Environment and the Global Economy
(AAE/Env Studies 244)
4 Credits – Face-to-Face, Traditional Lecture/Section Format

Tuesday and Thursdays, 9:30-10:45AM, 1140 Gymnasium/Natatorium
Office Hours – T 2:30-4:00PM; W 1:00-2:00PM, or by appointment.
321 Taylor Hall, nhudson@wisc.edu

Teaching assistant: Nguyen Voung
Office Hours – M 2:00-4:00PM, or by appointment.
218 Taylor Hall, nguyen.vuong@wisc.edu

Discussion sections: Fridays at following times and rooms
Section 301: 8:50-9:40, 207 Van Hise, Section 302: 9:55-10:45, 207 Van Hise
Section 303: 11:00-11:50, 140 Van Hise, Section 304: 1:20-2:10, 121 Babcock Hall

Course Description:
This introductory course will familiarize students the "economic way of thinking" about global and regional environmental issues. Topics include climate change, biodiversity preservation, ocean fisheries, environmental impacts of international trade, poverty and the environment, and sustainability.

Our learning outcome is as follows: students will learn the language of economics, diagnosing their source and investigating solutions.

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).
Quizzes: 10@10 points = 100 pts; Problem sets: 10@5 points = 50 pts; Final: 50 pts

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, and push 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:** Hawken, Paul (edited). 2017. *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*. Available at the book store or order on line (soon!).

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

**Supplementary Readings (on course website):**
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.

**Problem Sets:**
There will be 10 problem sets. I will post these on Tuesdays (sometimes earlier), and give you one week to complete them. Class and discussion sections will offer opportunities to practice solving problems similar to those in the problem sets. The goal of the problem sets is to promote active engagement with the material and working together with other students is encouraged. Write up your homework in your own words and use citations when applicable. 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, all given on Thursdays except for one on the Tuesday before spring break. You will have 12-15 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. 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.

**Exams:** (Final Exam – Tuesday, May 5, 2:45-4:45PM, Location: TBD)
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 (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. 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.
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.

Schedule:

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

**Readings:** SR1 (pp.1-2, 5-7); Mankiw, Ch 1; Wheelan, Ch 1; *Drawdown* (pp. vii-xv)

**Watch:** Jeffery Sachs, The Age of Sustainable Development: Lecture 6: Growth and Planetary Boundaries, Chapter 1: Planetary Boundaries, [https://www.youtube.com/watch?v=cJY1A39UvNU](https://www.youtube.com/watch?v=cJY1A39UvNU).

**Math primer sections on Friday**

**Opening day handout due Thursday, January 23**

**P Set 1 available:** Tuesday, January 21, due Tuesday, January 28

Week 2: **Free markets, cooperation & the environment**

**Readings:** Mankiw, Ch 4-7; peruse SR 2 (pages 641-648); *Drawdown* (pp. 216-225)

**P Set 1 due and P Set 2 available:** Tuesday, January 28

**Quiz 1:** Thursday, January 30

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

**Readings:** SR 3; SR 4; Wheelan, Ch 3; *Drawdown* (Materials, pp. 157-169: read p. 157 and select 2-3 examples including section on refrigeration (pp. 164-165) for sure)

**P Set 2 due and P Set 3 available:** Tuesday, February 4

**Quiz 2:** Thursday, February 6

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

**Readings:** Wheelan Ch 2; Mankiw Ch 5 & 6; SR 5; *Drawdown* (Transport, pp. 135-155: read p.135 and select 2-3 examples)

**P Set 3 due and P Set 4 available:** Tuesday, February 11

**Quiz 3:** Thursday, February 13

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

**Readings:** Wheelan Ch 4&8; SR 6; *Drawdown* (Buildings and cities, pp. 83-106: read p.83 and select 2-3 examples)

**P Set 4 Due and P Set 5 available:** Tuesday, February 18

**Quiz 4:** Thursday, February 20

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

**Readings:** SR 7; *Drawdown* (Women and girls, pp. 75-82)

**Watch:** Jeffery Sachs, The Age of Sustainable Development: Lecture 3-A Short History on Economic Development, Chapters 1-3.

Chapter 1: Economic development is new starting around 1750, [https://www.youtube.com/watch?v=PF_X3_gMqxo](https://www.youtube.com/watch?v=PF_X3_gMqxo)

Chapter 2: The Industrial Revolution starts in England [https://www.youtube.com/watch?v=XvRpf9LZjKc](https://www.youtube.com/watch?v=XvRpf9LZjKc)

Chapter 3: The great waves of technological change [https://www.youtube.com/watch?v=vorWeqE75_o](https://www.youtube.com/watch?v=vorWeqE75_o)

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Watch: Hans Rosling, TED Talks, The best stats you have ever seen, https://www.ted.com/talks/hans_rosling_the_best_stats_you_ve_ever_seen#t-166688

P Set 5 due and P Set 6 available: Tuesday, February 25
Quiz 5: Thursday, February 27

Week 7: Energy and Mineral Resources: Global Energy Issues and Local Curses
Readings: SR 8; Drawdown (Energy, pp. 1-36: read p.1 and select 2-3 examples including the section on wind turbines (pp. 2-3) for sure)
P Set 6 due and P Set 7 available: Tuesday, March 3
Quiz 6: Thursday, March 5

Week 8: Food – Farm to Table (Transforming what we eat, how it’s produced, and all that)
Readings: SR 9; SR 10; Drawdown (Food, pp. 37-74: read p.37 and select 2-3 examples)
Watch: Jeffery Sachs, The Age of Sustainable Development: Lecture 6: Growth and Planetary Boundaries, Chapter 4: The Case of Food, https://www.youtube.com/watch?v=eDYLQ0WrNnY
P Set 7 due Tuesday, March 10
P Set 8 available but not due until second week after break, Tuesday, March 31
Quiz 7: Tuesday, March 10

Spring recess: March 14 – March 22

Week 9: Land Use and Deforestation: Drivers of Land Use Decisions
Readings: SR 11; Drawdown (Land Use, pp. 107-123)
Quiz 8: Thursday, March 26

Week 10: Land Use & Deforestation Cont. - Incentivizing Deforestation and/or Conservation
Readings: SR 12-16; Drawdown (Land Use, pp. 124-135)
P Set 8 due and P Set 9 available: Tuesday, March 31
Quiz 9: Thursday, April 2

Week 11: Global Fisheries: Regulating for Conservation, Profit, and Consumption
Readings: Field, Ch 13; SR 17; Drawdown (Marine Permaculture, pp. 178-180)
P Set 9 due and P Set 10 available: Tuesday, April 7,
Quiz 10: Thursday, April 9

Week 12: Global Fisheries: Quotas, Cooperatives, and International Cooperation
Readings: Field, Ch 15; SR 21; SR 22; Drawdown (Water Distribution, pp. 104-105)
P Set 10 due: Tuesday, April 14,
Quiz 11: Thursday, April 16

Sample problems on water shared but not due as homework.

Readings: Field, Ch 15; SR 21; SR 22; Drawdown (Water-Saving Home, p. 170)
No Quiz, Review in class on Thursday and in sections on Friday
Final Exam 2:45-4:45 PM Tuesday, May 5, 2020, Location: TBD.

Supplemental Readings:


7. Galor, Lecture 1 handout


10. To be added.


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 https://conduct.students.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](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/](https://diversity.wisc.edu/)