

GEO3930 Global Pandemics

I. Course Information

Fall 2020

Facilitated 100% online (asynchronously). All materials for the course will be provided via Canvas.

Instructor

Dr. Gabriela Hamerlinck – ghamerlinck@ufl.edu

Office location: 3122 Turlington Hall

Office hours: Mondays 2pm – 3:30 pm

Wednesdays 10am – 1pm

Thursdays 3pm – 4:30pm

Or by appointment (please email to schedule)

*all office hours will be held via Zoom. Link will be provided in our Canvas course

Course Description

This course is an introduction to human diseases that have shaped our civilization. Students will learn about significant historic outbreaks, modern diseases that plague our society, and hypothesize what the next pandemic will be. Disease outbreaks today are growing increasingly complex with the many emerging social, political and demographic changes in our population, as well as dynamic changes in animal and vector populations and the environment. As a result, we need new and creative mechanisms of disease prevention and control. Diseases with a pandemic potential could greatly influence the social, political and economic stability of a country, region or even the world.

This course will have a considerable focus on disease burden held by developing countries, as well as the underlying risk factors that lead to their emergence and geographic spread. We will review a variety of diseases that have a global health significance, and explore different interventions (prevention and control strategies) used to reduce disease burden and stop disease outbreaks.

This course also leverages the geographical spread of historic pandemics to guide students through predicting where the next pandemic will strike – asking students to consider the following pressing questions: What social, political, biological, and environmental factors led to historic disease outbreaks? What would happen if our planet experienced a pandemic today? How can we prepare for the next disease pandemic?

Required & Recommended Course Materials: *None*. Students will be assigned a set of weekly readings and videos to watch before class. All readings and links to all videos will be made available through Canvas or in hard copy from the instructor.

Materials and Supplies Fees: *None*

II. Coursework & Schedule

1. List of Graded Work

| Assignment | Description | Requirements | Percent of grade |
|--------------------------------|---|--|------------------|
| Weekly quizzes | Students will complete a weekly 5-question multiple-choice quiz on Canvas that will test their understanding of the assigned video. | There are 10 quizzes | 10% |
| Reading comprehension homework | Students will write a 25-word summary for one article in each set of assigned readings throughout the semester. | There are 10 sets of readings | 5% |
| Mid-term exams (x2) | Two short (one-period) tests will be administered at the end of the first and second units. Each of the exams will comprise a mix of multiple choice, short answer, diagramming, and short essay responses. | | 20% |
| Final exam | The final comprehensive exam will be administered during finals week and will consist of a mix of multiple choice, short answer, diagramming, and short essay responses. | | 10% |
| Activities | Most weeks have an activity to complete. You are welcome to work with a partner from the class. **All members of a group will receive the same score for graded group activities and projects unless otherwise noted in the activity. | There are 11 activities. All group and individual activities must be submitted to Canvas before the start of the next class unless otherwise noted | 25% |
| Final presentation | A presentation that designs the next pandemic and the global response plan. Students will share their recorded presentation to a discussion board on Canvas. A rubric will be provided at least 3 weeks in advance of the due date. Scheduled work time is provided during week 13. | | 10% |
| Discussions | Students will participate in online discussions on Canvas by responding to a provided prompt and then responding to a classmate. | | 10% |
| Reflections | Students will periodically reflect on course themes and their personal beliefs and biases by composing a short reflection | There are 7 reflections, each will be 250-500 words long | 10% |

2. Weekly Course Schedule (add/remove rows as needed)

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|--|--|
| Week 1 | Topic | <i>Start of Unit 1: Historic Pandemics</i> Introduction to pandemics | |
| | Summary | Lecture defining what a disease is, how it becomes an epidemic or a pandemic, and a summary of agents of disease Lecture with a brief introduction to the social, political, and economic facets of disease | |
| | Readings/Works | "Agents of Disease" (adapted from EDC's Exploring Infectious Disease) CNN: Why are we at risk for a global pandemic? | |
| | Assignment | Compose a 25-word summary for "Agents of Disease" | |
| | | | |
| Week 2 | Topic | Plague | |
| | Summary | Lecture on plague with an introduction to the three documented plague pandemics (Justinian, Black Death, and Modern). Discussion Activity: "tempting fate" card game simulation of the social, political, and economic impacts of the Black Death. | |
| | Readings/Works | Cohn, S. (2008). 4 Epidemiology of the Black Death and Successive Waves of Plague. <i>Medical History</i> , 52(S27), 74-100. doi:10.1017/S0025727300072100 Documentary: Timeline "The Great Plague" https://www.youtube.com/watch?v=HPe6BgzHWY0 | |
| | Assignment | 1. Compose a 25-word summary for Cohn (2008) | |
| | | 2. Watch plague documentary and complete quiz on Canvas | |
| | | 3. Guided reflection | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|--|--|
| Week 3 | Topic | Influenza | |
| | Summary | Lecture on influenza biology, introducing the idea of antigenic drift vs shift. Brief overview of the differences between seasonal flu and a pandemic flu. Activity on the Spanish Flu pandemic (adapted from the National Center for Case Study Teaching in Science) | |
| | Readings/Works | Webster, R.G., and Walker, E.J. (2004). Influenza. <i>American Scientist</i> 91: 122–129. Documentary: The 1918 Influenza Pandemic in America – Struggle Against the Spanish Flu https://www.youtube.com/watch?v=I0juBE-ra3A | |
| | Assignment | 1. Compose a 25 word summary of Webster and Walker (2004) | |
| | | 2. Watch flu documentary and complete quiz on Canvas | |
| Week 4 | Topic | Smallpox | |
| | Summary | Discussion on follow-up questions from the influenza activity Lecture on smallpox, specifically about how it is a vaccination success story in controlling a pandemic Discussion on bioterrorism and the ethics of disease | |
| | Readings/Works | Henderson, D.A. (2011). The eradication of smallpox – An overview of the past, present, and future. <i>Vaccine</i> 29S: D7-D9. Tognotti, E. (2010). The eradication of smallpox, a success story for modern medicine and public health: What lessons for the future? <i>J. Infect. Dev. Ctries.</i> 4: 264-266. Ted Talk by Dr. Larry Brilliant on the global smallpox vaccination effort https://www.ted.com/talks/larry_brilliant_my_wish_help_me_stop_pandemics | |
| | Assignment | 1. Compose a 25 word summary for either Henderson (2011) or Tognotti (2010) | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|--|--|
| | | 2. Watch the assigned Ted Talk and complete quiz on Canvas | |
| | | 3. Guided reflection | |
| | | | |
| Week 5 | Topic | Exam week | |
| | Summary | Exam | |
| | Readings/Works | None | |
| | Assignment | 1. Post as least 2 questions you have about the unit to Canvas | |
| | | Optional: Post any additional questions you have to Canvas | |
| | | | |
| Week 6 | Topic | Vaccinations (measles and dengue) | |
| | Summary | Lecture on measles, how it is a vaccination failure story throughout the world Activity: vaccination case study (Dengvaxia in the Philippines) Discussion to make a class-compiled vaccination timeline | |
| | Readings/Works | Documentary: Dengue: The hunt for a vaccine https://www.youtube.com/watch?v=xnPK8vPNMfY Fatima, K., & Syed, N. I. (2018). Dengvaxia controversy: impact on vaccine hesitancy. <i>Journal of global health</i> , 8(2), 010312. doi:10.7189/jogh.08-020312 ABC: Samoa shuts schools and declares emergency (https://abcnews.go.com/Health/wireStory/samoa-shuts-schools-declares-emergency-measles-kills-67095260) | |
| | Assignment | 1. Watch dengue documentary and complete quiz on Canvas | |
| | | 2. Compose a 25 word summary for Fatima and Syed (2018) | |
| | | 3. Prepare a single slide on an assigned event in vaccine development history for the discussion | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|---|--|
| | | | |
| Week 7 | Topic | <i>Start of Unit 2: Current Pandemics</i> HIV and AIDS | |
| | Summary | Lecture on HIV/AIDS and what makes a modern pandemic. Activity: widespread HIV impacts beyond health case study (modified from the National Center for Case Study Teaching in Science) Discussion with follow up questions from the activity above | |
| | Readings/Works | Ted talk by Dr. Hans Rosling on new HIV facts and data visuals https://www.gapminder.org/videos/ted-talk-2009-hans-rosling-hiv-facts/ Watch And The Band Played On (1993) https://www.youtube.com/watch?v=OKthBMpST7Q Wall Street Journal “Botswana sees economic rise leveled by raging AIDS crisis” (2002) https://www.wsj.com/articles/SB1030569120489161835 | |
| | Assignment | 1. Watch Dr. Rosling’s Ted talk | |
| | | 2. Watch “And The Band Played On” and complete quiz on Canvas | |
| | | 3. Compose a 25-word summary for the Wall Street Journal article | |
| | | 4. Guided reflection | |
| | | | |
| Week 8 | Topic | Cholera | |
| | Summary | Lecture on cholera and how a historic pandemic made a comeback in current times Activity on how geographic patterns can be analyzed to identify the source of an epidemic Discussion on the activity and documentary | |
| | Readings/Works | Ted Talk by journalist Rose George “Let’s talk crap. Seriously.” https://www.ted.com/talks/rose_george_let_s_talk_crap_seriously | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|--|--|
| | | <p>NPR: Why is cholera making headlines in 2019? https://www.npr.org/sections/goatsandsoda/2019/04/02/707994461/cholera-101-why-this-ancient-disease-is-making-headlines-in-2019?utm_medium=social&utm_source=twitter.com&utm_term=nprnews&utm_campaign=npr</p> <p>Chunara, R., Andrews, J. R., & Brownstein, J. S. (2012). Social and news media enable estimation of epidemiological patterns early in the 2010 Haitian cholera outbreak. <i>The American journal of tropical medicine and hygiene</i>, 86(1), 39–45. doi:10.4269/ajtmh.2012.11-0597</p> | |
| | Assignment | 1. Watch Rose George’s Ted Talk and complete quiz on Canvas | |
| | | 2. Compose a 25-word summary for Chunara et al. (2012) | |
| | | 3. Guided reflection | |
| | | | |
| Week 9 | Topic | Obesity | |
| | Summary | <p>Lecture on obesity, a different way of thinking about pandemics, and how it is not just an American problem</p> <p>Activity: proposing creative solutions to food deserts</p> <p>Discussion on diseases of poverty</p> | |
| | Readings/Works | <p>Documentary: HBO Docs “Weight of the Nation: Poverty and Disease” https://www.youtube.com/watch?v=7MJnm5X9NN0</p> <p>Roth, J., Qiang, X., Marbán, S.L., Redelt, H. and Lowell, B.C. (2004), The Obesity Pandemic: Where Have We Been and Where Are We Going?. <i>Obesity Research</i>, 12: 88S-101S. doi:10.1038/oby.2004.273</p> | |
| | Assignment | 1. Watch obesity documentary and complete quiz on Canvas | |
| | | 2. Compose 25 word summary for Roth et al. (2004) | |
| | | 3. Guided reflection | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|---|--|
| | | | |
| Week 10 | Topic | Exam week | |
| | Summary | Exam | |
| | Readings/Works | None | |
| | Assignment | 1. Post as least 2 questions you have about the unit to Canvas | |
| | | Optional: Post any additional questions you have to Canvas | |
| | | | |
| Week 11 | Topic | <i>Start of unit 3: Future pandemics</i> Climate and disease | |
| | Summary | Lecture on climate impacts for disease and other health factors Activity on sea level rise and disease risk Discussion on extreme weather and disease | |
| | Readings/Works | CDC Grand Rounds “Climate change and health – From science to practice” https://www.youtube.com/watch?v=6V_0JaE2Gz0 Reading(s) will be assigned by guest lecturer | |
| | Assignment | 1. Compose 25 word summary for TBD reading from guest lecturer | |
| | | 2. Watch CDC Grand Rounds video and complete quiz on Canvas | |
| | | 3. Guided reflection | |
| | | | |
| Week 12 | Topic | Ebola | |
| | Summary | Lecture on Ebola and international response to ongoing outbreaks Activity of a virtual interactive learning experience designed to help better understand the factors contributing to the infection and spread of Ebolaviruses | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|---------------|----------------|---|--|
| | | Discussion on diseases in the media | |
| | Readings/Works | <p>Documentary: PBS "Spillover: Zika, Ebola & Beyond" https://www.pbs.org/spillover-zika-ebola-beyond/home/</p> <p>New York Times "Ebola fallacies" https://www.nytimes.com/2014/10/24/us/fallacies-are-spreading-as-readily-as-the-virus-has.html</p> <p>New York Times "Ebola virus outbreak" https://www.nytimes.com/interactive/2014/07/31/world/africa/ebola-virus-outbreak-qa.html</p> <p>Wired video "Disease expert breaks down pandemic scenes from film and TV" https://www.youtube.com/watch?v=feGHmv_eDcw&feature=youtu.be</p> | |
| | Assignment | 1. Watch PBS documentary and complete quiz on Canvas | |
| | | 2. Compose 25 word summary for one of the NYT articles | |
| | | 3. Watch Wired video | |
| | | | |
| Week 13 | Topic | Final project work time | |
| | Summary | Discussion: feedback on final presentation | |
| | Readings/Works | None | |
| | Assignment | Final presentations | |
| | | | |
| Week 14 | Topic | Zombies | |
| | Summary | <p>Lecture on zombies in the real world</p> <p>Activity simulation of zombie types and possible interventions to stop the zombie apocalypse</p> <p>Discussion on diseases in pop culture</p> | |

| Week/ Date | Activity | Topic/Assignment (Question/Subject) | Assigned Work Due prior to class on: |
|----------------|----------------|---|--|
| | Readings/Works | National Geographic documentary "Zombies: The Truth" https://www.youtube.com/watch?v=W595-RChJq0 CDC "Zombie Pandemic" (graphic novel) https://www.cdc.gov/cpr/zombie/00_docs/zombie_pandemic.pdf | |
| | Assignment | 1. Watch NatGeo documentary and complete quiz on Canvas | |
| | | 2. Guided reflection | |
| | | | |
| Week 15 | Topic | Exam week | |
| | Summary | Unit summary (future pandemics) Final Exam will occur during finals week | |
| | Readings/Works | None | |
| | Assignment | 1. Post as least 2 questions you have about the unit to Canvas | |
| | | Optional: Post any additional questions you have to Canvas | |
| Finals week | Final | Cumulative Final Exam | |
| | | | |

III. Grading

3. Grading Scale

For information on how UF assigns grade points, visit: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

| | | | | |
|----|------------------------------|--|----|----------|
| A | 94 – 100% of possible points | | C | 74 – 76% |
| A- | 90 – 93% | | C- | 70 – 73% |
| B+ | 87 – 89% | | D+ | 67 – 69% |
| B | 84 – 86% | | D | 64 – 66% |
| B- | 80 – 83% | | D- | 60 – 63% |
| C+ | 77 – 79% | | E | <60 |

IV. Learning Experiences

4. Details of Self-Reflection Component

Reflection assignments are designed to guide students through a personal reflection on course themes. Throughout the semester, students will respond to a series of seven prompts where they will critically reflect on their personal beliefs, biases, and experiences with disease outbreaks and how they are challenged, changed, or strengthened by the material we discuss in class. For example, the guided reflection in week 6 would ask students to think about their biases and experiences with pro- and anti-vaccine debates and how the student's opinions and future actions may be impacted by our class activities and conversations.

V. Required Policies

5. Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

6. UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

7. University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

8. Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

9. The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at <http://writing.ufl.edu/writing-studio/> or in 2215 Turlington Hall for one-on-one consultations and workshops.