PH 412
Infectious Disease Epidemiology and Prevention
Spring Quarter 2015
Tuesdays 6-9pm
McGaw Kellerman (2-322)
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*Office hours: By Appointment

Infectious Diseases Epidemiology and Prevention will focus on major concepts in the epidemiology and prevention of infectious disease with a focus on selected pathogens of public health importance. Specific areas that will be addressed include: epidemiologic methods and statistics used in reporting or research of infectious diseases; causative agents and life cycle; routes of transmission; the host responses; environmental factors; unique risk factors; outbreak investigations; surveillance; strategies for control and prevention; methods for evaluating interventions and control efforts; and the history, culture, politics, and economics of infectious diseases. We will briefly cover, but not emphasize microbiology, pathophysiology, or medical treatment. Special attention will be focused on outbreak investigations because they provide a unique opportunity to apply many principles of public health practice, including use and interpretation of surveillance data, risk factor analysis, implementation of control measures, and assessment of interventions.

We will start with broad foundational topics (first half) followed with a focus on specific infectious diseases (second half). Weekly practical exercises and/or quizzes will be incorporated to assess your knowledge and stimulate discussion.

Learning Objectives:
Upon completion of this course, students will be able to:

1) Describe principles of infectious disease epidemiology and prevention
2) Discuss and execute specific methods and statistics used to report and research infectious disease including outbreak investigation, surveillance, and risk factor assessment
3) Describe the epidemiology and prevention efforts of selected infectious diseases in terms of public and global health

Texts and reading

Other reading assignments and case studies will be available via Canvas.
Canvas
The syllabus and selected readings will be posted on the course’s Canvas site, available at https://courses.northwestern.edu/webapps/login if you are registered for the course.

Class assignments, quizzes, exams
Each week there will be assigned reading and in-class practical exercises or quizzes based on the reading assignment to assess understanding and stimulate discussion. There will be two examinations at the mid-term and final to assess understanding of the material up to that point.

Student Evaluation
Students will be evaluated on:

1) Participation in class/case discussions (10%)
2) Weekly exercises and quizzes (30%)
3) Mid-term examination (30%): 30 multiple choice and short answer questions. The exam will be in-class, closed-book, cumulative assessment of the material presented up to that point.
4) Final examination (30%): 45 multiple choice and short answer questions. The exam will be in-class, closed-book, cumulative assessment of the material presented throughout the entire course.

Course evaluation
The MPH Program administers web-based course evaluations to students for each course near the end of the quarter. Your completion of both the unit (course) and faculty evaluation components is required; failure to complete either of the evaluations will result in an incomplete grade until the evaluations are submitted. You will be sent the web link and instructions via email later in the quarter. You will have about two weeks to complete the evaluations before grades are submitted.

Academic Integrity
Every Northwestern faculty member and student belongs to a community of scholars where academic integrity is a fundamental commitment. The Program in Public Health abides by the standards of academic conduct, procedures, and sanctions as set forth by The Graduate School at Northwestern University. Students and faculty are responsible for knowledge of the information provided by The Graduate School on their Web page at http://www.tgs.northwestern.edu/academics/academic-services/integrity/index.html

Academic misconduct includes, but is not limited to
1. Receiving or giving unauthorized aid on examinations or homework
2. Plagiarism
3. Fabrication
4. Falsification or manipulation of academic records
5. Aiding or abetting any of the above

The PPH follows The Graduate School’s procedure for evaluating alleged academic misconduct, as outlined on the TGS website. http://www.tgs.northwestern.edu/academics/academic-services/integrity/dishonesty/index.html

Faculty reserve the right to use the “Safe Assignment: Plagiarism Detection Tool” that is part of the Course Management System to evaluate student assignments. Information about this tool
can be found at [http://www.it.northwestern.edu/education/course-management/support/assessments/safeassignment.html](http://www.it.northwestern.edu/education/course-management/support/assessments/safeassignment.html)

## Class schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading/Class Prep</th>
<th>Assignments/Projects/Tests</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>TBD</td>
<td>Introduction to ID Epidemiology</td>
<td><em>Text Book Reading:</em> Infectious Disease Epidemiology, Chapters 1, 2 and 3</td>
<td>Weekly in-class activity or quiz</td>
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<td>Study Designs for ID Epidemiology</td>
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<td>2.</td>
<td>TBD</td>
<td>Outbreak Epidemiology</td>
<td><em>Text Book Reading:</em> Infectious Disease Epidemiology, Chapters 5 and 6, Outbreak Investigations Around the World, Chapter 1</td>
<td>Weekly in-class activity or quiz</td>
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<td>ID Dynamics</td>
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<td>3.</td>
<td>TBD</td>
<td>Microbiology and Molecular Epidemiology</td>
<td><em>Text Book Reading:</em> Infectious Disease Epidemiology, Chapters 8, 9, and 10</td>
<td>Weekly in-class activity or quiz</td>
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<td>Immune Response and Host Defense</td>
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<td>4.</td>
<td>TBD</td>
<td>Prevention and Vaccines</td>
<td><em>Text Book Reading:</em> Infectious Disease Epidemiology, Chapters 4 and 11</td>
<td>Weekly in-class activity or quiz</td>
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<td>5.</td>
<td>TBD</td>
<td>Group Outbreak Presentations</td>
<td>TBD, will be announced and given details at first class</td>
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<td>6.</td>
<td>TBD</td>
<td><strong>Mid-Term Exam</strong></td>
<td>Study for exam</td>
<td><strong>Mid-Term Exam</strong></td>
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<td>CDC Solve the Outbreak App</td>
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<td>7.</td>
<td>TBD</td>
<td><strong>Respiratory and Contact</strong></td>
<td><em>Text Book Reading:</em> Infectious Disease Epidemiology, Chapters 15 and 18</td>
<td>Weekly in-class activity or quiz</td>
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<td>Influenza</td>
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<td>Tuberculosis</td>
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<td>Ebola</td>
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### Additional interesting resources

**Books (there are lots more, but these have some redeeming literary value) * = fiction**

**Movies (there are lots more, but these have some redeeming cinematic value)**
1. *The Dallas Buyers Club*, 2013
2. *How to Survive a Plague*, 2012
7. *And the Band Played On*, 1993

**Gams and Apps**
1. *Plague, Inc.*
2. *CDC Solve the Outbreak*