

ECONOMICS 970: HEALTH INEQUALITY AND ECONOMICS

Dept. of Economics, Harvard University

Fall 2026

Instructor: Cameron Deal, cdeal@g.harvard.edu

When/Where: [Day/Time] in [Room]

Office hours: [Sign up link or times]

Course site: Canvas.

COURSE OVERVIEW

Why do some individuals live longer and healthier lives than others? Are these differences due to medical care, health behavior, or other factors? In this class, we will use the tools of economics to study the causes and consequences of inequality in health outcomes. Some of the patterns we will seek to understand include:

1. The richest 1% of men live 14 years longer than the poorest 1%.
2. Black infants are 2–3x more likely to die in infancy than non-Hispanic white infants.
3. LGBQ+ high school students are 3x more likely to be homeless than their heterosexual peers.

The course will use economic models and econometric tools to study these questions (among others) and draw on work from public health, demography, and sociology as necessary. Part of the wider Ec 970 program, this course is designed to be an introduction to academic economics—to help you transition from being a consumer of textbook economics to a producer of economic knowledge. By the conclusion of the class, students will have the tools to ask and answer their own research questions at the intersection of economics and health.

PREREQUISITES

This course expects prior completion of intermediate microeconomics (Ec 1010A or Ec 1011A) and introductory statistics (Stat 104 or 110 or equivalent). Prior or concurrent enrollment in econometrics (Ec 1123/1126) is recommended.

COURSE POLICIES

Office Hours. Please sign up for one office hour by the third week so that I can get to know you and your interests better. You should meet with me at least **three** times during the semester. I will circulate a sheet with weekly office hour availability. Please reach out if these times do not work for you and we will find another time.

Technology in Class. Electronic devices are not permitted in class; you are free to bring and/or take notes with paper, but slides will be posted after class and the focus of the course is discussion.

Generative AI. AI use is permitted for the following activities: idea generation, understanding a concept, checking derivations, coding (though not on the Stata/R assignments), and editing writing. It should always be cited and acknowledged for its use. If it is not one of these uses,

please ask me before using it. AI is not permitted for writing. I will check writing for AI use—the detectors are quite good now¹—and if it is used and not acknowledged, this will be a violation of Harvard College’s academic policies. Note: AI use is strictly forbidden for the Stata/R problem sets and violations must be referred to the Honor Council.

Collaboration. You are welcome to collaborate with your classmates, but each person should submit their own assignment, and your thinking and writing must be your own. Remember to cite your sources properly, and feel free to ask if you have any questions about citation. Plagiarism is unacceptable.

Statement on Academic Honesty. Discussing ideas and work-in-progress with others is an important and desirable part of the research process, but in the end, a student’s assignment must be his or her own effort, written by the student, and ultimately based on his or her own thinking. All written assignments must use appropriate citation practices. For questions about Harvard’s stance on academic honesty, consult the Academic Information section in the *Harvard College Handbook for Students*.

Wellness and Support. College, and life outside of college, can be challenging. If you find yourself in need of help in this class or in others, the Academic Resource Center provides tutoring services, workshops, and coaching, among other services. For challenges beyond academics, you might also look to Counseling and Mental Health Services, Harvard University Health Services, or the Center for Wellness and Health Promotion. Harvard Disability Access Office can also assist with any accommodations or issues of accessibility.

COURSE REQUIREMENTS

Engaged participation is essential to this class. As such, encouraging participation and deep thought informs all of the assignments. Each assignment will be described in more detail as they are assigned.

Throughout the course, we will be reading pieces from *Writing Economics*. There is a great deal of helpful information contained there, including the specifics of writing pieces like the introduction and your literature review.

Class Participation

Class attendance is mandatory. You should read all of the assigned papers for a given session before the session begins. Come prepared to class—you should be ready to discuss the substance of the reading, as well as your opinions on it.

Modeling Exercise (Due ??)

What is missing from the Grossman model of health production? This exercise asks you to critically engage with economic models of health production. (5 pages)

Data Exercises

Two data exercises will help you develop your empirical skills:

- What explains the education-health gradient? (Due ??) (5 pages)
- Open-ended data exercise (Due ??) (5 pages)

¹Jabarian, Brian, and Alex Imas. “Artificial Writing and Automated Detection.” NBER Working Paper No. 34223, 2025. <https://www.nber.org/papers/w34223>

Outside Article Exercises

Find an outside news article that concerns health inequality (broadly defined), summarize it, and suggest two potential research questions. Three exercises total, due ??/??/?. (Less than 1 page each)

R/Stata Problem Sets

All Ec970 tutorials require four problem sets to be completed with either Stata or R. These problem sets will be a crucial foundation for your empirical work in your final project and in any future research. We will be using the standard problem sets. More information can be found on the course-wide Canvas site (<https://canvas.harvard.edu/courses/19323>), including tutorials and course-wide office hours.

Final Project

A major focus of this course is to teach you how to read, write, and finish projects like an economist. As such, the centerpiece of this tutorial is an independent research project.

Prospectus (Due ??). The prospectus is a 3-page document with an introduction and literature review, and overview of data and methods.

Prospectus Revision (Due ??). The revised prospectus will expand on the initial prospectus (5 pages), taking into account feedback on the first draft and providing more details on the data and methods.

Presentation (Due ??). In the final week of the semester, you will give a presentation about your final project. This is your opportunity to share your research with the rest of the seminar and practice communicating economic ideas.

Final Paper (Due ??). The final paper will be 15–18 pages and present evidence on some question of interest, ideally with some causal identification. If your identification is not causal, you should be able to explain why it isn't causal, what you can still learn from your work, and what you might do in an ideal world to move toward causal identification.

Assignment	Weight	Pages	Due Date
Class Participation	30%		
Assignments	30%		
Modeling Exercise	5%	5	
Data Exercise #1	5%	5	
Data Exercise #2	5%	5	
Outside Article Exercise #1	1.67%	<1	
Outside Article Exercise #2	1.67%	<1	
Outside Article Exercise #3	1.67%	<1	
Stata/R Problem Sets	10%		
Final Project	40%		
Prospectus	5%	3	
Prospectus Revision	5%	5	
Presentation	5%		
Final Paper	25%	15–18	

CLASS SCHEDULE

Class	Date	Topic	Assignment Due
<i>Measuring and Producing Health</i>			
1		What is Health?	
2		What is Health Inequality?	
3		Health Production: The Grossman Model	
4		Health Inequalities and Health Production	
5		Stress and Health	
6		Coping Behaviors	
7		Medical Care: Access	
8		Medical Care: Efficacy	
<i>Income, Education, and Health</i>			
9		Does Income Cause Better Health?	
10		Status and Health	
11		Education and Health	
12		Does Education Cause Better Health?	
13		Economic Distress and Health	
14		Intergenerational Factors	
<i>Race and Health</i>			
15		Racial Differences in Health	
16		Minority Stress and Structural Racism	
17		Diversity and Trust in Medicine	
18		Discrimination in Medicine	
<i>LGBTQ Health Economics</i>			
19		Mental Health	
20		HIV/AIDS	
<i>Pollution and Health</i>			
21		Effects of Pollution on Health	
22		Environmental Justice	
<i>Presentations</i>			
23		Final Project Presentations	
24		Final Project Presentations	

COURSE READINGS

The reading list here may change. Readings marked with (*) should be completed before the relevant class in order for you to be prepared for discussion. Optional readings are marked with (O). I will provide digital copies of all starred readings. Other papers are available with Harvard logins from journals or from Harvard Hollis.

Measuring and Producing Health

Class 1: What is Health?

(*) Chetty, Raj, Michael Stepner, Sarah Abraham, et al. “The Association Between Income and Life Expectancy in the United States, 2001–2014.” *JAMA* 315, no. 16 (2016): 1750–1766.

Class 2: What is Health Inequality?

(*) Whitehead, Margaret. “The Concepts and Principles of Equity and Health.” *International Journal of Health Services* 22, no. 3 (1992): 429–445.

(O) Sen, Amartya. “Why Health Equity?” *Health Economics* 11, no. 8 (2002): 659–666.

(O) Williams, Alan, and Richard Cookson. “Equity in Health.” In *Handbook of Health Economics*, vol. 1, edited by A. J. Culyer and J. P. Newhouse, 1863–1910. Elsevier, 2000.

(O) Wagstaff, Adam, and Eddy van Doorslaer. “Equity in Healthcare Finance and Delivery.” In *Handbook of Health Economics*, vol. 1, edited by A. J. Culyer and J. P. Newhouse, 1803–1862. Elsevier, 2000.

(O) Fleurbaey, Marc, and Erik Schokkaert. “Equity in Health and Health Care.” In *Handbook of Health Economics*, vol. 2, edited by M. V. Pauly, T. G. McGuire, and P. P. Barros, 1003–1092. Elsevier, 2012.

Class 3: Health Production: The Grossman Model

(*) Notes on the Grossman Model (provided).

(O) Grossman, Michael. “The Human Capital Model.” In *Handbook of Health Economics*, vol. 1, edited by A. J. Culyer and J. P. Newhouse, 347–408. Elsevier, 2000.

Class 4: Health Inequalities and Health Production

(*) Galama, Titus J., and Hans van Kippersluis. “Health Inequalities through the Lens of Health Capital Theory: Issues, Solutions, and Future Directions.” In *Research on Economic Inequality*, vol. 21, 263–284. Emerald, 2013.

(O) Cutler, David, Angus Deaton, and Adriana Lleras-Muney. “The Determinants of Mortality.” *Journal of Economic Perspectives* 20, no. 3 (2006): 97–120.

Class 5: Stress and Health

(*) Sapolsky, Robert M. *Why Zebras Don't Get Ulcers*, Chapter 1. Third Edition. Henry Holt, 2004.

(O) Persson, Petra, and Maya Rossin-Slater. “Family Ruptures, Stress, and the Mental Health of the Next Generation.” *American Economic Review* 108, no. 4–5 (2018): 1214–1252.

(O) Frank, Richard G., and Thomas G. McGuire. “Economics and Mental Health.” In *Handbook of Health Economics*, vol. 1, edited by A. J. Culyer and J. P. Newhouse, 893–954. Elsevier, 2000.

(O) McEwen, Bruce S. “Protective and Damaging Effects of Stress Mediators.” *New England Journal of Medicine* 338, no. 3 (1998): 171–179.

Class 6: Coping Behaviors

(*) Friedman, Abigail S. “Smoking to Cope: Addictive Behavior as a Response to Mental Distress.” *Journal of Health Economics* 72 (2020): 102347.

(O) Cawley, John, and Christopher J. Ruhm. “The Economics of Risky Health Behaviors.” In *Handbook of Health Economics*, vol. 2, edited by M. V. Pauly, T. G. McGuire, and P. P. Barros, 95–199. Elsevier, 2012.

Class 7: Medical Care: Access

(*) Almond, Douglas, Kenneth Y. Chay, and Michael Greenstone. “Civil Rights, the War on Poverty, and Black–White Convergence in Infant Mortality in the Rural South and Mississippi.” MIT Working Paper, 2006.

(See also) Anderson, D. Mark, Kerwin Kofi Charles, and Daniel I. Rees. “Imposing Policy on Reluctant Actors: The Hospital Desegregation Campaign and Black Postneonatal Mortality in the Deep South.” Working Paper, 2024.

(O) Miller, Sarah, Norman Johnson, and Laura R. Wherry. “Medicaid and Mortality: New Evidence from Linked Survey and Administrative Data.” *Quarterly Journal of Economics* 136, no. 3 (2021): 1783–1829.

(O) Finkelstein, Amy, Sarah Taubman, Bill Wright, et al. “The Oregon Health Insurance Experiment: Evidence from the First Year.” *Quarterly Journal of Economics* 127, no. 3 (2012): 1057–1106.

(O) Fumarco, Luca, et al. “Gender Identity-, Race-, and Ethnicity-Based Discrimination in Access to Mental Health Care.” NBER Working Paper, 2024.

Class 8: Medical Care: Efficacy

(*) Schwab, Stephen D., and Manasvini Singh. “How Power Shapes Behavior: Evidence from Physicians.” *Science* 384, no. 6697 (2024): 774–778.

(O) Finkelstein, Amy, et al. “Clinician Behavior When Skin-Tone Affects Test Results.” Working Paper, 2024.

(O) Einav, Liran, et al. “Racial Differences in Nursing Home Value Added.” Working Paper, 2024.

Income, Education, and Health

Class 9: Does Income Cause Better Health?

(*) Miller, Sarah, et al. “Does Income Affect Health? Evidence from a Randomized Controlled Trial of a Guaranteed Income.” Working Paper, 2024.

(O) Gelber, Alexander, Timothy Moore, Zhuan Pei, and Alexander Strand. “Disability Insurance Income Saves Lives.” *Journal of Political Economy* 131, no. 11 (2023): 3156–3185.

(O) Snyder, Stephen E., and William N. Evans. “The Effect of Income on Mortality: Evidence from the Social Security Notch.” *Review of Economics and Statistics* 88, no. 3 (2006): 482–495.

(O) Agarwal, Sumit D., Benjamin Lê Cook, and Jeffrey B. Liebman. “Effect of Cash Benefits on Health Care Utilization and Health: A Randomized Study.” *JAMA* 332, no. 17 (2024): 1455–1463.

(O) Hawkins, Amelia, et al. “The Long-Term Effects of Income for At-Risk Infants: Evidence from Supplemental Security Income.” Working Paper, 2024.

Class 10: Status and Health

(*) Lavetti, Kurt, Long Hong, Jonathan A. Holmes, and Trevon D. Logan. “Workplace Stratification and Racial Health Disparities.” Working Paper, 2025.

(O) Marmot, Michael G., George Davey Smith, Stephen Stansfeld, et al. “Health Inequalities Among British Civil Servants: The Whitehall II Study.” *The Lancet* 337, no. 8754 (1991): 1387–1393.

(O) Case, Anne, Darren Lubotsky, and Christina Paxson. “Economic Status and Health in Childhood: The Origins of the Gradient.” *American Economic Review* 92, no. 5 (2002): 1308–1334.

(O) Deaton, Angus. “Relative Deprivation, Inequality, and Mortality.” NBER Working Paper No. 8099, 2001.

Class 11: Education and Health

(*) Case, Anne, and Angus Deaton. “Accounting for the Widening Mortality Gap Between American Adults With and Without a BA.” *Brookings Papers on Economic Activity* (Spring 2023): 1–47.

(O) Cutler, David M., and Adriana Lleras-Muney. “Understanding Differences in Health Behaviors by Education.” *Journal of Health Economics* 29, no. 1 (2010): 1–28.

(O) Goldman, Dana P., and James P. Smith. “Can Patient Self-Management Help Explain the SES Health Gradient?” *Proceedings of the National Academy of Sciences* 99, no. 16 (2002): 10929–10934.

Class 12: Does Education Cause Better Health?

(*) Clark, Damon, and Heather Royer. “The Effect of Education on Adult Mortality and Health: Evidence from Britain.” *American Economic Review* 103, no. 6 (2013): 2087–2120.

(O) Lleras-Muney, Adriana. “The Relationship Between Education and Adult Mortality in the United States.” *Review of Economic Studies* 72, no. 1 (2005): 189–221.

Class 13: Economic Distress and Health

(*) Case, Anne, and Angus Deaton. “Rising Morbidity and Mortality in Midlife Among White Non-Hispanic Americans in the 21st Century.” *Proceedings of the National Academy of Sciences* 112, no. 49 (2015): 15078–15083.

(See also) Ruhm, Christopher J. “Living and Dying in America.” *Journal of Economic Literature* 60, no. 4 (2022).

(O) Pierce, Justin R., and Peter K. Schott. “Trade Liberalization and Mortality: Evidence from US Counties.” *American Economic Review: Insights* 2, no. 1 (2020): 47–64.

(O) Venkataramani, Atheendar S., Elizabeth F. Bair, Rourke L. O’Brien, and Alexander C. Tsai. “Association Between Automotive Assembly Plant Closures and Opioid Overdose Mortality in the United States: A Difference-in-Differences Analysis.” *JAMA Internal Medicine* 180, no. 2 (2020): 254–262.

(O) Hollingsworth, Alex, Christopher J. Ruhm, and Kosali Simon. “Macroeconomic Conditions and Opioid Abuse.” *Journal of Health Economics* 56 (2017): 222–233.

Class 14: Intergenerational Factors

(*) Black, Sandra E., Neil Duzett, Adriana Lleras-Muney, Nolan G. Pope, and Joseph Price. “Intergenerational Transmission of Lifespan in the US.” Working Paper, 2023.

(O) Bencsik, Panka, Timothy J. Halliday, and Bhashkar Mazumder. “The Intergenerational Transmission of Mental and Physical Health in the United Kingdom.” *Journal of Health Economics* 92 (2023): 102823.

(O) Chang, Harrison, Timothy J. Halliday, Ming-Jen Lin, and Bhashkar Mazumder. “Estimating Intergenerational Health Transmission in Taiwan with Administrative Health Records.” *Journal of Public Economics* 238 (2024): 105194.

Race and Health

Class 15: Racial Differences in Health

(*) Rossin-Slater, Maya, et al. “Maternal and Infant Health Inequality: New Evidence from Linked Administrative Data.” Working Paper, 2024.

(O) Schwandt, Hannes, Janet Currie, Marlies Bär, et al. “Inequality in Mortality Between Black and White Americans by Age, Place, and Cause and in Comparison to Europe, 1990 to 2018.” *Proceedings of the National Academy of Sciences* 118, no. 40 (2021): e2104684118.

(O) Institute of Medicine. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. National Academies Press, 2003.

Class 16: Minority Stress and Structural Racism

(*) Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. “Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study.” *The Lancet* 392, no. 10144 (2018): 302–310.

(See also) Critiques: [1], [2], [3]; Replies: [4], [5], [6].

(O) Vu, Tuan, Joseph J. Green, and Daniel C. Swan. “Born on the Wrong Side of the Tracks: Exploring the Causal Effects of Segregation on Infant Health.” Working Paper, 2024.

Class 17: Diversity and Trust in Medicine

(*) Alsan, Marcella, Owen Garrick, and Grant Graziani. “Does Diversity Matter for Health? Experimental Evidence from Oakland.” *American Economic Review* 109, no. 12 (2019): 4071–4111.

(O) Greenwood, Brad N., Rachel R. Hardeman, Laura Huang, and Aaron Sojourner. “Physician–Patient Racial Concordance and Disparities in Birthing Mortality for Newborns.” *Proceedings of the National Academy of Sciences* 117, no. 35 (2020): 21194–21200.

(See also) Borjas, George, and Robert VerBruggen. “Physician–Patient Racial Concordance and Newborn Mortality.” *Proceedings of the National Academy of Sciences* 121, no. 39 (2024).

(O) Alsan, Marcella, and Marianne Wanamaker. “Tuskegee and the Health of Black Men.” *Quarterly Journal of Economics* 133, no. 1 (2018): 407–455.

(O) Frakes, Michael, and Jonathan Gruber. “The Effect of Provider Diversity on Racial Health Disparities: Evidence from the Military.” *Review of Economic Studies* (2025).

Class 18: Discrimination in Medicine

(*) Singh, Manasvini, and Atheendar S. Venkataramani. “Rationing by Race.” *Quarterly Journal of Economics* 138, no. 4 (2023): 2225–2285.

(O) Chan, Alex. “Discrimination Against Doctors: A Field Experiment.” Working Paper, 2024.

LGBTQ Health Economics

Class 19: Mental Health

(*) Campbell, Travis, and Yana van der Meulen Rodgers. “Conversion Therapy, Suicidality, and Running Away: An Analysis of Transgender Youth in the U.S.” *Journal of Health Economics* 89 (2023): 102750.

(O) Deal, Cameron, and Gilbert Gonzales. “Homelessness Among Sexual Minority Youth.” *Pediatrics* 151, no. 2 (2023): e2022057154.

(O) Raifman, Julia, Ellen Moscoe, S. Bryn Austin, and Margaret McConnell. “Difference-in-Differences Analysis of the Association Between State Same-Sex Marriage Policies and Adolescent Suicide Attempts.” *JAMA Pediatrics* 171, no. 4 (2017): 350–356.

(O) Anderson, D. Mark, Kyutaro Matsuzawa, and Joseph J. Sabia. “Marriage Equality Laws and Youth Mental Health.” *Journal of Law and Economics* 64, no. 1 (2021): 29–58.

Class 20: HIV/AIDS

(*) Dillender, Marcus. “Evidence and Lessons on the Health Impacts of Public Health Funding from the Fight against HIV/AIDS.” *American Economic Review* 113, no. 6 (2023): 1527–1562.

(O) Shahid, Hasan. “An Antidote for Despair: The Effect of Highly Active Antiretroviral Therapy (HAART) on Suicide Rates.” *American Journal of Health Economics* 10, no. 2 (2024): 300–332.

(O) Lakdawalla, Darius, Neeraj Sood, and Dana Goldman. “HIV Breakthroughs and Risky Sexual Behavior.” *Quarterly Journal of Economics* 121, no. 3 (2006): 1063–1102.

(O) Shahid, Hasan. “Behavioral Responses to Risk: Evidence from Classified Ads.” Working Paper, 2026.

Pollution and Health

Class 21: Effects of Pollution on Health

(*) Deryugina, Tatyana, Garth Heutel, Nolan H. Miller, David Molitor, and Julian Reif. “The Mortality and Medical Costs of Air Pollution: Evidence from Changes in Wind Direction.” *American Economic Review* 109, no. 12 (2019): 4178–4219.

(O) Chay, Kenneth Y., and Michael Greenstone. “The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession.” *Quarterly Journal of Economics* 118, no. 3 (2003): 1121–1167.

Class 22: Environmental Justice

(*) Currie, Janet, John Voorheis, and Reed Walker. “What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality.” *American Economic Review* 113, no. 1 (2023): 71–97.

(O) Colmer, Jonathan, Ian Hardman, Jay Shimshack, and John Voorheis. “Disparities in PM2.5 Air Pollution in the United States.” *Science* 369, no. 6503 (2020): 575–578.

(O) Banzhaf, Spencer, Lala Ma, and Christopher Timmins. “Environmental Justice: The Economics of Race, Place, and Pollution.” *Journal of Economic Perspectives* 33, no. 1 (2019): 185–208.

(O) Deryugina, Tatyana, et al. “Geographic and Socioeconomic Heterogeneity in the Benefits of Reducing Air Pollution in the United States.” *Environmental and Energy Policy and the Economy* 2 (2021): 157–189.