com/watch?v=eDYLQ0WrNnY&index=29&list=PLExXELRcSgHwl28h9
Oyipk_FmKd7nLby
Readings: 9(Drawdown primer – Farming our way out of the climate crisis), SR 10
P Set 7 due and P Set 8 available: Tuesday, October 26
Quiz 7: Thursday, October 28

Week 9: Agricultural Land Use and Deforestation: Drivers of Land Use Decisions
Readings: SR 11, SR 12
P Set 8 due and P Set 9 available: Tuesday, November 2
Quiz 8: Thursday, November 4

Week 10: Land Use & Water Use
Readings: SR 13-4
P Set 9 due and P Set 10 available: Tuesday, November 9
Quiz 9: Thursday, November 11

Week 11: Water Access and Conservation: The Common Pool
Readings: Field, Ch 15, SR 15-16,
P Set 10 Due and P Set 11 available: Tuesday, November 16,
Quiz 10: Thursday, November 18

Week 12: Global Fisheries: Sunken Billions & Eco-labels
Readings: Watch asynchronous introductory lecture on fisheries (linked on canvas)
SR 17-18
Nothing Due - Thanksgiving week
Week 13: Global Fisheries: Regulating for Conservation, Profit, and Consumption
Readings: Field, Ch 13; SR 19-20
P Set 11 due: P Set 12 available: Tuesday, November 30
Quiz 11: Thursday, December 2

Week 14: Global Fisheries plus wrap-up on indigenous communities
Readings: SR 21
P Set 12 due: Tuesday December 7
Quiz 12: Thursday, December 9

Week 15: Wrap Up/Review session - Tuesday, December 14th
Nothing Due

Drop in review times to be announced (Friday, 12/17, Sunday 12/19)
Final Exam: Monday, December 20th, 12:25-2:25PM (Room TBA)

Supplemental Readings:

1. The Drawdown Review – 2020 (Project Drawdown).


**Academic Integrity**

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to [studentconduct.wiscweb.wisc.edu/academic-integrity/](http://studentconduct.wiscweb.wisc.edu/academic-integrity/).

**Accommodations for Students with Disabilities**

**McBurney Disability Resource Center syllabus statement:** “The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in
instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.”
http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

Diversity & Inclusion

Institutional statement on diversity: “Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.” https://diversity.wisc.edu/