

Sociology 126

Health of the Public: Medicine and Disease in Social Context

Tuesday, Thursday 2:30–3:45 p.m.

Spring Term 2020

Location: YSB MARSH or SSS114 (location is pending)

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office hours: Thursday, 4:00–6:00 p.m., or by appointment, in Room 303, 17 Hillhouse Ave.

Course Websites:

<http://humannaturelab.net/teaching> and <https://tinyurl.com/socy126-s2020>

A collection of links to many readings and other relevant articles is at

<https://tinyurl.com/socy126-s2020-files>

Course Description:

This course examines the social causes and context of illness, death, longevity, and health care in the USA today. Who stays healthy and who falls ill? Who has a long life and who has a short one? What is a good death and why do so few Americans achieve it? What is good medical care, who gets it, and why? What role do physicians play in producing health in our society? To what extent do factors outside individuals' control (factors such as genetics, parental traits, geography, or hospital quality) influence health and health care? Does socioeconomic inequality in society harm individual health? Do certain kinds of social networks or neighborhoods improve health? How do social factors get under our skin and literally become embodied? What are the collective constraints on individuals' life prospects? What is the difference between an individualistic and a public health-oriented perspective on illness? And what issues of ethics and justice are raised by such questions? Would a different organization of society, different public expenditures, or different public policies matter?

While exploring these questions, we will also consider how social scientists, biologists, epidemiologists, public health experts, and doctors address them—how they use theory to understand them and how they make “causal inferences” based on observational or experimental data. However, students are not expected to have in-depth knowledge of social science methods or statistics. The readings span the medical, public health, and social science literatures, and they reflect both qualitative and quantitative approaches. They also introduce new areas of biosocial science and techniques of data science as applied to health. In many ways, this course serves as an introduction to the field of public health.

Student Engagement:

The course includes a range of readings from many different fields and from many policy perspectives, some of which you (and we) may disagree with. Moreover, the students in the class will have had different life experiences (sometimes personal) with some of the topics we explore – such as serious illness, suicide, gun violence, poverty, autism, medical errors, and so on. And there is likely to be a range of opinions about whether individuals or their surroundings are relatively more responsible for the various threats to public health. Our approach to these topics will be evidence-based and scientific – in both lecture and section.

We will be using a kind of software “clicker” technology in this class, and so students will need computers or smartphones (please let us know if this is a hardship for you). For many lectures, the professor will ask you to answer a question or two that does not have an immediately obvious answer or about which there is likely to be variation in opinion among the students. This will help guide the conversation.

Course Requirements:

- section attendance and class participation (10%)
- in-class mid-term exam on February 13 (25%)
- in-class mid-term exam (non-cumulative) on April 7 (25%)
- take-home final exam (cumulative) (40%)

Please check the above mid-term dates now, at the time you enroll in the class, to make sure you have nothing that you can, as of now, anticipate will conflict with these exam dates (such as known sporting obligations, thesis deadlines, sibling graduations, religious holidays, etc.).

Each mid-term exam will have five short-answer questions (<http://humannaturelab.net/teaching> has old exams). There will be some choice. They will be administered on the above dates.

The final exam will consist of 2–3 essay questions, for a total of roughly 12–14 pages. There will be some choice, but all the questions will require in-depth engagement with the major themes of the whole course. Past final exams are also on the course website. The exam will be distributed no later than Thursday, April 23 and will be due a week later. We will be asking you to submit both a hard copy of the exam and also to upload it to the “Assignments” tab of the course site on Canvas (instructions will be provided). Because various electronic checks will be performed on the submitted exams, please be sure that all your work is your own and that you cite sources appropriately. Please do not cut and paste text (from any source) without attribution, as this can lead to a lot of unhappiness.

We expect that all written work you do in this class will be your own, and that you will not cheat in any way. It’s really depressing for all involved when this happens; it is surely embarrassing for the student; and it results in a very bad grade.

If you feel any exam has been graded in error, please discuss this with your TF or the head TF first, and please review the exam re-grading policy on the course website.

Course FAQ:

Answers to a selection of common questions are below, but many more questions are addressed at: <http://humannaturelab.net/teaching> and on the course website. Please check the FAQ before emailing us.

- Sociology 126 also counts as Global Health 140.
- There are no prerequisites.
- This class will probably *not* be offered in 2021 (and it will next be offered in 2022).
- We allow the use of laptops in class to take notes and reply to clicker questions. But please do not use your laptops to do unserious things that might distract those around you: it's disrespectful. We expect that you will not to do anything in class that interferes with the ability of your classmates to focus on the lectures and their learning.
- Lecture slides will generally be posted the week after they are shown in class.
- Office hours are often attended by many students, and are generally seen as fun. Show up!
- *Graduate students* taking SOCY 126 for credit should see the instructor in order to arrange different requirements.

Collaboration:

Discussion and the exchange of ideas are essential to academic work. However, you should ensure that any written work you submit for evaluation is the result of your own research and writing, and that it reflects your own approach to the topic. You must also properly cite any books, articles, websites, lectures, etc., that have helped you with your work (we do not care what citation format you follow, so long as you follow one); some useful information is here: <https://poorvucenter.yale.edu/using-sources>. In particular, students should be aware that collaboration in any way (including conversation about the questions) on the take-home final exam is not permitted.

Sections:

Sections will meet from the third week, beginning Monday, January 27. To assign sections, we are using the online section selection tool available to you via OCS. Please rank three potential time slots for sections in order of your preference. You may change your preferences during the preregistration period, which closes at 12pm on Thursday, January 16 (we think). Places will be assigned on the basis of a computerized random selection. Notice of section assignments will be available on Friday, January 17. There are many time slots to choose from, and we will work hard to find you a section time that works. Also, all the TFs will have office hours.

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Eric Feltham – eric.feltham@yale.edu
Navin Kumar – navin.kumar@yale.edu
Other TF's to be announced....

Books and Readings:

Books are available for purchase at the Yale Bookstore. Readings from books and articles average about 60 pages per session (range 15–200), or 120 pages per week. Given very low demand in prior years, there is no course packet available for purchase. Readings are available online in the “Files” tab of Canvas. The books are also on 24-hour reserve at Bass Library.

Christakis, N.A. and Fowler J.H. *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives*. New York: Little Brown, 2009.

Harris, J. *Enhancing Evolution: The Ethical Case for Making Better People*. Princeton: Princeton University Press, 2007.

Illich, I. *Limits to Medicine: Medical Nemesis, The Expropriation of Health*. New York, NY: London: Marion Boyars Publishers, 1999 [1976].

Martin, E. *The Woman in the Body: A Cultural Analysis of Reproduction*. Boston: Beacon Press, 2001 [1987].

Marmot, M. *The Status Syndrome: How Social Standing Affects Our Health and Longevity*. New York: Holt, 2005.

Thaler R.H. and Sunstein C.R. *Nudge: Improving Decisions about Health, Wealth, and Happiness*. New Haven, CT: Yale University Press, 2008.

January 14 (Tuesday)

I. Course Introduction

We will briefly review the burden of illness and death in the USA, touching on the costs, family effects, and implications for people's well-being. We will also review the leading causes of death and how they vary by certain socio-demographic attributes. We will touch on how our attention to threats to our health is often skewed. We will note geographic variation in illness and mortality and also the relevance of circumstances of birth (including diverse *in utero* exposures, birthweight, birth order, parental occupation, etc.) to lifelong health. In short, we will introduce the basic biosocial facts to be explored in the course. And we will introduce the tension between individualistic and collective perspectives on medical care. We will in particular consider the case of suicide and the extent to which it reflects individual decision-making or collective constraints.

January 16 (Thursday) and January 21 (Tuesday) **What Medical Care Has and Has Not Achieved**

What are the benefits of medical care? How much do doctors actually help people? What are the relative roles of curative and preventative maneuvers in the health of the public? On the population level, what have been the benefits of "big medicine"? We will consider how the nature of illness and death has changed over the last century in the U.S. and around the world, as part of the "health transition." And we will introduce some ways of defining and measuring health other than mortality – including morbidity, physical functioning, quality of life, and "utility." We will also begin to consider the major determinants of health at the population level.

II. Session 1: The Health Transition (January 16)

Omran AR. The Epidemiologic Transition: A Theory of the Epidemiology of Population Change. *Milbank Memorial Fund Quarterly* 1971; 29: 509–538. [Please just read the partial extract and extension reprinted in the *Bulletin of the World Health Organization* 2001; 79(2): 161–170.

Fries, JF. Measuring and Monitoring Success in Compressing Morbidity. *Annals of Internal Medicine* 2003; 139: 455-459.

III. Session 2: The Role of Medical Care (January 21)

Preston S. American Longevity: Past, Present, and Future. Distinguished Lecturer in Aging Series, Center for Economic Policy, Syracuse University Policy Brief 7, 1996 (pp. 1–18).

Bailar JC and Gornik HL. Cancer Undefeated. *New England Journal of Medicine* 1997; 336: 1569–1574. [Along with commentaries, retorts, rejoinders, and ripostes in *New England Journal of Medicine* 1997; 337: 935–938.]

Kramer BS and Klausner RD. Grappling with Cancer—Defeatism versus the Reality of Progress. *New England Journal of Medicine* 1997; 337: 931–934.

Cutler D. *Your Money or Your Life*. Cambridge: Oxford University Press, 2004, Chapter 5 (pp. 47–60).

Papanicolas I, Woskie LR, and Jha AK. Health Care Spending in the United States and Other High-Income Countries. *JAMA* 2018; 319: 1024-1039.

Cunningham SA, Mitchell K, Narayan KMV, and Yusuf, S. Doctors' Strikes and Mortality: A Review. *Social Science and Medicine* 2008; 67: 1784-1788.

January 23 (Thursday) and January 28 (Tuesday)

The Social Distribution of Illness

We will examine how disease and survival are distributed by basic socioeconomic variables. What is the role of sex, race, ethnicity, education, income, marital status, and other social variables with respect to patient preferences, patient risks, patient care, and health outcomes? What are the methodological challenges of demonstrating and interpreting differences and inequalities in health outcomes and care? How do we distinguish the problem of unequal outcomes from that of unequal treatment, and what is the ethical implication of this difference?

IV. Session 1: Socioeconomic Status and Health (January 23)

Link BG and Phelan J. Social Conditions as Fundamental Causes of Disease. *Journal of Health and Social Behavior* 1995 (Extra Issue): 80-94.

Smith JP. Healthy Bodies and Thick Wallets: The Dual Relation Between Health and Economic Status. *Journal of Economic Perspectives* 1999; 13: 145-166.

Goldman DP, Smith JP. Can Patient Self-Management Help Explain the SES Health Gradient? *PNAS: Proceedings of the National Academy of Science* 2002; 99: 10929-10934.

Pickett KE, and Lauderdale DS. Widening Social Inequalities in Risk for Sudden Infant Death Syndrome. *American Journal of Public Health* 2005; 95: 1976-1981.

Katsnelson A. The Neuroscience of Poverty. *PNAS: Proceedings of the National Academy of Science* 2015; 112: 15530-15532.

Calvin CM, Batty GD, Der G., Brett CE, Taylor A, Pattie A, Cukic I, and Deary IJ. Childhood Intelligence in Relation to Major Causes of Death in 68 Year Follow-Up: Prospective Population Study. *BMJ* 2017; 357: J2708

V. Session 2: Unequal Treatment and/or Unequal Outcomes with Respect to Race and Ethnicity (January 28)

Baicker K, Chandra A, Skinner JS, Wennberg JE. Who You Are and Where You Live: How Race and Geography Affect the Treatment of Medicare Beneficiaries. *Health Affairs*, "web exclusive" 2004: doi: 10.1377/hlthaff.var.33 (pp. 33-44).

Blackhall LJ, Murphy ST, Frank G, Michel V, and Azen S. Ethnicity and Attitudes Toward Patient Autonomy. *JAMA* 1995; 274: 820-825.

Lauderdale D. Birth Outcomes for Arabic-Named Women in California Before and After September 11. *Demography* 2006; 43: 185-201.

January 30 (Thursday)

VI. The Social Construction of Illness and Medicine

How are the seemingly objective, natural or scientific concepts of "body," "illness," or "treatment" influenced and determined by social phenomena and the medical system itself?

How does the way people come to view the world have concrete and measurable effects on their health? How do people cognitively construct medically relevant concepts, such as diagnostic categories, and how do these constructions in turn influence medical care and human experience? We will consider diverse examples, ranging from childbirth to plastic surgery to mental illness to cardiac care.

Martin, E. *The Woman in the Body: A Cultural Analysis of Reproduction*. Boston: Beacon Press, 1987, pp. 27–67.

Ecker JL and Frigoletto FD. Cesarean Delivery and the Risk-Benefit Calculus. *New England Journal of Medicine* 2007; 356: 885–888.

Boher MA, et al. How Women Are Treated During Facility-Based Childbirth in Four Countries: A Cross-Sectional Study with Labor Observations and Community-Based Surveys. *The Lancet* 2019; 394: 1750-1763.

Jaarsma P and Welin S. Autism as a Natural Human Variation: Reflections on the Claims of the Neurodiversity Movement. *Health Care Analysis* 2012; 20: 20–30.

February 4 (Tuesday)

VII. Death and Dying

We will explore the nature of dying in the U.S. and what might be done to improve end-of-life care. We will consider the nature of a good death, how death affects family members, and where death occurs. We will examine how social policy or clinical arrangements (e.g., with respect to hospice care) affect the experience of dying. We will discuss the role of physician decision-making and begin to consider the process by which physicians are socialized to their role as doctors.

Butler K. What Broke My Father’s Heart: How Putting in a Pacemaker Wrecked My Family’s Life. *New York Times Magazine* June 18, 2010, pp. 39–43.

Steinhauser KE, et al. Factors Considered Important at the End of Life by Patients, Family, Physicians, and Other Care Providers. *JAMA* 2000; 284: 2476–2482.

Singer AE, Meeker D, Teno JM, Lynn J, Lunney JR, and Lorenz KA. Symptom Trends in the Last Year of Life from 1998-2010: A Cohort Study. *Annals of Internal Medicine* 2015; 162: 175-183.

Loggers ET, Starks H, Shannon-Dudley M, Back AL, Appelbaum FR, and Stewart FM. Implementing a Death with Dignity Program at a Comprehensive Cancer Center. *New England Journal of Medicine* 2013; 368: 1417–1424.

Christakis NA and Lamont EB. Extent and Determinants of Error in Doctors’ Prognoses for Terminally Ill Patients: Prospective Cohort Study. *British Medical Journal* 2000; 320: 469–473.

February 6 (Thursday)

VIII. Iatrogenesis and Medical Error

How common and serious are medical errors? What is the difference between harm, error, and maloccurrence? What is a “therapeutic misadventure”? How do physicians cope with the inevitability of mistakes and harm? In what ways is “iatrogenesis” (doctor-caused injury) a

widespread socio-medical phenomenon? Why does harm occur and what, if anything, can be done about it? What ethical and policy issues are raised by medical mistakes?

Illich I. *Medical Nemesis: The Expropriation of Health*. New York, NY: Pantheon Books, 1976, Part I (pp. 1–107). [Page numbers may depend on edition; read until the subsection titled “Black Magic”]

Classen DC, et al. ‘Global trigger tool’ shows that adverse events in hospitals may be ten times greater than previously measured. *Health Affairs* 2011; 30: 581-589.

Reason J. Human Error: Models and Management. *British Medical Journal* 2000; 320: 768–770.

Friedman JW. The Prophylactic Extraction of Third Molars: A Public Health Hazard. *American Journal of Public Health* 2007; 97: 1554-1559.

IX. February 11 (Tuesday)

Religion and Health

Religion has numerous instrumental and symbolic effects on physical and mental health, and numerous aspects of religion may be relevant, from affiliation to religiosity to observance. Religious sentiments are also highly relevant to people’s choices regarding their own care, and their attitudes regarding medical advances.

Chatters LM. Religion and Health: Public Health Research and Practice. *Annual Review of Public Health* 2000; 21: 335-367.

Strawbridge W, Cohen R, Shena S, and Kaplan G. Frequent Attendance at Religious Services and Mortality over 28 Years. *American Journal of Public Health* 1997; 87: 957–961.

Phillips DP and Smith DG. Postponement of Death Until Symbolically Meaningful Occasions. *JAMA* 1990; 263: 1947–1951.

X. February 13 (Thursday)

MIDTERM #1

February 18 (Tuesday) and February 20 (Thursday)

Health Behaviors

How do individuals’ choices and behaviors affect individuals’ health risks and health status? We will consider a range of health-related behaviors that are socially patterned and that can have substantial effects on both individual and population health. We will also explore the role of broader social policies and environmental effects on individual outcomes.

XI. Session 1: Obesity and Exercise (February 18)

McGinnis JM and Foege WH. Actual Causes of Death in the United States. *JAMA* 1993; 270: 2207–2212.

Mello MM, et al. Obesity—The New Frontier of Public Health Law. *New England Journal of Medicine* 2006; 354: 2601–2610.

Chang VW and Christakis NA. Self-Perception of Weight Appropriateness in the U.S. *American Journal of Preventive Medicine* 2003; 24: 332–339
Randall A. Black Women and Fat. *New York Times*, May 6, 2012, p. SR5.

XII. Session 2: Tobacco, Alcohol, and Firearms (February 20)

Schroeder SA. Tobacco Control in the Wake of the Master Settlement Agreement. *New England Journal of Medicine* 2004; 350: 293–301.
Dinakar C and O'Connor GT. The Health Effects of Electronic Cigarettes. *New England Journal of Medicine* 2016; 357: 1372-1381.
Kellermann AL, et al. Injuries due to Firearms in Three Cities. *New England Journal of Medicine* 1996; 335: 1438–1444.
Kellermann, AL and Rivara FP. Silencing the Science on Gun Research. *JAMA* 2013; 309: 549-550.
McMurtrie B. Why Colleges Haven't Stopped Binge Drinking: Decades of Attention Without Much Difference. *Chronicle of Higher Education* December 2, 2014. Available at: <http://chronicle.com/article/Why-Colleges-Haven-t-Stopped/150229/>

February 25 (Tuesday), February 27 (Thursday), and March 3 (Tuesday) **Inequality, Social Hierarchy, Stress, and Social Support**

What do baboons in the Serengeti, civil servants in London, and actors in Hollywood have in common? How does relative position, and not just absolute position, matter to health? How can social structure be stressful? How can it be salubrious? What are the health consequences of stress and how might an individual's social support buffer the adverse effect of stress on health?

XIII. Session 1: Social Inequality and Individual Health (February 25)

Subramanian SV and Kawachi I. Income Inequality and Health: What Have We Learned So Far? *Epidemiologic Reviews* 2004; 26: 78–91.
Lynch JW, Davey-Smith G, Kaplan GA, and House JS. Income Inequality and Mortality: Importance to Health of Individual Income, Psychosocial Environment, and Material Conditions. *British Medical Journal* 2000; 320: 1200–1204
Lochner K, Pamuk E, Makuc D, Kennedy BP, and Kawachi I. State-Level Income Inequality and Individual Mortality Risk: A Prospective, Multilevel Study. *American Journal of Public Health* 2001; 91: 385–391.
Kondo, Naoki, et al. Income Inequality, Mortality, and Self-Rated Health: Meta-Analysis of Multilevel Studies. *British Medical Journal* 2009; 339: b4471

XIV. Session 2: Stress, Status, and Social Hierarchy (February 27)

Marmot M. *The Status Syndrome: How Social Standing Affects Our Health and Longevity*. New York: Holt, 2005, Chapters 1–6 and 10. (176 pages)
Sapolsky RM. The Influence of Social Hierarchy on Primate Health. *Science* 2005; 308: 648–652.

XV. Session 3: Social Support and the Health Benefits of Relationships (March 3)

House JS, Landis KR, and Umberson D. Social Relationships and Health. *Science* 1988; 241: 540–545.

Cohen S *et al.* Social Ties and Susceptibility to the Common Cold. *JAMA* 1997; 277: 1940–1944.

XVI. March 5 (Thursday)
Neighborhood Effects on Health

We will consider how neighborhoods, as a particular form of collective social structure, may influence individual health. We will examine how local social capital and collective efficacy play a role in health. And we will examine how local physical infrastructure and medical resources affect health. In the process, we will examine geographic variation in a large variety of seemingly objective medical procedures, including the striking differences in care at the end of life and the widely varying patterns of elective surgery across the U.S.. And we will consider the phenomenon of “physician-induced demand” for medical care.

Leventhal T and Brooks-Gunn J. Moving to Opportunity: An Experimental Study of Neighborhood Effects on Mental Health. *American Journal of Public Health* 2003; 93: 1576–1582.

Keizer K, Linderberg S, and Steg L. The Spreading of Disorder. *Science* 2008; 322: 1681–1685

Omer SB, Salmon DA, Orenstein WA, deHart P, and Halsey N. Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases. *New England Journal of Medicine* 2009; 360: 1981–1988.

Seresinhe CI, Preis T, and Moat HS. Quantifying the Impact of Scenic Environments on Health. *Scientific Reports* 2015; 5: 16899.

March 7–22

NO CLASS, Spring Break

March 24 (Tuesday), March 26 (Thursday), and March 31 (Tuesday)
Health and Social Networks

Can there be a non-biological transmission of disease? How does the health care delivered to one person affect the health of others? Does treating depression in parents prevent asthma in their children? Does weight gain or seatbelt use or drinking by those close to you directly affect your health? We will examine the difference between social support (measured at the individual level) and social networks (construed at the group level); and we will consider how illness and health-related phenomena (ranging from sexual practices to smoking to obesity to emotions) might spread within a social network and result in positive and negative “externalities.” We will explore the evolutionary significance and biological basis for social network structure and function. We will consider very new work involving interventions in online and offline networks to improve health, including a variety of experiments in this area. We will also evaluate some of the ethical implications of using network methods to target interventions. And we will introduce the idea of *computational social science* and of *big data*.

XVII. Session 1: Social Network Function (March 24)

Christakis NA and Fowler JH. *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives*. New York: Little Brown, 2009, Chapters 1–4 (134 pages).
Papachristos AV and Wildeman C. Network Exposure and Homicide Victimization in an African American Community. *American Journal of Public Health* 2014;104: 143-150.

XVIII. Session 2: Social Network Structure (March 26)

Christakis NA and Fowler JH. *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives*. New York: Little Brown, 2009, Chapters 5, 7–9. (132 pages)
Apicella CL, Marlowe FW, Fowler JH, and Christakis NA. Social Networks and Cooperation in Hunter-Gatherers. *Nature* 2012; 481: 497–501.
Bearman PS, and Moody J. Suicide and Friendships Among American Adolescents. *American Journal of Public Health* 2004; 94: 89–96.

XIX. Session 3: Social Network Interventions (March 31)

Valente TW. Network Interventions. *Science* 2012; 337: 49–53.
Centola D. The Spread of Behavior in an Online Social Network Experiment. *Science* 2010; 329: 1194–1197.
Kim DA, Hwang AR, Stafford D, Hughes DA, O'Malley AJ, Fowler JH, and Christakis NA, “Social Network Targeting to Maximise Population Behaviour Change: A Cluster Randomised Controlled Trial,” *The Lancet* 2015; 386: 145-153.
Christakis NA and Fowler JH. Social Network Sensors for Early Detection of Contagious Outbreaks. *PLoS One* 2010; 5: e12948.

April 2 (Thursday)

XX. Social Capital

We will examine the very important concept of “social capital,” first advanced by Coleman in 1988, and also the nature of “emergent” properties of social systems. How and why do groups of people come to have properties that do not inhere in the individuals themselves? And to what productive ends, both good and bad, might social capital be put—by individuals and by policymakers?

Coleman J. Social Capital in the Creation of Human Capital. *American Journal of Sociology* 1988; 94: S95–S120.

Hardin G. The Tragedy of the Commons. *Science* 1968; 162: 1243–1248.

XXI. April 7 (Tuesday)

MIDTERM #2

April 9 (Thursday) and April 14 (Tuesday)

Behavior Genetics, Gene-Environment Interactions, and Social Epigenetics

We will consider the cutting-edge field of *biosocial science*, and in particular focus on the ways in which our genes are in conversation with our social environment. To what extent does our genetic makeup influence our behaviors? To what extent do our genes increase or decrease our risk for illness given particular environmental exposures? What are the biological bases of resilience? And how does the social environment come to regulate our genome? How do social exposures “get under our skin”? How are they literally embodied?

XXII. Session 1: How the Biological Becomes Social, and Behavior Genetics (April 9)

Caspi A et al. Influence of Life Stress on Depression: Moderation by a Polymorphism in the 5-HTT Gene. *Science* 2003; 301: 386–389.

Caspi A, Hariri AR, Holmes A, Uher R, and Moffitt TE. Genetic Sensitivity to the Environment: The Case of the Serotonin Transporter Gene and its Implications for Studying Complex Diseases and Traits. *American Journal of Psychiatry* 2010; 167: 509-527.

Yong E. A Waste of 1,000 Research Papers. *The Atlantic*. May 17, 2019;

<https://www.theatlantic.com/science/archive/2019/05/waste-1000-studies/589684/>

Polderman TJC, et al. Meta-Analysis of the Heritability of Human Traits Based on Fifty Years of Twin Studies. *Nature Genetics* 2015; 47: 702-709.

XXIII. Session 2: How the Social Becomes Biological, Gene-Culture Co-Evolution, and Social Epigenetics (April 14)

Slavich GM and Cole SW. The Emerging Field of Human Social Genomics. *Clinical Psychological Science* 2013; 8: 667-669.

Miller G. The Seductive Allure of Behavioral Epigenetics. *Science* 2010; 329: 24–27.

Szyf M. Lamarck Revisited: Epigenetic Inheritance of Ancestral Odor Fear Conditioning. *Nature Neuroscience* 2014; 17: 2-4.

Guenard F, Deshais Y, Cianflone K, Kral JG, Marceau P, and Vohl MC. Differential Methylation in Glucoregulatory Genes of Offspring Born Before Versus After Maternal Gastrointestinal Bypass Surgery. *PNAS: Proceedings of the National Academy of Sciences* 2013; 110: 11439-11444.

Swartz JR, Hariri AR, and Williamson DE. An Epigenetic Mechanism Links Socioeconomic Status to Changes in Depression-Related Brain Function in High-Risk Adolescents. *Molecular Psychiatry* 2017; 22: 209-214.

National Scientific Council on the Developing Child. (2005/2014). *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper 3*. Updated Edition.
<http://www.developingchild.harvard.edu>

Laland KN, Odling-Smee J, and Myles S. How Culture Shaped the Human Genome: Bringing Genetics and the Human Sciences Together. *Nature Reviews Genetics* 2010; 11: 137-148.

April 16 (Thursday), April 21 (Tuesday), and April 23 (Thursday)
Public Policy and Health and Health Care

We will examine some macro and micro public policies that can affect individual and public health. As a powerful illustration, we will examine how society might respond to the emergence

of new bio-technologies that promise to provide “super-human” enhancements to the human body, and we will consider moral aspects of these developments as well as how society might regulate them. We will also consider the implications of having or not having health insurance for the health of Americans. We will close with a consideration of some illustrative individual, local, and national efforts to improve the health of the public, and with a recapitulation of the fundamental tension between individual and collective perspectives on health and health care. And we will discuss what a new era of “big data” can offer public policy as it relates to health and health care.

XXIV. Session 1: Social Control of Individual Use of New Biotechnologies (April 16)

Harris J. *Enhancing Evolution: The Ethical Case for Making Better People*. Princeton: Princeton University Press, 2007, Chapters 1–8. (143 pages)
Cohen J. Did CRISPR Help – or Harm – the First-Ever Gene-Edited Babies? *Science* 2019; doi:10.1126/science.aay9569

XXV. Session 2: A Selection of Policy Interventions (April 21)

Thaler RH and Sunstein CR. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. New Haven, CT: Yale University Press, 2008. Chapters 1, 2, 4, 5, and 11 (84 pages).
Andersen RE, Franckowiak SC, Snyder J, Bartlett SJ, and Fontaine KR. Can Inexpensive Signs Encourage the Use of Stairs? Results from a Community Intervention. *Annals of Internal Medicine* 1998; 129: 363–369.
Volpp KG, *et al.* A Randomized Controlled Trial of Financial Incentives for Smoking Cessation. *New England Journal of Medicine* 2009; 360: 699–709.
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XXVI. Session 3: Public Health and Individual Experience (April 23)

McGinnis JM, Williams-Russo P, and Knickman JR. The Case for More Active Policy Attention to Health Promotion. *Health Affairs* 2002; 21: 78–93.
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Take-Home Final Exam

The exam will be distributed no later than April 23 (probably at 5:00 p.m. that day) and will be due approximately a week later, as will be discussed in class.