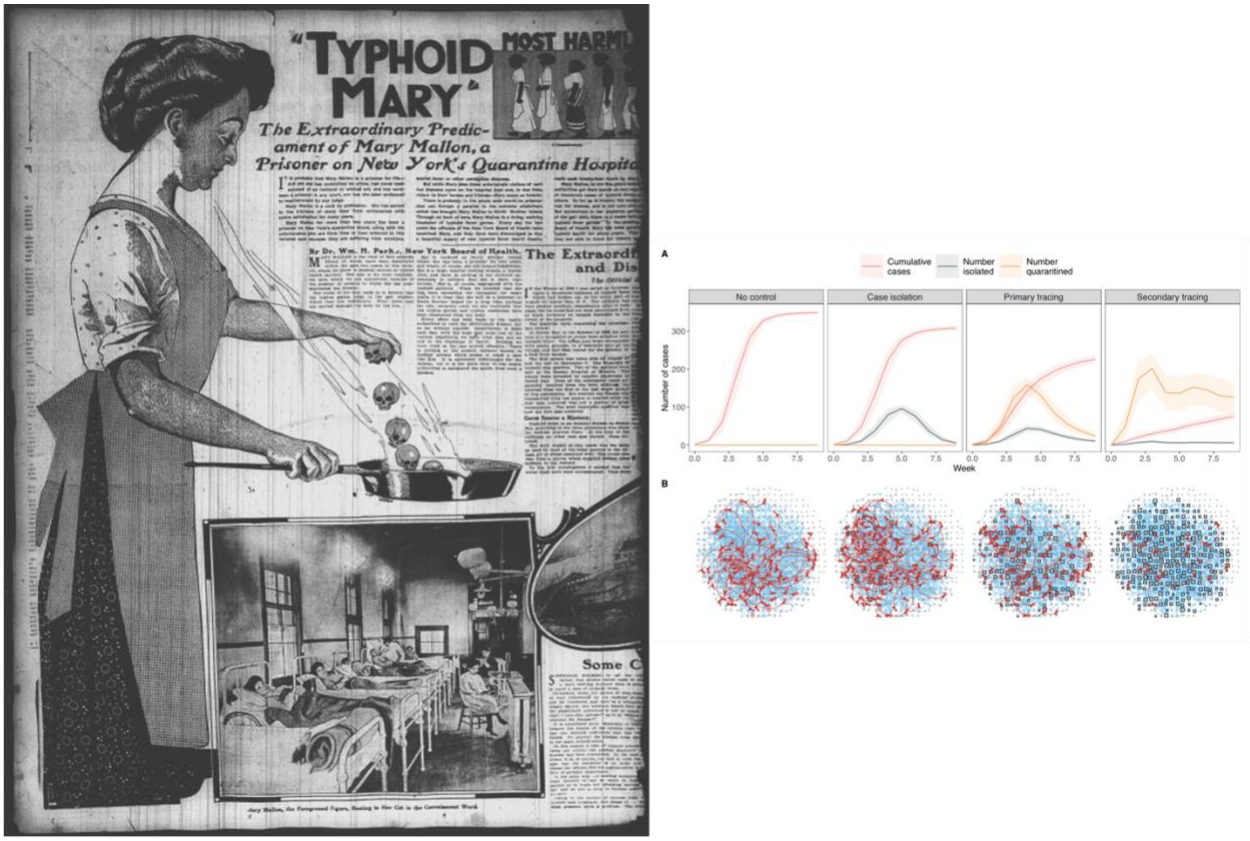
Pathogens and Populations: Representing Infectious Disease

English 102
Autumn 2022, Stanford University, 5 units
Time: Thursday at 1:30-4:20 in 380-381T

Instructors: **Alex Sherman** (he/him/his)
PhD Candidate in English
ajsherm@stanford.edu
Office hours: Wednesday 11-12 and Friday 1-2 in 460-207 (across from English office)

Mallory Harris (she/her/hers)
PhD Candidate in Biology
mharris9@stanford.edu
Office hours: Monday 2-3 in 460-207



(Image credits: *The New York American*, June 20, 1909; Josh Firth et al., "Combining fine-scale social contact data with epidemic modelling reveals interactions between contact tracing, quarantine, testing and physical distancing for controlling COVID-19")

Course description

Infectious diseases are too small to see and too large to fathom. Biologically, microscopic invaders, viruses even smaller than our cells, can travel across the planet and infect billions of humans. Socially, individual contacts have the potential to devastate families, fracture communities, and decimate whole civilizations. How can we comprehend, let alone make meaningful decisions about, complex multi-scale systems of people and pathogens?

The main way we try to understand infectious diseases is putting them into other forms that straddle these scales, in short, *representing* them. To address the resulting representational problems, this course explores a range of scientific *and* cultural representations of disease. We will ask: What are the underlying assumptions and limits made in our attempts to describe a pathogen spreading through a population? How can board games, mathematical models, and oral histories show the randomness behind catastrophic outbreaks? Or, how might a network model illustrate the way HIV spreads among characters in a novel? How does the epidemiological case study rely on the same principles as tabloid stories about "superspreaders" like Typhoid Mary?

The goal of the course is to understand and critique the ways infectious disease is represented, and especially to understand what and who is excluded in different modes of representation. This course is appropriate for students interested in literature and science, public health, medicine, life writing, science writing, history of science, and media studies. This interdisciplinary course explores the scientific and cultural representation of infectious disease by considering a multitude of forms of representation of epidemics, including literature, plays, mathematical models, poems, oral narratives, interactive simulations, board games, films, data graphics, and scientific illustrations.

Learning goals

Content goals:
-Connect, compare, and contrast scientific and cultural representations
-Recognize the ways that culture shapes science
-Gain familiarity with a range of epidemiological models and concepts

Skill goals:
-Critique representational norms, with attention to the politics embedded in formal choices
-Practice analyzing a wide range of media
-Communicate scientific topics and methods in creative ways
-Read, speak, and write across disciplines

Assignments

Attendance and participation (15%): This class is a cooperative, interdisciplinary learning environment. The purpose of class discussions is to practice thinking together in ways that will ultimately enrich your writing and expand your knowledge of fields that you may not have previously encountered. Your attendance and participation in class discussions is vital. Please come to class prepared to discuss the assigned readings. We will spend the first day of class talking about what rich and respectful classroom discussion looks like for us. Additional, students will write a brief

reflection at the end of each course meeting that will be graded for completion. See final page for attendance policy.

Weekly problem sets (20%): Every week, you will answer two brief prompts, generally one each from Alex and Mallory. The problem set will be due before class starts each week. These are meant to help you prepare for the larger assignments, so they are primarily graded on completion and engagement with course content, and you should feel free to take creative risks in them. You are free to skip one week's problem set.

(Mis)Translation (15%): You will translate a representation of infectious disease from a scientific paper (chosen from a list we provide) into a literary or artistic form. For example, you might turn an equation from a scientific paper into a short fiction. Then, you will write a short reflection explaining your creative process and theorizing about how these two ways of representing a population overlap and diverge. The reflection should be 500-1000 words. You are evaluated primarily on the reflection; the translation itself is an opportunity to experiment and explore in order to think through the literature-science connection, including the disconnect between them (the mistranslation). While turning a scientific representation into a short fiction may be the most straightforward path, we welcome all genres and media for the translation (e.g., poetry, fiction, one-act plays, memoir, journalism, visual art, film, music, etc.). Your translation will be posted to Canvas so that we can all see each others' and discuss the process in class.

Midterm essay (20%): Choose a week of the course, then write a 1000-1200 word essay comparing the cultural and the scientific representation of infectious disease from that week (e.g., *Welcome to Our Hillbrow* and network models). We ask that your paper make an argument about how these representations are connected and that it address the bigger implications of that connection. Questions you might consider include: How do these representations depict a population? Who and what is included and excluded? How do you see the cultural assumption about representation enacted in the science, or vice versa? How can we understand the potentials and limits of epidemiological methods via this comparison?

Presentations on final projects (5%): To help prepare you for the final essay, please present a version of your paper in 10-15 minutes for the class. You should present what your artifact and scientific paper are and sketch out your questions, hypotheses, and possible arguments and stakes, but you need not have a fully polished argument and bigger implication. Presentations can be creative (i.e., need not be slideshows). While the point of this assignment is to help you write the final, we do expect presentations to reflect thoughtful preparation.

Final essay (25%): Write a 1800-2200 word essay comparing the representation of infectious disease across a cultural artifact and a scientific paper. Please choose at least one object **not discussed in class** (although you are welcome to choose both a new cultural artifact and scientific paper); feel free to refer to the list of suggested sources on Canvas. As in the midterm essay, you will make an argument connecting these representations and outlining the bigger stakes (see that assignment for possible questions to consider).

Extra credit opportunities: You may visit the National AIDS Memorial Grove or attend a talk about scientific and/or cultural representations of infectious disease and write about your experience for extra credit, amounting to 4% of the final grade (enough to bump you up one letter grade, say from A- to A). Please see the assignment guide for instructions. Note that if you have any questions about

getting to the Groveor to events, especially about funding travel, please contact Alex or Mallory by email and we will help you.

Schedule and assigned readings

Part 1: Exploring representations across media

Week 1 (9/29) Introduction: representation using poetry and equations

Week 2 (10/6) Capturing mass death: oral narratives and quantifying loss

Readings: -"Family Stories from the Trail of Tears" edited by Grant Foreman and Lorrie Montiero
-"Cherokee Population Losses during the Trail of Tears: A New Perspective and a New Estimate" by Russell Thornton
-"Population, Health, and Public Welfare" by David Jones

Suggested: -Begin reading *Journal of a Plague Year* by Daniel Defoe

Week 3 (10/13) Putting people into boxes: drama and compartmental models

Readings: -*The Normal Heart* by Larry Kramer
-Explore this interactive tool (http://covid-measures.stanford.edu)

Week 4 (10/20) Alternate realities: counterfactual history and counterfactual models

Readings: -*The Fathers Project* (short film) by Leo Herrera
-"Filmmaker Leo Herrera Imagines an Alternate World Without AIDS" (short documentary) by Claudia Escobar
-"What Would Daddy Mapplethorpe Do?" by Leo Herrera
-Abstract of Gonsalves GS and Crawford FW. Dynamics of the HIV outbreak and response in Scott County, IN, USA, 2011-15: a modelling study. *Lancet HIV*, 5 (2018), pp. e569-e577. doi: 10.1016/s2352-3018(18)30176-0.
-Explore the attached interactive counterfactual simulation of the Scott County, Indiana, HIV outbreak
-Abstract of "The Race-PrEP Study (Counterhegemonic Modeling)" in *Epidemic Illusions* by Eugene Richardson (2020). doi: 10.7551/mitpress/12550.003.0013.

(Mis)translation due at 11:59 PM on Monday 10/24 of week 5

Interlude 1: On representation and chance

Week 5 (10/27) Randomness: games and stochasticity

Reading: -*Pandemic* (see instructions in Canvas)

Part 2: Prose as privileged form of representation

Week 6 (11/3) Responses and responsibility: Typhoid Mary and the *MMWR*

Readings: -Selected articles on Typhoid Mary (available in Canvas)
-Dyal JW, Grant MP, Broadwater K, et al. COVID-19 Among Workers in Meat and Poultry Processing Facilities — 19 States, April 2020. *Morbidity and Mortality Weekly Report* 2020, 69:557–561. doi: 10.15585/mmwr.mm6918e3 .
-Executive summary (page 1-5) of House Select Subcommittee on the Coronavirus Crisis, "How the Trump Administration Helped the Meatpacking Industry Block Pandemic Worker Protections" (Washington, D.C.: United States House of Representatives, May 2022), https://coronavirus.house.gov/sites/democrats.coronavirus.house.gov/files/2022.5.12%20-%20SSCC%20report%20on%20Meatpacking%20FINAL.pdf.

Week 7 (11/10) Connections and contacts: novelistic characters and network diagrams

Reading: -*Welcome to our Hillbrow* by Phaswane Mpe

Week 8 (11/17) Agents and agencies: novelistic (?) perspective and agent-based models

Reading: -*Journal of a Plague Year* by Daniel Defoe
- Epstein JM, Parker J, Cummings D, Hammond RA (2008). Coupled contagion dynamics of fear and disease: mathematical and computational explorations. *PLOS ONE* 3 (12): e3055. https://doi.org/10.1371/journal.pone.0003955 (excerpts).

Thanksgiving break: no class

Midterm paper due Sunday 11/27 of week 9

Interlude 2: On representation and action

Week 9 (12/1) Political representation: AIDS Quilt and closing discussion

Reading: -To prepare for the invited speaker, please explore the AIDS Quilt website

Conclusion

Week 10 (12/8) Student presentations

Final paper due during schedule exam time of week 11

Logistics

Course materials: All students should obtain the following texts:

1. *Welcome to our Hillbrow* (by Phaswane Mpe, 2001; Ohio University Press, 2011, ISBN 9780821419625)
2. *Journal of a Plague Year* (by Daniel Defoe, 1722; Oxford World's Classics, 2010, ISBN 9780199572830)

3. *The Normal Heart* (by Larry Kramer, 1985; Grove Press, 2000, ISBN 9780802136923)

The required texts are available from the Stanford Bookstore. Note that while *Plague Year* is available for free online and there are many printed editions available, we will be referring to page numbers and editorial material specific to this edition in class. If you need assistance obtaining the required texts, please contact your instructors.

All other course materials and readings will be uploaded to the course Canvas site.

Attendance: Since we only meet once a week and course sections will be highly interactive, it is important that you attend class. We also recognize that unexpected circumstances may arise. As we learn about the impacts that infectious diseases can have on communities, please respect your classmates and instructors by staying home if you feel sick.

All students may receive one excused absence if you email an instructor before class, without any penalty or make-up assignments. If you need more absences, please contact an instructor to arrange accommodations, which will usually involve additional writing assignments. If you are feeling well enough, we can also arrange for you to Zoom into class given 24 hours advance notice. Beyond these exceptions, absences will negatively impact your participation grade.

Submitting assignments, late submissions, and extensions: All assignments must be submitted via Canvas. Some assignment guides will also direct you to post them as a Discussion on Canvas so that the whole class can discuss them.

Late assignments will lose a half letter grade for each day it is overdue (e.g., an A paper turned in two days late becomes a B paper). If you have major extenuating circumstances, please email Alex and we can figure something out.

Office hours: We encourage you to come to office hours often, especially at the beginning of the quarter to introduce ourselves. We have set office hours but are very happy to make appointments.

Academic accommodation: Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request, review appropriate medical documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty. The letter will indicate how long it is to be in effect. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. Students should also send your accommodation letter to instructors as soon as possible, **preferably by the first week of class:** the sooner we are aware of accommodations, the better we can make them. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: http://oae.stanford.edu).