

Sociology 126

Health of the Public: Medicine and Disease in Social Context

Thursday 9:25–11:15 a.m.

Fall Term 2022

Location: 17 Hillhouse Ave., room 335

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office hours: by appointment

Course Websites:

Links to most of the readings and other materials are on the Canvas website; other information is at <http://humannaturelab.net/teaching>.

Course Description:

This academic year, for the first time, HOP will be taught as a seminar, solely for freshmen and sophomores. We will also have a special focus on the ongoing COVID-19 pandemic.

This course examines the social causes and context of illness, death, longevity, and health care in the USA today. How are health and illness defined? Who stays healthy and who falls ill? Who has a long life and who has a short one? What constitutes a good death, and why do so few Americans have one? What makes for 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 (including genetics, parental traits, geography, or hospital quality) influence health and health care? How do major epidemics affect society, and how do societies respond effectively? 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? Further, what issues of ethics and justice are raised by such questions? How might 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 as prerequisites for this course. The readings – which are demanding – span the medical, public health, and social science literatures; and they reflect both qualitative and quantitative approaches. They also introduce the new field of biosocial science, and emerging applications of data science to health. In many ways, this course serves as an introduction to the modern state of public health as a multidisciplinary field.

Course Requirements:

- Attendance and class participation (you simply must do the readings – don't wing it) (20%)
- In-class mid-term exam on October 6 (20%)
- Four-page paper (topic to be announced; due on November 10) (20%)
- Take-home final exam (12-15 pages) (40%)

Please check the above mid-term dates when you enroll in the class, to ensure that you have no (anticipated) conflicts with these examination requirements.

You can find copies of old exams at <http://humannaturelab.net/teaching>. The final exam will consist of 2-3 essay questions, for a total of roughly 12–15 pages. While there may be some choice, all the questions will require in-depth engagement with the major themes of the whole course. The exam will be distributed no later than the last week of class, and will likely be due one week later. We will ask you to email the exam to the instructor, or upload the exam to Canvas (we will provide instructions as the date approaches).

Since various electronic checks will be performed on all submitted papers and exams, be sure that all your written work is your own, and that you cite sources appropriately. Please do not cut and paste text from any source without attribution – this will lead to consternation and much unhappiness. 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. We expect that you will not cheat in any way.

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

Student Engagement:

The course includes a range of readings from many different fields and from many policy perspectives, some of which you and others may disagree with. This is normal and desirable at a serious university. 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, disability, suicide, gun violence, poverty, autism, medical errors, among other things. Additionally, 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, or what is the true cause of some particular circumstance or class of circumstances. Our approach to these matters will be evidence-based and scientific.

Course FAQ:

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

- Sociology 126 also counts as Global Health 140.
- There are no prerequisites.
- Videos of past lectures are available at the Human Nature Lab website. Some of these may be required and they clarify the course material.
- If enrollment interest exceeds available class slots (18), we will ask every interested student to answer a short one- or two-paragraph essay question the first week of class, and we will notify accepted students by September 4.

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>. Students should note well that collaboration in any way (including conversation about the questions) on the take-home final exam is not permitted.

Sections and Teaching Fellows:

Given the seminar format this year, there is no section for the class. The TF is Eric Feltham, who will hold office hours, which will be announced on Canvas. His email address is: eric.feltham@yale.edu.

Books and Readings:

Books are available for purchase online, and at the Yale Bookstore or Amazon. Readings from books and articles range from 60-200 pages per week. Readings are available online in Canvas.

Christakis, N.A. *Apollo's Arrow: The Profound and Enduring Impact of Coronavirus on the Way We Live*. New York: Little Brown, 2021 [paperback version with new preface and afterword].

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].

I. September 1 **Course Introduction**

In this introductory lecture (the only lecture of the semester), we will briefly review the burden of illness and death in the USA. We will touch on the costs, family effects, and the implications for people's well-being. We will also review the leading causes of death, and how they vary with socio-demographic characteristics. We will touch on how our attention to the threats to our health is often skewed, and notably include how we neglected the risk of serious (albeit rare) pandemic disease until it was upon us. We will note geographic variation in illness and mortality. We will examine the effects of the circumstances of birth (including diverse *in utero* exposures, birthweight, birth order, parental occupation, etc.) on lifelong health. Here, we will introduce the tension between individualistic and collective perspectives on medical care that pervades the course. In particular, we will consider the case of suicide, and the extent to which it reflects either individual decision-making or collective constraints. In short, we will lay out the basic set of biosocial facts that we will subsequently explore in the course.

II. September 8 **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 USA, and around the world, as part of the “health transition.” Finally, we will discuss some ways of defining and measuring health besides mortality.

- 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.]
- 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.
- Tunstall-Pedoe, H, et al. Pattern of Declining Blood Pressure Across Replicate Population Surveys of the WHO MONICA Project, mid-1980's to mid-1990s, and the Role of Medication. *British Medical Journal* 2006; 332: 629-635.
- Cunningham SA, Mitchell K, Narayan KMV, and Yusuf, S. Doctors' Strikes and Mortality: A Review. *Social Science and Medicine* 2008; 67: 1784–1788.
- Chen Y, Persson P, and Polyakova M. The Roots of Health Inequality and the Value of Intra-Family Expertise. *American Economic Journal: Applied Economics* 2022; 14: 185-223.
- Papanicolas I, Woskie LR, and Jha AK. Health Care Spending in the United States and Other High-Income Countries. *JAMA* 2018; 319: 1024-1039.

III. September 15 **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, health care delivery, and health outcomes? What are the methodological challenges of demonstrating and interpreting the 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? Further, we will also consider how neighborhoods, as a particular form of collective social structure, may influence and stratify health. In this vein, we will generally consider how local physical infrastructure and medical resources affect health.

- Link BG and Phelan J. Social Conditions as Fundamental Causes of Disease. *Journal of Health and Social Behavior* 1995 (Extra Issue): 80–94.
- 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.
- Katsnelson A. A Novel Effort to See How Poverty Affects Young Brains. *New York Times*, April 7, 2021.
- Pickett KE, and Lauderdale DS. Widening Social Inequalities in Risk for Sudden Infant Death Syndrome. *American Journal of Public Health* 2005; 95: 1976–1981.
- Blackhall LJ, Murphy ST, Frank G, Michel V, and Azen S. Ethnicity and Attitudes Toward Patient Autonomy. *JAMA* 1995; 274: 820–825.
- Dehon E, et al. A Systematic Review of the Impact of Physician Implicit Racial Bias on Clinical Decision Making. *Academic Emergency Medicine* 2017; 24: 895-904
- Lauderdale D. Birth Outcomes for Arabic-Named Women in California Before and After September 11. *Demography* 2006; 43: 185–201.
- 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).
- 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

IV. September 22 **The Social Construction of Illness and Medicine**

How are the seemingly objective, natural, or scientific concepts of “body,” “illness,” or “treatment” influenced and determined both 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 autism to certain “culture-bound syndromes” like koro.

- Martin, E. *The Woman in the Body: A Cultural Analysis of Reproduction*. Boston: Beacon Press, 1987, pp. 27–67.
- 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.
- Littman L. Rapid-onset Gender Dysphoria in Adolescents and Young Adults: A Study of Parental Reports. *PLoS ONE* 2018; 13: e0202330.
- Wadman M. New Paper Ignites Storm Over Whether Teens Experience ‘Rapid Onset’ of Transgender Identity. *Science* August 30, 2018.
- Stip E., et al. Classical Koro and Koro-Like Symptoms: Illustrations from Canada. *Journal of Psychosexual Health* 2021; 3: 222-235.

V. September 29

Iatrogenesis and Medical Error

How common and serious are medical errors? What is the difference between harm, error, and maloccurrence? 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? We will also explore the nature of dying in the USA, 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. Lastly, we will discuss the role of physician decision-making in end-of-life care.

- Illich I. *Medical Nemesis: The Expropriation of Health*. New York, NY: Pantheon Books, 1976, Part I (pp. 1–107). [Page numbers depend on edition; read until the section “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.
- M. Richtel, “This Teen Was Prescribed 10 Psychiatric Drugs. She is Not alone.” *New York Times*, August 27, 2022.
- Friedman JW. The Prophylactic Extraction of Third Molars: A Public Health Hazard. *American Journal of Public Health* 2007; 97: 1554-1559.
- 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.
- 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.

VI. October 6

IN-CLASS MIDTERM

VII. October 13

Health Behaviors

How do individuals' choices and behaviors affect individuals' health risks and health status? How do individuals' choices and behaviors affect the health risks and health status of other people? 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 including obesity, smoking, drinking, and gun possession. We will also explore the role of broader social policies and environmental effects on individual outcomes.

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

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.

O'Brien D, et al. Association Between Electronic Cigarette Use and Tobacco Cigarette Smoking Initiation in Adolescents: A Systematic Review and Meta-Analysis. *BMC Public Health* 2021; 21: 954.

McMurtrie B. Why Colleges Haven't Stopped Binge Drinking: Decades of Attention Without Much Difference. *Chronicle of Higher Education* December 2, 2014.

Kellermann AL, et al. Injuries Due to Firearms in Three Cities. *New England Journal of Medicine* 1996; 335: 1438–1444.

VIII. October 20

NO CLASS

IX. October 27

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, not just absolute position, matter to health? How can social structure itself 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?

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

Sapolsky RM. The Influence of Social Hierarchy on Primate Health. *Science* 2005; 308: 648–652.

- Singh-Manoux A, Adler NE, and Marmot MG. Subjective Social Status: Its Determinants and Its Association with Measures of Ill-Health in the Whitehall II Study. *Social Science and Medicine* 2003; 56: 1321-1333.
- House JS, Landis KR, and Umberson D. Social Relationships and Health. *Science* 1988; 241: 540–545.

X. November 3
Social Networks and Social Capital

Can there be non-biological transmission of disease? How does the health care delivered to one person affect the health of others? Can treating depression in parents prevent asthma in their children? Can weight gain – or seatbelt use or drinking – by those close to you directly affect your health? 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 or negative “externalities.” We will consider new experiments that involve interventions in online and offline networks to improve health. We will also evaluate some of the ethical implications of using network methods to target public health interventions. Moreover, we will examine the foundational and widely influential concept of “social capital,” first advanced (in a sound way) by Coleman in 1988, and how this relates to “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 how might social capital be a “public good”?

- Christakis NA and Fowler JH. The Spread of Obesity in a Large Social Network Over 32 Years. *New England Journal of Medicine* 2007; 357: 370-379.
- Papachristos AV and Wildeman C. Network Exposure and Homicide Victimization in an African American Community. *American Journal of Public Health* 2014;104: 143-150.
- 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.
- Alexander MA, Forastiere L, Gupta S, and Christakis NA. Algorithms for Seeding Social Networks Can Enhance the Adoption of a Public Health Intervention in Urban India,” *PNAS: Proceedings of the National Academy of Sciences* 2022; 119: e22120742119
- Christakis NA and Fowler JH. Social Network Sensors for Early Detection of Contagious Outbreaks. *PLoS One* 2010; 5: e12948.
- 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.

XI. November 10
The COVID-19 Pandemic

We will explore the virology, epidemiology, and public health impact of the once-in-a-century COVID-19 pandemic we are living through. We will review the deployment of “non-pharmaceutical interventions” as well as the development of medicines and vaccines to respond to the threat. We will explore the classic social and psychological responses to epidemic disease (including grief, fear, denial, and blame of others) and the social and economic impact of the pandemic. We will position the COVID-19 pandemic in the long history of deadly outbreaks that have afflicted our species.

Christakis NA. *Apollo's Arrow: The Profound and Enduring Impact of Coronavirus on the Way We Live*. New York: Little Brown, 2021 [paperback version].

XII. November 17 **COVID-19 Pandemic Controversies**

The COVID-19 pandemic has engendered many controversies, both among scientists and the citizenry – in everything from mask wearing, the utility of “lockdowns,” the efficacy of “natural” immunity, the benefits or side effects of vaccination and boosters, to the origins of the virus itself. Science, and its interface with public policy, has become heavily politicized during COVID-19. We will review some of the latest data about these controversies and discuss the process of politicization. And we will consider the intriguing and informative fact that many of the same controversies were present during the 1918 influenza pandemic.

McCarthy J. US COVID Cases Are Rising Again, But Worries Are Not. *Gallup Politics*, May 11, 2022.

Brenan M. One in Three Americans Think Pandemic Is Over. *Gallup Politics*, May 23, 2022.

F.P. Polack et al., “Safety and Efficacy of the BNT162b2 mRNA COVID-19 Vaccine, *New England Journal of Medicine*, December 10, 2020.

Howard J. et al.. An Evidence Review of Face Masks Against COVID-19. *PNAS: Proceedings of the National Academy of Sciences* 2021; 118: e2014564118

Goldberg Y. et al. Protection and Waning of Natural and Hybrid Immunity to SARS-CoV-2. *New England Journal of Medicine* 2022; 386: 2201-2212.

Engzell P, Frey A, and Vewrhagen MD. Learning Loss Due to School Closures During the COVID-19 Pandemic. *PNAS: Proceedings of the National Academy of Sciences* 2021; 118: e2022376118.

Li Y et al. The Temporal Association of Introducing and Lifting Non-Pharmaceutical Interventions with the Time-Varying Reproduction Number (R) of SARS-CoV-2: A Modeling Study Across 131 Countries. *Lancet Infectious Diseases* 2021; 21: 193-202.

Pekar JE, et al.. “The Molecular Epidemiology of Multiple Zoonotic Origins of SARS-CoV-2. *Science* 2022

Worobey M, et al.. The Huanan Seafood Wholesale Market in Wuhan Was the Early Epicenter of the COVID-19 Pandemic. *Science* 2022

XIII. December 1 **Behavior Genetics, Gene-Environment Interactions, and Social Epigenetics**

We will consider the cutting-edge field of *biosocial science*. In particular, we will 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? How might the social environment come to regulate our genome? And how do social exposures “get under our skin”? How are they literally embodied?

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.

- Slavich GM and Cole SW. The Emerging Field of Human Social Genomics. *Clinical Psychological Science* 2013; 8: 667-669.
- Caspi A et al. Influence of Life Stress on Depression: Moderation by a Polymorphism in the 5-HTT Gene. *Science* 2003; 301: 386–389.
- Young E. A Waste of 1,000 Research Papers. *The Atlantic*. May 17, 2019.
- 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.
- Wilkin S. The Mystery of Early Milk Consumptions in Europe. *Nature* 2022
- 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.

XIV. December 8

Public Policy and Health and Health Care

We will examine some macro- and micro-level 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; further, we will consider moral aspects of these developments as well as how society might regulate them. We will close by reflecting on 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.

Harris J. *Enhancing Evolution: The Ethical Case for Making Better People*. Princeton: Princeton University Press, 2007, Chapters 1–6. (108 pages)

Cohen J. Did CRISPR Help – or Harm – the First-Ever Gene-Edited Babies? *Science* 2019

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.

Reinhard E, Carrino L, Courtin E, van Lenthe FJ, and Avendano M. Public Transportation Use and Cognitive Function in Older Age: A Quasi-Experimental Evaluation of the Free Bus Pass Policy in the United Kingdom. *American Journal of Epidemiology* 2019; 188: 1774-1783.

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

Take-Home Final Exam

The exam will be distributed no later than December 8 (probably at 5:00 p.m. that day) and will be due approximately a week later, as will be discussed in class.