

GEOG-256

MEDICAL GEOGRAPHY

Spring 2020

MWF 1:10-2:10 pm, Carnegie 107

Instructor: Eric D. Carter

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Office Hours: Mon 2:15-4:00 pm; Tues 3-4 pm; Fri 2:15-4:00 pm or by appointment

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Course Description and Objectives:

This course examines the geographical dimensions of health and disease, emphasizing global and domestic public health issues. Key approaches and themes include the human ecology approach to health; epidemiological mapping and spatial analysis; environmental health; the relationship among demographic change, economic development, and population health; the spatial diffusion of infectious diseases; the disease ecology approach to infectious and vector-borne diseases; and the challenges of "global health" in the 21st century, with special emphasis on "emerging infectious diseases."

Required Readings:

Books

Clark, A. (2019). *The Poisoned City: Flint's Water and the American Urban Tragedy*. Picador, reprint edition. ISBN: 978-1250181619.

Shah, S. (2011). *The Fever: How Malaria Has Ruled Humankind for 500,000 Years*. Picador, paperback edition. ISBN-13: 978-0312573010.

All other readings for this course will be available electronically on Moodle.

Course Policies:

1. Attendance and Participation. In this class, 10 percent of your grade derives from attendance and participation. Consistent attendance is necessary to fully comprehend the course material, and there will be plenty of opportunities to participate in this class. In general, "participation" means speaking up, sharing your thoughts, and making yourself noticed in positive, productive, and supportive ways. It also means listening carefully and respectfully to your fellow students. Any small assignments not otherwise noted in the syllabus will be counted towards your participation grade.

2. Late work. You must turn in your work on time. I will indicate due dates for every assignment, and you must respect them. I will penalize you 10 percent of your grade (or a full letter grade) for a given assignment for every day that it is late. If there are extenuating circumstances (e.g. illness, accident, bereavement, etc.) and you contact me before the due date, I will consider granting an extension.

3. Turning in written work. Unless I specify otherwise, I will be using electronic submission for assignments and exams. Specifically, for each assignment or exam, I will create a "dropbox" on Moodle that has a specific time that work is due (and the dropbox then "closes"). Please do **not** submit assignments via email or as "shared" documents in Google Docs.

4. Reaction papers on campus events. As mentioned above, you can improve your attendance and participation grade by attending campus events and turning in reaction papers about them. In addition to events that might already be noted on the syllabus, I will notify you when I think there are things happening on campus that are relevant to our class. The reaction papers should be 1-2 pages long, and include a summary and critique of the lecture, film showing, or whatever the event may be. I am interested in a clear summary and a thoughtful critique, ideally one that connects the event to course themes. Please turn in these papers in a Moodle dropbox I will create specifically for this purpose, within a week after the event takes place. As a general rule of thumb, satisfactorily completing three of these reaction papers during the semester would raise your course participation grade by one letter grade (e.g. from a C to a B).

5. Academic integrity. As in every course, you will be expected to follow the college's policies on academic honesty: specifically, "Students are expected to maintain the highest standards of honesty in their college work. Forgery, cheating and plagiarism are serious offenses and students found guilty of any form of academic dishonesty are subject to disciplinary action." For more details, see the college's guidelines on Academic Integrity at <http://www.macalester.edu/academicprograms/academicpolicies/academicintegrity/> .

6. Special accommodations. If you have a physical or learning disability that will require special accommodations, please contact me to discuss arrangements. All conversations will be confidential. You will also need to meet with a representative from Disability Services, which determines accommodations. They can be contacted here: disabilityservices@macalester.edu .

7. Communication. You are welcome to come see me during my scheduled office hours. If you can't meet during those times, please send me an email or call my office and we'll schedule an appointment. In general, I answer emails within 24 hours. But I always prefer to discuss important matters in person, not electronically or by phone. Also, make sure that you check your email frequently, because I do send email messages – either from my own email address or via Moodle – frequently to individual students and to the whole class. Do not send me Google Calendar invites; I don't really pay attention to these.

8. Use of Electronic Devices in Class. Laptops are permitted in class but only for note-taking and for activities in class when specifically indicated. When we are having a lecture, discussion, student project presentation, or similar activity, I expect everyone's eyes and attention to be focused on that activity. You definitely should not be browsing the web, checking email, doing your homework, and so on during these class activities. The use of cell phones is strictly prohibited: no calling, texting or other uses of your cell phone during class time.

Course Assignments:

- **Attendance and Participation:** see above
- **Exercises.** There will be three brief homework exercises on different topics that allow you to apply theory and concepts using interactive maps, databases, and data visualization tools.
- **Exams.** There will be two exams, both take-home format: a midterm and a final. I am including a "flex" component for your exam grades, so that whichever of the two exams you score higher on will be worth 25% of your grade and the other will be worth 20%.
- **Research project.** This assignment will allow you to expand on a topic in medical/health geography that interests you. There will be some preliminary components due before the paper itself, including required oral presentations in the final weeks of the semester. All the components, not just the final paper, will be considered in determining your grade on the project. The final paper will be around 10-12 pages (i.e. 2500-3000 words) in length.

Grading:

Attendance and Participation	10%
Exercises (3 x 5%)	15%
Exam 1 (take-home)	20%
Exam 2 (take-home)	20%
Exam flex	5%
Research Project	30%
TOTAL	100%

"Exam flex" means that 5% of your total course grade will go towards *either* the midterm or the final exam, whichever you score higher on. In effect, either your midterm or your final will be worth 25%, and the other exam, 20%. If necessary, I will use a curve to decide **final** course grades.

COURSE SCHEDULE (Detailed):

Notes: The schedule is subject to change, with fair warning. Check on Moodle for updates about which readings are "required" (REQ), which should be skimmed (SKIM), and which are merely "recommended" (RCM). Generally, try to do the readings for the day they are assigned, even if a more in-depth discussion is not scheduled until a few days later. Rest assured that every week I will give you details about the reading assignment and plan for discussion.

Week 0. What is Medical Geography?

- Fri. (Jan. 24): What is Medical Geography?
 - Gatrell, A. C., & Elliott, S. J. (2015). *Introducing Geographies of Health*. In *Geographies of health: an introduction* (3rd ed.). Malden, MA: Wiley Blackwell.

Week 1. Introduction / International Health and Development

- Mon. (Jan. 27): Introductions and Course Business
- Wed. (Jan. 29): Demographic Transition Theory
 - Montgomery, K. (n.d.) *The Demographic Transition* (online resource).
 - Forero, J. (2011). Birth rate plummets in Brazil. *Washington Post*, Dec. 29.
 - Sussman, A. L. (2019, Nov. 16). The End of Babies, *NY Times*, 16 November 2019.
 - Marshall, S. J. (2004). Developing countries face double burden of disease. *Bulletin of the WHO* 82: 556.
- Fri. (Jan. 31): Health and Development
 - IHME (2015). *Rethinking Development and Health Findings from the Global Burden of Disease Study* (skim)
 - Garrett, L. (2007). The Challenge of Global Health. *Foreign Affairs*, Jan/Feb.
 - Sen, A. (2015, Jan. 6). Universal healthcare: The affordable dream. *The Guardian* online.
 - Frenk, J. (2010). The global health system: strengthening national health systems as the next step for global progress. *PLoS Med*, 7(1), e1000089.

Week 2. International Health (cont'd) and Disease Ecology

- Mon. (Feb. 3): Health and Development: Lessons from Latin America
 - Carter, E. D. (2019). Health Systems in Argentina and Chile: A Comparative History. In *The Healthcare In Spanish America Reader* (unpublished draft).
 - Unger, J.-P., et al. (2008). Costa Rica: achievements of a heterodox health policy. *American Journal of Public Health*, 98(4), 636.
- Tues. (Feb. 4): **Exercise 1: Demographic and Health Indicators DUE**

- Wed. (Feb. 5): Introduction to Disease Ecology
 - Anthamatten and Hazen (2011). Ecological Approaches. In *An Introduction to the Geography of Health*.
- Fri. (Feb. 7) Political Ecology of Vector-Borne Disease
 - Lesser, J., & Kitron, U. (2016). The Social Geography of Zika in Brazil. *NACLA Report on the Americas*, 48(2), 123-129.
 - Carter, E. D. (2016). JLAG Perspectives: Zika Anxieties and a Role for Geography. *Journal of Latin American Geography*, 15(1), 157-161.
 - Harris, M. L., & Carter, E. D. (2019). Muddying the waters: A political ecology of mosquito-borne disease in coastal Ecuador. *Health & Place*, 57, 330-338. (recommended)

Week 3. Malaria

- Mon. (Feb. 10): Malaria and Development in Historical Perspective
 - Sachs, J., and P. Malaney (2002). The economic and social burden of malaria. *Nature* 415: 680-685.
 - SHAH, *The Fever* (begin)
- Wed. (Feb. 12): Malaria
 - SHAH, *The Fever* (continue)
- Fri. (Feb. 14): Malaria
 - SHAH, *The Fever* (finish)

Week 4. Emerging Infectious Diseases

- Mon. (Feb. 17): Emerging Infectious Diseases 1: Emergence
 - Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature*, 447(7142), 279-283.
 - Mayer, J. D. (2000). Geography, ecology and emerging infectious diseases. *Social Science and Medicine*, 50, 937-952. (recommended)
- Wed. (Feb. 19): Emerging Infectious Diseases 2: Diffusion
 - Haggett, P. (2000). *The geographical structure of epidemics*. Oxford: Clarendon Press (excerpt).
 - Ali, S. H. & R. Keil (2006). Global Cities and the Spread of Infectious Disease: The Case of Severe Acute Respiratory Syndrome (SARS) in Toronto, Canada. *Urban Studies* 43(3): 491-509.
- Fri. (Feb. 21): Emerging Infectious Diseases 3: Response
 - Watch (outside of class): Frontline documentary on 2014 West African Ebola epidemic
 - Garrett, L. (2015). Ebola's Lessons: How the WHO Mishandled the Crisis. *Foreign Affairs*.

Week 5. Climate Change and Health

- Mon. (Feb. 24): Climate Change and Health: an Introduction
 - McMichael, A. J. (2013). Globalization, climate change, and human health. *New England Journal of Medicine*, 368(14), 1335-1343.
 - Coffel, E., et al. (2018). Heat and Humidity Are a Killer Combination. *New York Times*, Oct. 11.
 - APHA (American Public Health Association) reports on climate change and health.
 - *New England Journal of Medicine* climate change and health issues page.
- Tues. (Feb. 25): **Exercise 2: Disease Diffusion DUE**
- Wed. (Feb. 26): Climate Change and Vector-Borne Disease
 - McNeil, D. G. (2018). Tick and Mosquito Infections Spreading Rapidly, C.D.C. Finds. *New York Times*, May 1.
 - Lafferty, K.D. (2009). The ecology of climate change and infectious diseases. *Ecology* 90(4):888-900.
 - Parham, P. E., et al. (2015). Climate, environmental and socio-economic change: weighing up the balance in vector-borne disease transmission. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370 (1665). (recommended)
- Fri. (Feb. 28): Climate Change and Health discussion

Week 6. Spatial Approaches

- Mon. (March 2): Spatial Approaches: Mapping Patterns
 - Anthamatten and Hazen (2011). Cartography and visualization of health data. In *An Introduction to the Geography of Health*.
- Wed. (March 4): Spatial Approaches: Thinking Spatially About Health
 - Anthamatten and Hazen (2011). Health and GIS. In *An Introduction to the Geography of Health*.
 - Other readings TBA
- Fri. (March 6): Spatial Approaches: GIS Lab Activity
 - Meet in GIS Lab – hands-on GIS lab activity
 - **Exam 1 will be available (covers through week 5 topics)**

Week 7. Midterm and Social Determinants of Health

- Mon. (March 9): NO CLASS: Work on Take-Home Exam
- Tues. (March 10): **EXAM 1 DUE**
- Wed. (March 11): Social Determinants: Health Inequalities
 - Marmot, M. (2015). The organization of misery. In: *The Health Gap*. New York: Bloomsbury.
 - Castle, S. (2019). Shortchanged: Why British Life Expectancy Has Stalled. *NY Times*, Aug. 30.
 - National Research Council and Institute of Medicine. (2013) *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. (excerpt)
 - Tavernise, S. (2016). Disparity in Life Spans of the Rich and the Poor Is Growing. *New York Times*, Feb. 12.
 - Tavernise, S. (2016). Black Americans See Gains in Life Expectancy. *New York Times*, May 8.
- Fri. (March 13): Place Effects
 - Smyth, F. (2008). Medical geography: Understanding health inequalities. *Progress in Human Geography* 32 (1): 119-127.
 - Klinenberg, E. (2002). *Heat wave: a social autopsy of disaster in Chicago*. Chicago: University of Chicago Press (excerpt)
 - Irwin, N. and Q. Bi. (2016). The Rich Live Longer Everywhere. For the Poor, Geography Matters. *New York Times*, April 11.

SPRING BREAK, March 16-20**Week 8. Social Determinants of Health and Place and Health Continued**

- Mon. (March 23): Deaths of Despair
 - Case, A., & Deaton, A. (2015). Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proceedings of the National Academy of Sciences*, 112(49), 15078-15083.
 - Kristof, N. and S. WuDunn (2020). Who killed the Knapp family? *NY Times*, Jan. 9.
 - Krugman, Paul (2019). America's Red State Death Trip. *NY Times*, Dec 2. (recommended)
 - Woolf, S. H., & Schoomaker, H. (2019). Life expectancy and mortality rates in the United States, 1959-2017. *JAMA*, 322(20), 1996-2016. (recommended)
- Tues. (March 24): **Research Project Topic Statement Due**
- Wed. (March 25): Documentary Showing, "Unnatural Causes"
- Fri. (March 27): Guest Lecture, Kelsey McDonald, "Green Spaces and Health"

Week 9. Environmental Health

- Mon. (March 30): Environmental Health Issues
 - Anthamatten, P. and H. Hazen (2011). Environmental Exposures. In *An Introduction to the Geography of Health*.
 - Hanchette, C. (2008). The political ecology of lead poisoning in eastern North Carolina. *Health and Place* 14: 209-216.
 - NY Times interactive feature on the world's most polluted cities:
<https://www.nytimes.com/interactive/2019/12/02/climate/air-pollution-compare-ar-ul.html>

- Wed. (April 1): Epidemiology of Cancer Clusters
 - Gawande, A. (1999). The cancer cluster myth. *The New Yorker*.
 - Readings on Twin Cities East Metro cancer cluster research
 - *Cape Cod Breast Cancer Study* (skim)
- Fri (April 3): Discussion on environmental health issues

Week 10. Environmental Justice

- Mon. (April 6): NO CLASS: Work on Research Project and Exercise 3
- Tues. (April 7): **Exercise 3: Spatial Analysis due**
- Wed. (April 8): Library Meeting (on Research Methods)
 - Meet in Library
- Fri. (April 10): Environmental Justice and Geography
 - Brulle, R. J., & Pellow, D. N. (2006). Environmental justice: Human health and environmental inequalities. *Annual Review of Public Health*, 27, 103-124.
 - **Research Project: Mini-Proposal Due (includes research question and working bibliography)**

Week 11. Environmental Justice (cont'd)

- Mon. (April 13): Environmental Justice – California case study
 - Pulido, L. (2000). Rethinking Environmental Racism: White Privilege and Urban Development in Southern California. *Annals of the Association of American Geographers*, 90(1), 12-40. (rcm.)
 - Morello-Frosch, R., Pastor, M., Jr., Porras, C., & Sadd, J. (2002). Environmental justice and regional inequality in southern California: implications for future research. *Environ Health Perspect*, 110 Suppl 2, 149-154. (rcm.)
 - *EJ Atlas* website (rcm.)
 - Other readings TBA
- Wed (April 15): NO CLASS: Geography Honors Day
- Fri. (April 17): Environmental justice – discussion and preview Flint water crisis case study

Week 12. The Flint Water Crisis

- Mon. (April 20): The Flint Water Crisis
 - Begin Clark, *The Poisoned City*
- Wed. (April 22): The Flint Water Crisis
 - Continue Clark, *The Poisoned City*
- Fri. (April 24): The Flint Water Crisis
 - Finish Clark, *The Poisoned City*
 - **Exam 2 (take-home) available**

Week 13. Final Exam

- Mon. (April 27): NO CLASS: Work on Take-Home Exam
- Tues. (April 28): **EXAM 2 DUE**
- Wed. (April 29): Final Paper Workshop
- Fri. (May 1): Begin **ORAL PRESENTATIONS** on student research (attendance required; schedule of speakers TBD); Research Project: **Thesis Paragraph and Expanded Bibliography Due**

Week 14. Oral Presentations

- Mon. (May 4): continue **ORAL PRESENTATIONS** – LAST DAY OF CLASSES
- Fri. (May 8): finish **ORAL PRESENTATIONS** during "final exam" time, 1:30 – 3:30 pm.

Week 15 (Finals Week)

- Mon. (May 11): **FINAL RESEARCH PAPER due by 12 noon**

COURSE SCHEDULE AT-A-GLANCE

	Monday	Tuesday	Wednesday	Thursday	Friday
0	20 (JANUARY) MLK DAY	21	22	23	24 First Day; What the Heck is Medical Geography?
1	27 Introduction and Course Business	28	29 International Health and Development	30	31 International Health and Development
2	3 (FEBRUARY) International Health and Development	4 EXERCISE 1 DUE	5 Disease Ecology	6	7 Disease Ecology
3	10 Malaria (Shah, <i>The Fever</i>)	11	12 Malaria (Shah, <i>The Fever</i>)	13	14 Malaria (Shah, <i>The Fever</i>)
4	17 Emerging Infectious Diseases	18	19 Emerging Infectious Diseases	20	21 Emerging Infectious Diseases
5	24 Climate Change and Health	25 EXERCISE 2 DUE	26 Climate Change and Health	27	28 Climate Change and Health
6	2 (MARCH) Spatial Approaches	3	4 Spatial Approaches	5	6 Spatial Approaches Exam 1 available
7	9 NO CLASS Work on Take-Home Exam	10 EXAM 1 DUE	11 Social Determinants of Health	12	13 Social Determinants of Health
SPRING BREAK (March 16-20)					

8	23 Social Determinants of Health	24 Research Project Topic Statement DUE	25 Documentary showing: "Unnatural Causes"	26	27 Kelsey McDonald guest lecture
9	30 Environmental Health	31	1 (April) Environmental Health	2	3 Environmental Health
10	6 NO CLASS Work on Research Project and Exercise 3	7 EXERCISE 3 DUE	8 Library Meeting for Students	9	10 Environmental Justice Research Project Mini-Proposal DUE
11	13 Environmental Justice	14	15 NO CLASS Geog Honors Day	16	17 Environmental Justice
12	20 Flint Water Crisis 1 (Clark, <i>The Poisoned City</i>)	21	22 Flint Water Crisis 2 (Clark, <i>The Poisoned City</i>)	23	24 Flint Water Crisis 3 (Clark, <i>The Poisoned City</i>) Exam 2 available
13	27 NO CLASS Work on Take-Home Exam	28 EXAM 2 DUE	29 Final Paper Workshop	30	1 (May) ORAL PRESENTATIONS Research Project Thesis Paragraph and Expanded Bibliography DUE
14	4 ORAL PRESENTATIONS Last Day of Classes	5 Study Day	6 Study Day	7	8 ORAL PRESENTATIONS (during final exam period, 1:30-3:30 pm)
15	11 FINAL RESEARCH PAPER DUE (noon)	12	13	14	15