University of Wisconsin-Madison

Agricultural & Applied Economics (AAE) 352

Global Health: Economics, Natural Systems, and Policy

INSTRUCTOR

Dr. Daniel J. Phaneuf (pronounced *fa-neff*)
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Office Hours: Tues 11am-noon, Thurs 2:30pm-3:30pm, and by appointment.

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COURSE LOGISTICS

Meeting times	Tuesday and Thursday, 9:30-10:45am
Location	Biochemical Sciences Building 1120
Discussion section times	fifty-minute discussion per week (times/places variable)
Instructional mode	live
Credits	4
Prerequisites	none

Credit hour determination

Credit hours are based on the traditional Carnegie definition. For each one-hour (i.e., 50 minutes) block of classroom instruction you should expect a minimum of two hours of out of class work (i.e., reading, completing problem sets, studying, etc.) each week. Since this is a 4-credit class you should expect at least 8 hours of outside work during each of the 15 weeks of the semester. The sections that follow include more information on the out of class activities.

Regular and substantive student-instructor interaction

Regular and substantive interaction with students will occur via direct instruction during lecture, facilitation of in-class discussion, providing feedback on student work, moderation of asynchronous activities, and options to meet individually or in small groups during office hours or scheduled appointments.

COURSE DESCRIPTION

Sustaining global health and wellbeing depends critically on interactions between human and natural systems at multiple spatial and temporal scales. Economics provides a useful paradigm for understanding these interactions and the pathways through which individual and societal decisions made in the face of scarce resources, and threats to the natural environment, generate health and wellbeing outcomes. This course will provide students with an opportunity to use basic economic and social science reasoning to describe global health challenges; understand the causes and consequences of health discrepancies; evaluate health and environmental policies; and appreciate the interconnectedness of planetary health and economic outcomes.

LEARNING OUTCOMES

Upon completion of the course students will be able to:

- Discuss the multitude of mechanisms through which human interactions with natural systems affect health and wellbeing outcomes in both developing and developed country contexts.
- Use positive (descriptive) economic reasoning to identify how individual and community decisions made in the face of income, political, policy, cultural, and environmental constraints lead to differential health and wellbeing outcomes.
- Use normative (prescriptive) economic reasoning to evaluate the efficacy of social, health, and environmental policies affecting human wellbeing.
- Explain the social, economic, and/or environmental dimensions of the sustainability challenge(s) of global health issues in developing and developed countries.
- Describe the social, economic, and environmental dimensions of global health and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Students will also build economic reasoning skills, learn to critically analyze research studies, and assess policy options through an interdisciplinary lens.

CLASS FORMAT

Class time will be composed of a blend of lectures and learning activities, where broad participation is encouraged. Classroom exercises will help you engage with the material, either individually or in a small group. You will need a device (laptop, tablet) for many of the activities so please have something available and charged for all lectures. You will frequently be asked to listen to and share ideas with your peers. This is a great practice to develop your communication and reflection skills.

The instructor will use a presentation format to share the material. Presentations will be posted on Canvas by 8:30am the day of the lecture (usually before), so please plan to check the course website for material.

Students are expected to complete assigned readings ahead of sessions in order to be able to participate in activities.

DISCUSSION SECTION

There will be a 50-minute discussion section each week, led by Varan. This time will be used for reviewing material, answering questions related to homework, working through examples, preparing for exams, small group discussions based on assigned readings, and other active learning activities. Active learning activities will be incorporated to help students think critically about the material and build problem-solving skills. Participation is strongly encouraged and will greatly add to the learning experience.

TEXTBOOK

There is no single textbook for this course. Instead, I will assign readings from a variety of sources, including selected chapters from the following book:

Keohane and Olmstead, *Markets and the Environment*, 2nd edition, Island Press, 2018.

Readings and other materials will be made available to you on the course website.

GRADING

Your course grade will be based on your performance on a midterm and a final exam, homework

assignments, quizzes, and participation activities. The percentages are as follows:

Midterm exam	25 percent
Cumulative final exam	25 percent
Homework assignments	25 percent
In class quizzes	15 percent
Participation activities	10 percent

I will determine your course grade based on the following percentages, which will arise from the numerical scores assigned to each assessment element:

$\geq 93\%$	A
$< 93\% \ \& \geq 88\%$	AB
$< 88\% \ \& \geq 83\%$	B
$< 83\% \ \& \geq 78\%$	BC
$< 78\% \ \& \geq 70\%$	C
$< 70\% \ \& \geq 60\%$	D
$< 59\%$	F

Note that this scale is not based on relative performance, and so grades are not based on a curve. Class attendance is not formally part of your grade, though for-credit participation activities and unannounced quizzes will occur during class meetings and cannot be made up. In addition, you will be responsible for the material discussed during lecture, much of which will be separate from the assigned readings. This means that attendance is highly recommended.

Exams

The midterm exam will include a combination of multiple choice, essay-style questions, and analytical problems. It will occur approximately halfway through the semester and will focus on economics concepts and tools. The timing is designed to cement your grasp of basic economic ideas to support the subsequent study of specific health/environment applications.

The final exam will be cumulative and similar in structure as the midterm, with emphasis on the health/environment applications and how we have applied economics to these applications.

- *Tentative* midterm date: 25 October 2022
- *Firm* final exam date: 17 December 2022

Homework

There will be 5 homework assignments during the semester. These will involve writing assignments and/or analytical exercises that will give you practice working with the economic models we will develop in the class, and the applications taught later in the course. Completed homework assignments will be turned in online by the posted due date. I will **not accept** late assignments.

In class quizzes

I will use both announced and unannounced quizzes to encourage you to keep up with the material and assigned readings. These will be taken on Canvas during our meeting time so you will need to have a device available and charged. **There are no makeup quizzes**. You can miss up to 3 quiz points without affecting your grade (there will be 18 quiz points available to earn 15 class points)

Participative activities

To stimulate active learning, I will integrate participation activities into lectures. For many of these you will need a device so please plan to have something available and charged during class. Participation

activities will not be scored on a performance gradient, but students will need to be present and engaged to receive credit for the activity. **There are no makeups for participation activities**. You can miss up to 3 participation points without affecting your grade (there will be 13 participation points available to earn 10 class points).

Reiterating policies on late/missed work

Please remember the following policies on missing/late work:

- I will not accept late homework
- There are no makeup quizzes. Quiz frequency and grades are set up so you can miss 3 quiz points (~2 quizzes) without hurting your grade.
- There are no makeups for class participation. Participation frequency is set up so you can miss 3 participation points (3 activities) without hurting your grade

COMMUNICATION

I will use the class website on Canvas for posting materials and sharing information. I expect you to check email daily during the workweek and the Canvas site prior to each class meeting. Email works best if you need to communicate with me. I will do my best to provide a prompt response.

My office hours follow a drop-in format – no scheduling is needed to see me during office hours. I am also happy to set an appointment to see you outside of office hours, either in person or virtually. Please reach out via email.

RULES, RIGHTS, AND RESPONSIBILITIES,

See: https://guide.wisc.edu/undergraduate/#rulesrightsandresponsibilitiestext

ACADEMIC CALENDAR AND RELIGIOUS OBSERVANCES

See: https://secfac.wisc.edu/academic-calendar/#religious-observances

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 OF 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 AND 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/

TENTATIVE COURSE SCHEDULE – CONTENT AND DATES SUBJECT TO CHANGE

Week	Topics	Readings (tentative/incomplete)	Assignments
Week 1	• Introductions	Syllabus	Review syllabus HW1 posted
Week 2	• Course overview • Defining human wellbeing and assessing the relationship between wellbeing, health, and the environment • The global economic burden of poor health and its distribution	Fox, J. (2012), "The economics of wellbeing," *Harvard Business Review*. Bloom and Canning (2000), "The health and wealth of nations," *Science* 287: 1207-1209 Cutler et al. (2006), "The determinants of mortality," *J. Economic Perspectives* 20: 97-120.	Work on HW1
Week 3	• Economic fundamentals • Supply, demand, and equilibrium for market goods	Goodwin et al. (2020), *Essential of Economics in Context*, Routledge, chapter 3. Keohane and Olmstead (2018), *Markets and the Environment*, 2nd Edition, Island Press, chapter 4	HW1 due 22 Sept HW2 posted
Week 4	• Performance of markets • Economic efficiency and equity • Market failures in environmental and health realms • Environmental economic fundamentals	Keohane and Olmstead, chapter 5 Keohane and Olmstead, chapter 2 Keohane and Olmstead, chapter 3	Work on HW2
Week 5	• Health economic fundamentals	Folland et al. (2017), *The Economics of Health and Health Care*, Routledge, chapter 5 Folland et al., chapter 7	HW2 due 6 Oct HW3 posted
Week 6	• Policy analysis from the perspective of environmental and health economics	Graf Zivin and Neidell (2014), "Pollution and health," *Encyclopedia of Health Economics* 3: 98-102 Brandon (2005), "What's a life worth?" *Regulation* Winter 2004-05.	Work on HW3
Week 7	• Example applications of economics to health and environmental problems	Pattanayak and Pfaff (2009), "Behavior, environment, and health in developing countries: evaluation and valuation," *Annual Review of Resource Economics* 1: 183-217.	HW3 due 20 Oct

Week 8	• Exam • Air pollution, health, and productivity in developed and developing countries	Greenstone and Fan (2018), "Introducing the Air Quality Index: 12 facts about particulate air pollution, human health, and global policy." Neidell (2017), "The dynamics of air pollution impacts," NBER Reporter, issue 2: 20-23. Graf Zivin and Neidell (2018), "Air pollution's hidden impacts," *Science* 359: 39-40.	Midterm Exam 25 Oct
Week 9	• Continue air pollution • Indoor air pollution and respiratory health	Duflo et al. (2008), "Indoor air pollution, health, and economic wellbeing," *SAPIENS* 1: 7-16. Persico (2021), "How exposure to pollution quietly shapes the American workforce and economy," Innovation Frontier Project.	HW4 posted
Week 10	• Infectious diseases	Kaplan et al. (2022), "The political economy of COVID-19," *Applied Economics Perspective and Policy* 44: 477-488. Hauck (2018), "The economics of infectious diseases," *Oxford Research Encyclopedias, Economics and Finance* Mulligan et al. (2020), "Some basic economics of COVID-19 policy," *Chicago Booth Review*	Work on HW4
Week 11	• Environmental justice – US context	Banzhaf et al. (2019), "Environmental Justice: The Economics of Race, Place, and Pollution," *Journal of Economic Perspectives* 33: 185–208. Hsiang et al. (2019). "The Distribution of Environmental Damages," *Review of Environmental Economics and Policy* 13: 83–103.	HW4 due 17 Nov
Week 12	• Climate change and health outcomes	Carleton and Hsiang (2016), "Social and economic impacts of climate," *Science* 353: aad9837. Hanna and Oliva (2016), "Implications of climate change for children in developing countries," *Future of Children* 26: 115-131.	HW5 posted

Week 13	• Forests, land use, and health outcomes	Dobson et al. (2020), "Ecology and Economics for Pandemic Prevention." *Science* 369: 379–81. Plowright et al. (2021), "Land Use-Induced Spillover: A Call to Action to Safeguard Environmental, Animal, and Human Health." *The Lancet Planetary Health* 5: e237–45.	Work on HW5
Week 14	• Sanitation, water quality and digestive health	Stroming et al. (2020), "Quantifying the human health benefits of using satellite information to detect cyanobacterial harmful agal blooms and manage recreational advisories in UW lakes," *GeoHealth* 4: e2020GH000254. Garrick et al. (2020), "Rethinking the Economics of Water: An Assessment." *Oxford Review of Economic Policy* 36: 1–23.	Continue HW5
Week 15	• Wrap up/final exam preparation		HW5 due 13 Dec

Final exam: 17 December 2022