

## Health and Medical Geography (GEOG 222)

### Fall 2023 Class meets:

Tuesdays and Thursdays 3:30-4:45pm

Carolina Hall 220

Instructor: Michael Emch

Email: [emch@unc.edu](mailto:emch@unc.edu)

Office hours: Tuesdays and Thursdays 12:30-1:30 or by appointment

Office: Carolina Hall Room 304. Please set up appointment via email to book time.

Teaching Assistant: Anh Quach

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Office hours: Mondays and Wednesdays 2-3pm or by appointment. Book appointment via this [calendly](#) link. Contact Anh if you need to set up another time other than M W 2-3pm.

Office: Carolina Hall 317

### Course Objectives

This course is a survey of health and medical geography, a field that focuses on geographic aspects of health and disease. The field deals with human-environment interactions and the influence these interactions have on human health. What distinguishes health and medical geography from the discipline of geography as a whole is simply its thematic focus, not its methods or theoretical grounding. Throughout the semester we will use the concepts and techniques of the discipline of geography to investigate a variety of health-related topics. This course covers three major approaches to health and medical geographic scholarship: ecological approaches, which systematically analyze relationships between people and their environments; social approaches, including political, economic, and socio-behavioral approaches; and spatial approaches, which employ maps and spatial analysis to identify patterns of spatial distributions. Students are encouraged to view these three approaches as complementary. Health and medical geography is integrative and interdisciplinary, incorporating contributions from a wide range of specialties. Specific course objectives include:

1. Facilitate a critical understanding of health, disease, illness, and society;
2. Introduce major contemporary issues in global health;
3. Promote an understanding of how geography as a discipline contributes to understanding health and disease;
4. Understand the impact of ecological and population change on health;
5. Explain how social and economic context impacts health;
6. Utilize maps to examine the spatial patterns of disease and risk factors that may contribute to disease

## Readings

The required course text is “Health and Medical Geography, Fourth Edition” New York: The Guilford Press, by Michael Emch, Elisabeth Root, and Margaret Carrel. 2017. ISBN 9781462520060.

There are also some other required articles that are either linked to the schedule below or on the Sakai site.

## Sakai Assignments

Everything you produce in the class will be part of your class portfolio. All of your portfolio items should be put in your Sakai Assignments site each week **before** class the day they are due. These items are described below and include weekly reading reflections and outputs based on in-class exercises. The file format for all documents submitted for this class should be PDF. Each reading reflection in your portfolio should use the following naming convention with the week as part of the title: e.g., ReadingReflectionWeek2.pdf. Class exercise file names should include the exercise number, e.g., Exercise1.pdf.

## Classroom Activities, Reading Reflections, and Writing Assignments

Life is one messy group project, and a university is a good place to learn to work with others. Class time will be composed of different activities including lectures, discussions of readings, and working in groups on exercises focused on health and medical geography. You will hand in reading reflections each week **before** class on Sakai Assignments. The general rule in this class is that whenever you read something or do something you will write something and hand it in. The reflections should be at least  $\frac{3}{4}$  page, typed in 12-point font, and single-spaced (minimum 500 words) describing at least 3-5 useful things you learned from the readings for that week. When there is more than one reading for the day then you must write something about each (total of one page combined). Also, for all book chapters you must answer at least one review question from the chapter assigned, which are at the end of each chapter. The reflections should be put in your Assignments portfolio each week based on the schedule below (even if we get behind). The Sakai calendar lists all due dates as well. Each item in your portfolio should have the week number and description, e.g., ReadingReflectionWeek2.pdf. Please submit all assignments as PDFs and not Word documents. Also, make sure you use that exact name, or the instructor and TA will assume it doesn't exist.

Class time is for discussion and activities. Unless otherwise instructed, please **put your devices away** (i.e., computers, phones, tablets) and **silence them** before you store them. The lecture slides will be available on Sakai so you can print them before class and take notes with a pen if you like.

## Discussion Lead

The goal is for the class to be interactive, and everyone participate in class discussions about the class material that students should read before class. Discussion leaders will help lead the class discussion for one class period during the semester, usually on Tuesdays. Five students will be

assigned to each class period. Everyone else should be ready to take part in the discussion, ask questions, and try to come to a deeper understanding of the class materials. Usually, the instructor will give a lecture for the first half of class and then the discussion leaders will give a short presentation summarizing some of the most important highlights from the material for the day (no more than 10 minutes). The discussion leaders will organize the rest of the class period by developing 3-4 discussion questions which they will ask the class to discuss. The instructor will supplement the discussion leaders' questions with additional discussion questions. The point of the discussion is to have the class think more deeply about the materials that all students should have read before the class period.

## **Attendance**

Attendance will be taken each day via [UNC Check-in](#). Please load the app on your phone and check in at the beginning of class. If you miss class, then please do the makeup assignment for that day. There is a document on Sakai called [makeupassignment.pdf](#); please read it if you miss more class during the semester. There is no difference between an excused absence and an unexcused absence. You must complete a makeup assignment in either case.

## **Course Grade**

The course grade is based on the following activities. The percentage that each activity counts toward the final grade for this course is listed. You must hand in ALL assignments.

- Weekly reading reflections (20% of final grade): You must hand in all of the reading reflections, or your class grade will go down 3% for each reflection that you do not hand in (in addition to getting a 0 on the reflections you do not hand in).
- Class exercises (32% of final grade): There are eight class exercises and each count as 4% of your grade and you must hand in all eight of them or your class grade will go down 3% for each exercise that you do not hand in (in addition to getting a 0 on the exercises). You must turn in the exercise outputs on Sakai that you produce during the classroom activities and discussions, so you need to attend class (Hint: if you are a student who misses class for other than extraordinary circumstances such as sickness, religious holidays, or deaths in the family then this is not the class for you).
- Discussion lead (8% of final grade)
- Midterm (20% of final grade)
- Final (20% of final grade)

The midterm and final will be a combination of multiple choice, true/false, short answer, and essays.

The grading scale is: A 93-100, A- 90-92.99, B+ 87-89.99, B 83-86.99, B- 80-82.99, C+ 77-79.99, C 73-76.99, C- 70-72.99, D+ 67-69.99, D 63-66.99, D- 60-62.99, F below 60.

**Schedule** (ERC Book is the Emch, Root, Carrel book)

Note: the due dates for each assignment are on the Sakai calendar as well as under Sakai Assignments

<b>Week: Dates</b>	<b>Topics and Readings</b>
Week 1: Aug 22 and 24	<p><b>COURSE INTRODUCTION</b></p> <p><u>Activities</u> Ice breaker and meet class members Goals of the class and introduction</p> <p><u>Materials</u> Read the course syllabus in detail and explore the course Sakai site</p>
Week 2: Aug 29 and 31	<p><b>INTRODUCTION</b></p> <p><u>What is Health and Medical Geography?</u></p> <p>Introduction to Medical and Health Geography, Concepts of Health and Disease, Epidemiological Terminology</p> <ul style="list-style-type: none"><li>• What is health and medical geography?</li><li>• How do we define health?</li><li>• Some epidemiological terminology that will help you throughout the semester</li></ul> <p><u>Readings</u></p> <p>ERC Book, Preface, Hippocrates quote, Part 1 Introduction, and Chapter 1</p> <p>Discussion Lead: Mike</p> <p><u>Deliverables</u> Week 2 Reading Reflection</p> <p><u>Activities</u> Class Exercise 1: Studying Health and Disease using a Health Geography Perspective</p>

<p>Week 3: Sep 5 No Class Wellbeing Day, Sep 7 class will meet</p>	<p><b>ECOLOGICAL APPROACHES</b></p> <p><u>Ecology of Health and Disease</u></p> <ul style="list-style-type: none"> <li>• Disease Agents and Transmission Processes</li> <li>• The Triangle of Human Ecology</li> <li>• Landscape Epidemiology and Vectored Diseases</li> <li>•</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 2</p> <p>Discussion Lead: Christopher E, Kelsey Bell, Catherine P, Hunter H, Ashish S</p> <p><u>Activities</u></p> <p>Class Exercise 1: Studying Health and Disease using a Health Geography Perspective</p> <p><u>Deliverables</u></p> <p>Week 3 Reading Reflection</p>
<p>Week 4: Sep 12 and 14</p>	<p><u>Expanding Disease Ecology: Politics, Economics, and Gender</u></p> <ul style="list-style-type: none"> <li>• Political Ecology</li> <li>• The Poverty Syndrome</li> <li>• Race in the Study of Health Risks</li> <li>• Gender and Sex: Women’s Health</li> <li>• Causal Reasoning and Epidemiological Design</li> <li>• HIV and AIDS: Gender, Mobility, and Political Ecology</li> <li>• The Precautionary Principle and Some Political Ecology of Research</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 3</p> <p>Discussion Lead: Mei Mei L, Ruby J, Sejun P, Emma T, Gabrielle K</p> <p><u>Activities</u></p> <p>Class Exercise 2: Cholera human ecology political ecology framework</p> <p><u>Deliverables</u></p> <p>Week 4 Reading Reflection</p> <p>Class Exercise 1</p>

<p>Week 5: Sep 19 and 21</p>	<p><u>Transitions and Development</u></p> <ul style="list-style-type: none"> <li>• Ecologies of Population Change: Multiple Transitions</li> <li>• Major Impacts of Population Change</li> <li>• Environmental Exposures, the Mobility Transition, and Time–Space Geography</li> <li>• Disease Ecologies of the Agricultural Frontier</li> <li>• Other Development Impacts on Rural Ecologies</li> <li>• Globalization of Movements</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 4</p> <p>Discussion Lead: Isabel K, Isabella C, Brooke K, Sephany R, Emily H</p> <p><u>Activities</u></p> <p>Class Exercise 3: Applying the Demographic Transition Model</p> <p><u>Deliverables</u></p> <p>Week 5 Reading Reflection</p> <p>Class Exercise 2</p>
<p>Week 6: Sep 26 and 28</p>	<p><b>MAPS and METHODS</b></p> <p><u>Maps, GIS, and Spatial Analysis</u></p> <ul style="list-style-type: none"> <li>• Cartography of Health and Disease</li> <li>• Geographic Information Systems</li> <li>• Spatial Statistics</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Part 2 introduction and Chapter 5</p> <p>Discussion Lead: Ana Munoz, Elizabeth E, Sophia G, Andrew E, Marion Dewey</p> <p><u>Activities</u></p> <p>Class Exercise 4: Thinking Spatially, Map Visualization</p> <p><u>Deliverables</u></p> <p>Week 6 Reading Reflection</p> <p>Class Exercise 3</p>

<p>Week 7: Oct 3 and 5</p>	<p><u>Disease Diffusion</u></p> <ul style="list-style-type: none"> <li>• Diffusion Background</li> <li>• Epidemiological Background</li> <li>• Types of Diffusion</li> </ul> <p><u>Readings and Podcasts</u></p> <p>ERC Book Chapter 6</p> <p>Discussion Lead: Abigail L, Kaitlin P, Braden Anghie, Bailey W, Jasleen Kaur</p> <p><u>Activities</u></p> <p>Class Exercise 5: GIS in Public Health</p> <p><u>Deliverables</u></p> <p>Week 7 Reading Reflection</p> <p>Class Exercise 4</p>
<p>Week 8: Oct 10, No class on 12<sup>th</sup>- University Day</p>	<p><u>Activities</u></p> <p>Catch-up and Midterm Review on Tuesday</p>
<p>Week 9: Oct 17 class will meet, Oct 19 Fall Break no class</p>	<p><b>Midterm Exam</b> on Tuesday</p>
<p>Week 10: Oct 24 and 26</p>	<p><u>Emerging Infectious Diseases and Landscape Genetics</u></p> <ul style="list-style-type: none"> <li>• What's in a Name? Emerging, Reemerging, or Always There</li> <li>• Why Do Diseases Emerge, Reemerge, or Persist?</li> <li>• Where Can We Expect These Diseases to Emerge/Reemerge?</li> <li>• How Will These Diseases Behave?</li> <li>• Landscape Genetics</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 7</p> <p>Discussion Lead: Eliza L, Jayati S, Kayleigh W, Sydney Howard, Isabella Kritzer</p>

	<p><u>Activities</u> Class Exercise 6: Disease diffusion and evolution, HIV and Cholera</p> <p><u>Deliverables</u> Week 10 Reading Reflection Class Exercise 5</p>
<p>Week 11: Oct 31 and Nov 2</p>	<p><u>Neighborhoods and Health</u></p> <ul style="list-style-type: none"> <li>• The Concept of Neighborhood Health</li> <li>• Social Context and Health</li> <li>• Effects of the Built Environment on Health</li> <li>• Opportunities and Challenges in Neighborhood Effects Studies</li> </ul> <p><u>Readings</u> ERC Book, Chapter 9 Covid disparities paper (on Sakai)</p> <p>Discussion Lead: Giselle M, Fatima O, Parker P, Nicholas Pell, Maya Slobin</p> <p><u>Activities</u> Class Exercise 6: Disease diffusion and evolution, HIV and Cholera</p> <p><u>Deliverables</u> Week 11 Reading Reflection</p>
<p>Week 12: Nov 7 and 9</p>	<p><u>Urban Health and a little bit on the Nutrition Transition</u></p> <ul style="list-style-type: none"> <li>• Cities and Urbanization</li> <li>• A Brief History of Cities</li> <li>• Large Cities in the Modern Era</li> <li>• Developing World Cities: Dickens or a Dream?</li> <li>• Traffic</li> <li>• Disappearing Cities?</li> </ul> <p><u>Readings</u> ERC Book, Chapter 10 ERC Book Chapter 8 pages 291-292 (Nutrition Transition)</p>



	<p>Discussion Lead: Evylyn G, Annabel Steiner, Audrey E, Ali Grau</p> <p><u>Activities</u> Class Exercise 7: Emerging and remerging diseases</p> <p><u>Deliverables</u> Week 12 Reading Reflection Class Exercise 6</p>
<p>Week 13: Nov 14 and 16</p>	<p><b>ENVIRONMENTS and CLIMATES</b></p> <p><u>Environment and Health</u></p> <ul style="list-style-type: none"> <li>• Toxic Hazards</li> <li>• Outdoor Air Pollution</li> <li>• Indoor Air Pollution</li> <li>• Water Pollution</li> <li>• Sources and Health Effects of Lead</li> <li>• Risk Assessment and Prevention</li> <li>• Globalization and the Perception of Health Hazards</li> <li>• Hazards, Power, Policy, and Environmental Justice</li> <li>• Healthy Environments</li> </ul> <p><u>Readings</u> ERC Book, Chapter 11</p> <p>Discussion Lead: Yian Kay, Lalith C, Erika M, Gabriella B, Elizabeth Moorman, Marissa D</p> <p><u>Activities</u> Class Exercise 8: Neighborhoods and Health</p> <p><u>Deliverables</u> Week 13 Reading Reflection Class Exercise 7</p>

<p>Week 14: Nov 21 class, Nov 23 no class Thanksgiving</p>	<p>Climate and Health</p> <ul style="list-style-type: none"> <li>• Direct Biometeorological Influences</li> <li>• The Influences of the Weather</li> <li>• Seasonality of Death and Birth</li> <li>• Physical Zonation of Climates and Biomes</li> <li>• Climate Change and Health</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 12</p> <p>Discussion Lead: Sarah G, Andy M, Anjallie H, Katie C</p> <p><u>Deliverables</u></p> <p>Week 14 Reading Reflection</p>
<p>Week 15: Nov 28 and 30</p>	<p>Health Services and Access to Care</p> <ul style="list-style-type: none"> <li>• What Is Access?</li> <li>• The Provision of Medical Care</li> <li>• Cultural Alternatives and Perceptions</li> <li>• Transforming the Health Service Landscape</li> </ul> <p><u>Readings</u></p> <p>ERC Book, Chapter 13</p> <p>Discussion Lead: Emma E, Daphnie V, Eszter R, Millie P, Kimberly Keal</p> <p><u>Activities</u></p> <p>Class Exercise 8: Neighborhoods and Health</p> <p><u>Deliverables</u></p> <p>Week 15 Reading Reflection</p>
<p>Week 16: Dec 5</p>	<p>Exam review day</p> <p><u>Deliverables</u></p> <p>Class Exercise 8</p>
<p>Exam: Dec 9 4-7pm</p>	<p><u>Activities</u></p> <p><b>Final Exam</b></p>

### **ChatGPT and other generative AI tools**

For all assignments including reading reflections and class exercises you are not allowed to use ChatGPT and other generative AI tools. It is a violation of the UNC honor code if you do. Your assignments will be run through AI detector software periodically. There might be instances that the instructor allows AI tools but will tell you when. Do not use it without discussing with the instructor.

### **Title IX**

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison – [Adrienne.allison@unc.edu](mailto:Adrienne.allison@unc.edu)), Report and Response Coordinators in the Equal Opportunity and Compliance Office ([reportandresponse@unc.edu](mailto:reportandresponse@unc.edu)), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators ([gvs@unc.edu](mailto:gvs@unc.edu); confidential) to discuss your specific needs. Additional resources are available at [safe.unc.edu](http://safe.unc.edu).

### **Accessibility Resources and Service (ARS)**

The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: <https://ars.unc.edu> or email [ars@unc.edu](mailto:ars@unc.edu).

### **Honor Code**

UNC has a student-led [honor system](#). Academic integrity is at the heart of Carolina and we all are responsible for upholding the ideals of honor and integrity. The student-led Honor System is responsible for adjudicating any suspected violations of the Honor Code and all suspected instances of academic dishonesty will be reported to the Honor System. Information, including your responsibilities as a student is outlined in the Instrument of Student Judicial Governance. Your full participation and observance of the Honor Code is expected. Plagiarism in the form of "deliberate" or "reckless" representation of another's words, thoughts, or ideas as one's own without appropriate attribution to the original author in connection with submission of academic work, whether graded or otherwise, is a serious breach of the academic integrity demanded by the Honor Code and one of the most common forms of academic misconduct processed by the Honor System. Plagiarism can take many forms and there may be a number of reasons why it occurs. Quote and cite any words that are not your own. If you paraphrase the words of another, you must still give proper attribution. All academic work in this course is to be your own work, unless otherwise specifically provided such as the group exercises. It is your responsibility if you have any doubt to confirm whether or not collaboration is permitted.