

College of Public Health & Health Professions  
Course Syllabus

## **Public Health Concepts in Infectious Diseases**

PHC 6517, section 1816

Every Wednesday 9:35 AM - 12:35 PM  
Online Synchronous

Fall 2020

### **Instructor Information**

Xinguang “Jim” Chen, MD, PHD, ACE Fellow  
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Office hours: By appointment

### **Course Overview or Purpose**

This course is intended to ensure that students: a) understand the various epidemiological research methods used to obtain evidence regarding infectious disease transmission, control and prevention measures, and outcome; b) can interpret the existing evidence needed to make public health or policy recommendations; and c) are able to propose research strategies to obtain evidence needed to improve public health outcomes related to infectious diseases. Topic areas will include key infectious diseases with great health threat in the early 21<sup>st</sup> century. These include Covid-19, HIV infection, other sexually transmitted diseases, tuberculosis, malaria, other vector-borne infections, influenza, emerging infectious diseases (SARS, Zika, Ebola, etc.), and health-care associated infections. Two to three other diseases that are not covered will be offered to meet the interest of a few students (to be determined in the first session of the class). Students will use the knowledge and skills gained in the course to design an original research study of their choice of an infectious diseases to address at least one research question.

### **Course Objectives and/or Goals**

- 1) Identify and describe current public health issues related to the most important infectious diseases in the United States and other countries in the world.
  - a. Use data from different resources to obtain information regarding the epidemiology of the infectious diseases covered in this class.
  - b. State relevant facts related to several of the most pressing infectious disease topics either assigned by the instructor or picked by students themselves.
  - c. Interpret epidemiological data presented with tables and graphs, from websites, technical reports, and research papers that describe infectious diseases.
  - d. Describe factors that influence variations in health outcomes of specific infectious diseases across diverse populations.
  
- 2) Describe strategies to reduce the transmission of infectious diseases.

- a. Identify specific factors that are associated with infectious diseases transmission, including characteristics of the pathogen, the human host, other animals and vectors, and the environment.
  - b. Understand the SIR model and reproductive rate equation in infectious disease epidemiology, and describe the use of the equation in public health intervention strategies to curb the epidemic of an infectious disease.
  - c. Explain specific prevention strategies to prevent infectious disease transmission, including social, technical and biological social factors vaccines.
- 3) Understand the strengths and identify the weaknesses of published epidemiologic research studies as they apply to infectious disease epidemiology.
- a. Discuss the strengths and limitations of specific research study designs used to obtain evidence in infectious disease epidemiology.
  - b. Describe strengths and limitations in our ability to measure the impact of infectious diseases in human populations, including measurement of infection (e.g. diagnosis) and health outcomes and behaviors.
  - c. Explain how various research tools, such as genetic sequencing of pathogens, and mathematical models, can be used to inform knowledge about infectious disease transmission and prevention.
- 4) Design and critique research studies to answer research questions related to a specific infectious disease.
- a. Conceive and construct research questions that include study population, predictors, and outcomes from existing literature, your own research study, or a hypothetical scenario.
  - b. Design an original research study and present it both in written document and through oral presentation in class.

### **Course Materials**

Textbook (Required): Infectious Disease Epidemiology Theory and Practice, 3<sup>rd</sup> edition (2014). By Kenrad E. Nelson and Carolyn F. Masters Williams.

Reference book (Recommended): Foundations of Infectious Diseases: A Public Health Perspective, 2020. By David Adams. Jones & Bartlett Learning

Journal articles: 1-3 articles per topic area, either PDF or hyperlink, provided by the instructor.

Other information sources: Website from CDC, European CDC, WHO and other related sites.

### **Course Requirements/Evaluation/Grading**

**Time commitment.** The class will meet once a week on Wednesday. In each session, the instructor will give a lecture and questions in the first hour, followed by a two-hour group discussion and debating. Overall, approximately 1/3 will be used for lecture to review the main the topics, including a selected infectious diseases, research questions, methods to address the questions, and result interpretation; 1/3 of the time will be used for student-led group discussion of research articles or existing data; and 1/3 will include presentations by guest lecturers who will discuss their research activity for specific infectious disease topics.

For this 3-credit graduate course, students are expected to spend approximately 6-9 hours per week outside of class reviewing core information about the infectious disease topic of the week, preparing for the discussion, and working towards their final research project.

The class schedule of topics and guest lectures is available and will be updated timely during the semester if change is necessary.

Article review and presentation: 40% of grade. Each student will present at least two journal articles during the semester and participate in class discussions. For article review, students will be assigned one or two specific infectious disease topics to present on. At least two weeks prior to the presentation date, the student will do a literature search for articles related to the topic and choose 1-3 articles they would like to discuss. The articles should present original research data, including meta-analysis. Students must submit their article selections to Dr. Chen for approval at least one week prior to their scheduled presentation, so that the assigned article can be distributed to the class one week (7 days) prior to the day of discussion. On the presentation day, the student will have approximately 30 minutes to present the review with 15-20 minutes for discussion, questions and answers, all being conducted online through Zoom. The presenting student should be sure to address:

1. What is the background information of the selected disease?
2. What is the specific research question, and why is it significant?
3. What was known and unknown that supported the study?
4. What is the study design, and why was that design used?
5. Who was the population and how was a sample of the population identified?
6. What was the major outcome and how was it measured?
7. If you are the person who investigated the same problem, what would be your approach?

Each student will present and lead classroom discussion at least twice. At the end of presentation, all students will give a score (5 to 10) to the presenting student through the pulling function in Zoom. The mean of the pulling scores will be used as the base to grade this activity. Each presentation contributes a half (20%) of the final scores (40%).

Peer review of classmates' research paper: 15% of grade. Each student is anticipated to review two papers. Peer review will be blind. In addition to detailed comments and critiques, each student is asked to grade the research paper (scored in the range of 5 to 10). These scores will be counted by the Instructor to grade the final paper.

Class participation: 10% of grade. The class will involve a lot of discussion, questions and answers online. Students are expected to participate by (1) being present a few minutes ahead of time to prepare for the class to be start on time, and (2) actively speaking and discussing the topics of the day. Grades for class participation are generally provides as excellent (95), good (90), or could have been better (85). Missing 1 class for any reason will result in 1% point off, unless specifically negotiated with the instructor for a reasonable excuse.

Final research paper: 35% of grade. Each student will identify a research topic around infectious disease of their own choosing, and prepare a 10-15 page (double spaced) paper outlining the rationale and the study design for a research study that is designed to answer a specific research question. The paper will have several deadlines for completion of benchmarks during the semester, including the submission of a draft for peer review, peer review of other students' papers, and revision and finalization of your own paper. The mean of scores from peer review and instructor's review will be used for final grade of the research paper.

**Final exam.** This course emphasizes student active participation and intensive practice to gain understanding of the key concepts, principles, data and methods as they are related to research, control and prevention of infectious diseases. No final exam is arranged.

Grades:

- Article review, 2 presentations and discussion 40%
- Peer review of 2 classmates' papers 10%
- Class participation 10 %
- Research paper 20%
- Final presentation 20%

The grading scale for this course consists of the standard scale, including minus grades, below. The conversion factors for grade point values that are assigned to each grade are also included (in parentheses):

93% - 100%	= A (4.00)
90% - 92%	= A- (3.67)
87% - 89%	= B+ (3.33)
83% - 86%	= B (3.00)
80% - 82%	= B- (2.67)
77% - 79%	= C+ (2.33)
73% - 76%	= C (2.00)
70% - 72%	= C- (1.67)
67% - 69%	= D+ (1.33)
63% - 66%	= D (1.00)
60% - 62%	= D- (0.67)
Below 60%	= E (0.00)

### **Statement of University's Honesty Policy (cheating and use of copyrighted materials)**

**Academic Integrity** – Students are expected to act in accordance with the University of Florida policy on academic integrity (see Graduate Student Handbook for details). Cheating or plagiarism in any form is unacceptable and inexcusable behavior. This will be discussed during the first day of class.

*We, the members of the University of Florida community,  
pledge to hold ourselves and our peers to the  
highest standards of honesty and integrity.*

### **Policy Related to Class Attendance:**

10% of grade is related to class participation for the total 13 sessions. One to two excused absences are allowed; each additional absence will count 1% (one point) against this grade.

### **Policy Related to Make-up Exams or Other Work**

**Example:**

**Attendance and Make-up Work** –Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.

## **Online Faculty Course Evaluation Process**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>. The instructor will provide a bonus on the final quiz if there is over a 93% response rate for course evaluations.

## **SUPPORT SERVICES**

**Accommodations for Students with Disabilities** If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation of accommodations to you, which you then give to me as the instructor of the course to receive accommodations. Please make sure you provide this letter to me by the end of the second week of the course. The College is committed to providing reasonable accommodations to assist students in their coursework.

**U Matter, We Care** Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**Counseling and Student Health** Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.

- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.

- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>

- Crisis intervention is always available 24/7 from: Alachua County Crisis Center (352) 264-6789 <http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

### Inclusive Learning Environment

Infectious disease transmission and related behaviors are topics on which people have a range of attitudes, beliefs, and opinions. A diverse mix of people from many different backgrounds take this course. We have the opportunity to gain understanding of different ideas through respectful communication and discussion. Please be respectful of each other. The course instructor and the University of Florida are committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please communicate with your instructor or refer to the Office of Multicultural & Diversity Affairs website: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu).