

**GEOG 803**  
Ecology of Infectious Diseases

**Fall 2021 Class meets:**

Tuesdays 3:30-6:30pm

Classroom: 321 Carolina Hall

Instructor: Michael Emch

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

Office hours: 2-3pm Tuesdays and Thursdays or by appointment

Office: Carolina Hall Room 304

**Course Description**

This course examines the ecology of infectious diseases including environmental and anthropogenic drivers of those diseases. We will focus on several diseases that are chosen by students in the class. We will first read several foundational papers on disease ecology and then focus on the diseases. The two main class activities will be a journal club and a research project- see below.

**Journal Club: Readings and Discussion Lead**

All students will help lead the class discussion during one class period. The student in charge of the discussion for a particular day should choose one or two papers on the disease ecology topic for that week. The student will develop discussion questions that will be the basis of the initial discussion.

**Research Project: Paper/ Proposal, Presentation, and Class Exercises**

Each student will conduct a disease ecology case study on one infectious disease and have a choice of either writing a paper or a proposal depending on what is more useful for you in stage of your degree program. Each week we will spend class time working on and getting feedback for the disease ecology project. This will be done via six exercises over the course of the semester. We will work in small groups and report back to the entire class each week.

**Grading**

The course grade is based on the following activities:

- Readings, discussion, and discussion lead: 30%
- Class exercises: 30%
- Class project: 30%
- Final presentation: 10%

## Schedule

Week: Dates	Topics, Materials, and Activities
Week 1: Aug 24	<p><b>Introduction</b> <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 31	<p><b>Disease Ecology Frameworks</b> <u>Materials</u> Emch, Root, Carrel Book Chapter 2 Plowright et al. 2008</p> <p><u>Activities</u> Exercise 1: Project ideas Create class discussion lead schedule</p>
Week 3: Sep 7	<p><b>More Disease Ecology Frameworks and Emerging Infectious Diseases</b> <u>Materials</u> Karesh et al. 2012 Emch, Root, Carrel Book Chapter 7</p> <p><u>Activities</u> Exercise 1: Project ideas Finalize class discussion lead schedule</p>
Week 4: Sep 14	<p><b>More Disease Ecology Frameworks: Political Ecology and Human Animal Interface</b> <u>Materials</u> Emch, Root, Carrel Book Chapter 3 Loyd-Smith et al. 2009</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>
Week 5: Sep 21	<p><b>Spatial Analysis in Disease Ecology</b> <u>Materials</u> Mosha et al. 2014 Gatrell et al. 1996</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>

Week 6: Sep 28	<p><b>Spatial and Molecular Analysis in Disease Ecology</b></p> <p><u>Materials</u> Chowell Rothenberg 2018</p> <p>Biek and Real 2010: <a href="https://onlinelibrary-wiley-com.libproxy.lib.unc.edu/doi/epdf/10.1111/j.1365-294X.2010.04679.x">https://onlinelibrary-wiley-com.libproxy.lib.unc.edu/doi/epdf/10.1111/j.1365-294X.2010.04679.x</a></p> <p>And this one is more about modelling Real and Biek 2007</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>
Week 7: Oct 5	<p><b>Disease Ecology Topic- Worms</b> Camille</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>
Week 8: Oct 12	No class
Week 9: Oct 19	<p><b>Disease Ecology Topic- Antibiotic Resistance</b> Kristin</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>
Week 10: Oct 26	<p><b>Disease Ecology Topic- Cyrus</b> Disease surveillance</p> <p><u>Activities</u> Project aims, questions, hypotheses</p>

Week 11: Nov 2	<p><b>Disease Ecology Topic-Schisto</b> Ruthly</p> <p><u>Activities</u> Project literature</p>
Week 12: Nov 9	<p><b>Disease Ecology Topic- Responses to outbreaks; epidemics of fear</b> Hilary</p> <p><u>Activities</u> Project literature</p>
Week 13: Nov 16	<p><b>Disease Ecology Topic-Pox</b> Patrycja</p> <p><u>Activities</u> Project methods</p>
Week 14: Nov 23	<p><b>No class</b> Mike available for individual meetings on projects during class period</p>
Week 15: Nov 30	<p><b>Disease Ecology Topic- Gastric cancer</b> Kate</p> <p><u>Activities</u> Project methods</p>
Exam Time: Saturday Dec 4 <sup>th</sup> 4pm	<p><b>Final project presentation</b></p>

**Masks and COVID-19 Community standards**

All students must always wear a mask over their mouth and nose indoors. Please follow the [UNC COVID-19 community standards](#). They could change during the semester based on the situation at our university and in our community.

## **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 ([gvsc@unc.edu](mailto:gvsc@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.