

## Epidemiology, Re-emerging Infections, and Pandemics (EPID) CTY Course Syllabus

### **Course texts:**

Garrett, Laurie. *The Coming Plague: Newly Emerging Diseases in a World out of Balance*.

Giesecke, Johan. *Modern Infectious Disease Epidemiology* (2nd edition).

Barry, John M. *The Great Influenza*.

Farmer, Paul. *Infections and Inequalities*.

### **plus selections from:**

*Deciphering Global Epidemics*.

### **Day 0 – Sunday**

Evening Session	Class Introductions	Student and instructor introductions Class exercise: Diseases we know
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## Day 1 – Monday

Morning Session	Course introduction  Pre-assessment  Preparatory exercise – Geography groups	Discussion of syllabus, classroom conduct, goals for the course, etc  Students take pre-course written assessment  Geography groups: what we know about world geography... and why do we care? Interactions between Geography, Socioeconomics and Disease
Afternoon Session	Unit 1: Introduction to Infectious Disease Epidemiology  Daily exercise	Reading assignment: <i>Modern Infectious Disease Epidemiology</i> , Chapters 1 & 2  Written exercise: 5-minute summary  Lecture: The Biology of Disease-causing Organisms (JP)  Group vocabulary and answer session
Evening Session	Unit 1 continues	Discussion: <i>Modern Infectious Disease Epidemiology</i> , Chapters 1 & 2

## Day 2 – Tuesday

Morning Session	Preparation for Unit 2  Unit 2: Data collection and analysis – Using local mortality data to detect epidemics	Reading assignment: <i>Deciphering Global Epidemics</i> , Chapter 1  Written exercise: 5-minute summary  Reading assignment: <i>Deciphering Global Epidemics</i> , Chapter 1  Lecture: the Princeton Cemetery and data collection (JP)
Afternoon Session	Unit 2 continues	Field trip: Princeton Cemetery (with the Academic Dean and the students' Residential Advisors)
Evening Session	Daily exercise  Unit 2 continues	Group vocabulary and answer session  Data entry and visualization; students turn in data files to instructor/TA before leaving class

### Day 3 – Wednesday

Morning Session	Unit 2 continues	Written exercise: Processing the experience of the cemetery visit  Discussion: The experience of the cemetery visit  Discussion: Cemetery data—process of data collection and entry; comparing group data, class data, and full data  (15-minute break)  Discussion: Cemetery data—defining peaks, binning, and using different graphic formats to understand trends
Afternoon Session	Unit 2 continues	Lecture: 20 <sup>th</sup> Century Influenza Pandemics (ZF)  Computer exercise: Re-examining the data  Discussion: Cemetery data – cause of observed peaks
Evening Session	Daily exercise  Unit 2 continues	Group vocabulary and answer session  Assignment: Lab report

#### Day 4 – Thursday

Morning Session	Unit 3: Influenza – epidemics and pandemics	Reading period: <i>The Great Influenza</i> , Prologue & Part 1  Written exercise: Five-minute summary
Afternoon Session	Unit 3 continues	Discussion: <i>The Great Influenza</i> , Prologue & Part 1  Individual or small-group activities: Students chose one of the following activities – continued work on lab report: continued reading <i>The Great Influenza</i> , Prologue & Part 1; gathered website information for later presentation (Thurs evening); worked on vocabulary/etymology posters for later presentation (Friday morning) and posting in the classroom
Evening Session	Geography group exercise	Geography group project: Incident room report on outbreak from assigned regions (Fine Hall Library)

**Day 5 – Friday**

<p>Morning Session (relocated to McCosh 48)</p>	<p>Geography group exercise</p> <p>Daily exercise</p> <p>Course reflection</p> <p>Unit 3 continues</p>	<p>Group presentations: Incident room reports</p> <p>Group vocabulary and answer session</p> <p>Students individually rank activities done to date in terms of how engaging and how challenging they were; rankings are used as the jumping-off point for individual conferences</p> <p>Reading: <i>The Great Influenza</i>, Parts 2 &amp; 3</p> <p>During the reading session, individual students were pulled out in random order for conferences with JP</p>
<p>Afternoon Session (relocated to McCosh 60)</p>	<p>Unit 3 continues</p> <p>Practice of epidemiology in the real-world</p>	<p>Students continue reading from morning and individual student conferences continue</p> <p>Lecture: Understanding Nipah virus emergence – the collaborative approach of the Henipavirus Ecology Research Group – Part A (JP)</p>

**Sunday, Study Hall**

<p>Evening Session</p>	<p>Geography group exercise</p>	<p>Individual project: Incident room report on domestic outbreaks (where students live)</p> <p>Individual student conferences with JP continued</p>
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**Day 6 – Monday**

Morning Session		<p>Course logistics: revisit course philosophy, discuss work turned in to date, state deadlines for remaining work, explain individual projects, discuss horizontal vs. vertical thinking</p> <p>Group vocabulary and answer session</p> <p>Reading: Garrett, Chapters 1, 3, 4, &amp; 5 (divided reading)</p> <p>Written exercise: Five-minute summary (shared with others who read same chapter)</p>
Afternoon Session		Individualized work session
Evening Session		Lecture: Understanding Nipah virus emergence – the collaborative approach of the Henipavirus Ecology Research Group – Part B

**Day 7 – Tuesday**

Morning Session		Class Presentations: Incident room reports on domestic diseases  Reading-related activity: Creating epidemic timelines from <i>The Coming Plague</i> chapters
Afternoon Session		Reading-related activity: Creating epidemic timelines from <i>The Coming Plague</i> chapters (continued)  Class presentations: Epidemic timelines – Machupo virus in Bolivia, Meningitis in Brazil, Lassa Fever
Evening Session		Class presentations: Epidemic timelines – Ebola Hemorrhagic Fever, Marburg virus  Discussion: The interplay of history, geography, and epidemic spread

### Day 8 – Wednesday

Morning Session		Individualized work session
Afternoon Session		Exercise: Patterns in the natural history of infectious disease  Discussion: Evolutionary pressures and constraints on infectious organisms
Evening Session		Discussion: Obesity and social inequality in America

### Day 9 – Thursday

Morning Session		Movie: <i>Molokai</i>
Afternoon Session		Discussion: <i>Molokai</i>  Discussion: Social Exclusion and Social Distancing (including AIDS colonies and “social distancing” of infected physicians)
Evening Session		Simulation and Discussion: Disease modeling and stochastic epidemics

## Day 10 – Friday

Morning Session		Individualized work session  Individual student conferences with ZF  <b><i>One-page project summary due</i></b>
Afternoon Session		Radio show: <i>Justice Talking: The HPV Vaccine</i>  Guest Lecture: Lt. Carl Pearson, Naval Reactors – generalized epidemic processes and crossing disciplinary boundaries

## Sunday – Study Hall

Evening Session		Reading period: Timeline of the Rwandan genocide from PBS's <i>Frontline</i> ; "Bystanders to Genocide: why the United States let the Rwandan genocide happen" by Samantha Power (from <i>The Atlantic Monthly</i> )
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**Day 11 – Monday**

Morning Session		Movie: <i>Hotel Rwanda</i>  Writing exercise: The Rwandan genocide
Afternoon Session		Discussion: Public health implications of genocide  Reading: “Recognizing the Public Health Impact of Genocide” from <i>The Journal of the American Medical Association</i>  Discussion: approaches to genocide in an international community  Exercise: Preparation of questions for Rwandan genocide survivor
Evening Session		Reading period: Farmer Chapters 1 & 2  Written exercise: 5-minute question-writing

**Day 12 – Tuesday**

Morning Session		Guest lecture: Rwandan survivor and prosecutor Edouard Kayihura  Individualized work session (in the time remaining; no computers)
Afternoon Session		Lecture: Food and Health (ZF)  Guest Speakers: Gab (from The Bent Spoon) and Farmer Dave (from a local organic farm)
Evening Session		Discussion: Farmer Chapters 1 & 2  Lecture: The Biology of HIV/AIDS  Reading period: Farmer Chapters 3, 5, & 6 (divided reading)

**Day 13 – Wednesday**

Morning Session		Reading period: Farmer Chapters 3, 5, & 6 (continued)  Development of chapter teaching tools
Afternoon Session		Guest Lecture: Dr. Parvies Hosseini, Princeton University – Epidemiology of infectious diseases in plants and wildlife  Guest Lecture: Katie Hampson – Princeton University, Dynamics and control of a rabies epidemic in sub-Saharan Africa
Evening Session		Students teach others the chapters they have read, using both presentation and tool for re-enforcement

## Day 14 – Thursday

Morning Session		Students teach others the chapters they have read, using both presentation and tool for re-enforcement (continued)  Discussion: Approaches to HIV prevention and treatment in the developing world  Lecture: Vaccination (history and biology)
Afternoon Session		Preparation for debate on mandatory HPV vaccination  Debate: “Women between the ages of 16 and 26 should be legally required to get the HPV vaccine.”  Post-assessment  SPE’s
Evening Session		Film: <i>Supersize Me</i>

## Day 15 – Friday

Morning Session		Radio clip and Discussion: <i>All Things Considered</i>
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