

Environment and the Global Economy
(AAE/Env Studies 244)

Tuesday and Thursdays, 1:00-2:15, 1120 Biochemistry
Office Hours – T, Th 2:30-3:30pm or by appointment.
422 Taylor Hall, bradford.barham@wisc.edu, tel: 265-3090

Teaching assistant: Mingxuan Fan
Discussion sections: Fridays, various hours
Taylor Hall 319, mfan6@wisc.edu
Office Hours – M 4:00-6:00

Course Description:

This introductory course will familiarize students with the way in which economists think about the environment. It will focus on several major global environmental challenges, specifically climate change, energy and mineral pollution, deforestation, fisheries depletion, and water access and conservation. We will mostly deploy basic economic principles to these issues, but we will also consider how these issues relate to economic growth and development, technological change, global politics, and wealth, power, and poverty.

Students will learn the language of economics. Important examples of this language 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, and push one another to think and rethink the assumptions and logic of these views.

Environment and the Global Economy is a class rooted in basic economic theory so you can expect some diagrams, algebraic equations, abstractions, and simplifications. But the purpose of the theory is always to help us understand the real world. Economics will not provide us with “the right answer”, but it will give useful tools and frameworks for thinking systematically about important environmental problems.

Note: *Because there are no economics prerequisites for this course, I will assume that students have not had exposure to economics. You may be bored with the ‘economics’ material if you have already taken other upper-division AAE courses, such as AAE 343, 374, or 474. However, this course will address many themes that are not covered in those courses.*

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

Wheelan, Charles. 2010. *Naked Economics: Undressing the Dismal Science*. W.W. Norton & Company, New York.

Mankiw, N. Gregory. 2007. *Principles of Economics*. South-Western.

Field, Barry C. 2008. *Natural Resource Economics: An Introduction*. Waveland Press.

Supplementary Readings:

There will be several supplementary readings and podcasts. The readings will be a mix of journal articles, working papers, textbook chapters, newspaper blogs, and short essays.

Grading: Total 200 points

Quizzes: 10 @ 10 points 100 pts

Problem sets: 10 @ 5 points 50

Final exam 50

Problem Sets:

There will be 10 problem sets. I will generally distribute these on Tuesdays, and give you one week to complete them. You will be asked to interpret and draw graphs, solve math problems, and critically assess readings from the course. The discussion sections will offer opportunities to practice solving problems similar to those in the problem sets. Each problem set is worth 5 points. You will earn two automatic points for attempting to answer all questions on a problem set. Then, a randomly chosen question will be graded for quality.

Quizzes:

There will be 12 quizzes, given most weeks, on Thursdays. You will have 15-20 minutes to complete the questions. The quizzes may contain problems and short-answer questions about assigned readings. You may be required to solve mathematical problems and interpret graphs. I have scheduled 12 quizzes, but I will 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.

Exams:

There will be a two-hour comprehensive final exam, which counts for 25% of the grade. The final will build directly on the problem sets and quizzes.

Student Conduct:

Laptops are allowed, but their purpose is for taking notes (not browsing the internet, checking Facebook, twitter, etc). Cell phones, iPads, and other devices should not be out during class. All devices must be turned off and out of reach during exams and quizzes.

Academic Honesty:

If I catch you cheating on a quiz or exam, you will receive zero credit for the quiz, exam, or paper. I may also pursue harsher penalties through the University.

Schedule (subject to revision in readings and perhaps topic late in course):

Week 1: Course Overview, Getting Started on Basic Economic Principles

Readings: Mankiw, Ch 1, Wheelan, Ch 1, WATCH Planetary Boundaries, Sachs, Jeffrey
https://www.youtube.com/watch?v=cJYIA39UvNU&index=26&list=PLExYXELRcSgHwI28h9Oyipk_FmKd7nLby

No Sections on Friday and Nothing Due Week 1

Week 2: Free Markets and the Environment, Cooperation and the Environment

Readings: Mankiw, Ch 4 & 7, Peruse **SR 1 (pages 641-648)**

P Set 1 available: Tuesday, January 24rd (on line),

Quiz 1: Thursday, January 26th in class

Week 3: Climate Change: Market Failure, Discounting, and Uncertainty

Readings: SR 2, Wheelan Ch 3

P Set 1 Due and P Set 2 available (on line): Tuesday, January 31st,

Quiz 2: Thursday, February 2

Week 4: Climate Change: Incentives to Reduce Fuel Use & Technological change

Readings: Wheelan Ch 2, Mankiw Ch 5,6, **SR 3**

P Set 2 Due and P Set 3 available (on line): Tuesday, February 7,

Quiz 3: Thursday, February 9

Week 5: Climate Change: Government Failure and Global Coordination Challenges

Readings: Wheelan Ch 4, 8, **SR 4,**

P Set 3 Due: Tuesday, February 14, **P Set 4 available (on line)**

Quiz 4: Thursday, February 16

Week 6: Population, Income Growth, and Environment: Malthus, Post-Malthus, Modern Growth, and Limits to Growth?

Readings: SR 5, SR 6, WATCH: Sachs, Jeffrey, Lect 3, Chs 1-3 starting from:

https://www.youtube.com/watch?v=PF_X3_gMqxo&index=11&list=PLExYXELRcSgHwI28h9Oyipk_FmKd7nLby

P Set 4 Due: Tuesday, February 21, **P Set 5 available (on line)**

Quiz 5: Thursday, February 23

Week 7: Energy and Mineral Resources: Global Energy Issues and Local Curses

Readings: SR 7, Watch Sachs, Jeffrey, https://www.youtube.com/watch?v=-dNrOxgABoA&index=28&list=PLExYXELRcSgHwI28h9Oyipk_FmKd7nLby

P Set 5 Due: Tuesday, February 28, **P Set 6 available (on line)**

Quiz 6: Thursday, March 2

Week 8: Rich, Poor, and Environmental Destruction: Kuznets and Poverty Traps**Readings: SR 8, SR 9****P Set 6 Due:** Tuesday, March 7, **P Set 7 available (on line)****Quiz 7:** Thursday, March 9**Week 9: Land Use and Deforestation: Drivers of Land Use Decisions****Readings: SR 10,****No problem sets due and no quiz in class, no sections on Friday.****Spring Break: March 18-26****Week 10: Land Use & Deforestation: Incentivizing Deforestation and/or Conservation****Readings: SR 11,****P Set 7 Due:** Tuesday, March 28, **P Set 8 available (on line)****Quiz 8:** Thursday, March 30**Week 11: Global Fisheries: Regulating for Conservation, Profit, and Consumption****Readings:** Field, Ch 13;**P Set 8 Due:** Tuesday, April 4, **P Set 9 available (on line)****Quiz 9:** Thursday, April 6**Week 12: Global Fisheries: Quotas, Cooperatives, and International Cooperation****Readings: SR 12, SR 13****P Set 9 Due:** Tuesday, April 11, **P Set 10 available (on line)****Quiz 10:** Thursday, April 13**Week 13: Water Access and Conservation: The Common Pool****Readings:** Field, Ch x**No problem set due this week****Quiz 11:** Thursday, April 20**Week 14: Water Access and Conservation:****Readings: SR 14****P Set 10 Due:** Tuesday, April 25**Quiz 12:** Thursday, April 27**Week 15: Wrap-up and Review****No problem sets and no quiz in class****Final Exam 5:05pm Sunday, May 7, 2017.**

Supplemental Readings:

1. Ostrom, Elinor. 2010. Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *American Economic Review* 100: 641–672
2. Roberts, David. 2012. Discount Rates: A Boring Thing you Should Know About. <http://grist.org/article/discount-rates-a-boring-thing-you-should-know-about-with-otters>
3. Coady, D., Parry, I., Sears, L., Shang, B. 2017. How Large Are Global Fuel Subsidies. *World Development* 91: 11-27.
4. Ostrom, Elinor. 2014. A polycentric approach for coping with climate change. *Annals of Economic Finance* 15.1: 71-108.
5. http://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen/transcript?language=en
6. Galor, Lecture 1 handout
7. Frankel, Jeffrey A. 2010. The Natural Resource Curse: A Survey. HKS Faculty Research Working Paper Series, RWP10-005.
8. Stern, D. I. 2014. The Environmental Kuznets Curve: A Primer, CCEP Working Paper 1404, Crawford School of Public Policy, The Australian National University.
9. Barbier, Edward B. 2010. Poverty, Development, and Environment. *Environment and Development Economics*, 15: 635-660.
10. Leblois, A., Damette, O. and Wolfersberger, J. 2016. What Has Driven Deforestation in Developing Countries Since the 2000s? Evidence from New Remote-Sensing Data. *World Development* available line 2016.
11. Alston, L, Andersson, K., and Smith, S. 2013. Payment for Environmental Services: Hypotheses and Evidence. *Annual Review of Resource Economics* 5: 139-59.
12. Costello, C., Gaines, S., and Lynham, J. 2008. Can Catch Shares Prevent Fisheries Collapse? *Science* 321(5896): 1678-1681. Available at: <http://www.sciencemag.org/content/321/5896/1678.full>
13. Deacon, R. 2009. Creating Marine Assets: Property Rights in Ocean Fisheries. PERC Policy Series No. 43. Available at: <http://perc.org/sites/default/files/ps43.pdf>
14. Woodhouse, P., & Muller, M. Water Governance—An Historical Perspective on Current Debates, *World Development* (2017): In press.

Procedure for Appealing Grades:

To appeal your score on a quiz or exam you should visit me during my office hours.

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.