BIOL 148001  Pathogens and Plagues  
Summer 2019  
May 14–May 30, M T W TH, 9:00 a.m.-12:15 p.m.

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412 Higgins  
Office hours T, W, TH 12:30-1:30pm

Boston College Mission Statement  
Strengthened by more than a century and a half of dedication to academic excellence, Boston College commits itself to the highest standards of teaching and research in undergraduate, graduate and professional programs and to the pursuit of a just society through its own accomplishments, the work of its faculty and staff, and the achievements of its graduates. It seeks both to advance its place among the nation’s finest universities and to bring to the company of its distinguished peers and to contemporary society the richness of the Catholic intellectual ideal of a mutually illuminating relationship between religious faith and free intellectual inquiry. Boston College draws inspiration for its academic societal mission from its distinctive religious tradition. As a Catholic and Jesuit university, it is rooted in a world view that encounters God in all creation and through all human activity, especially in the search for truth in every discipline, in the desire to learn, and in the call to live justly together. In this spirit, the University regards the contribution of different religious traditions and value systems as essential to the fullness of its intellectual life and to the continuous development of its distinctive intellectual heritage.

Course Description  
Much of biological discovery has been centered around human disease and our quest for health and longevity. From the earliest observations regarding the human body, to the discovery of germs and the eventual technology guiding current treatments, human beings have sought to understand the physiological and cellular parameters associated with health. This course will examine human disease and epidemics through the lens of pathogens, society and environmental influence.  
Satisfies Natural Science core for BC students  
Prerequisites: None

Textbooks & Readings (Required)  

Canvas : Class materials all posted on Canvas  
Canvas is the Learning Management System (LMS) at Boston College, designed to help faculty and students share ideas, collaborate on assignments, discuss course readings and materials, submit assignments, and much more - all online. As a Boston College student, you should familiarize yourself with this important tool. For more information and training resources for using Canvas see www.bc.edu/offices/cte/tools/canvas.html  
Resources: Syllabus, PPT presentations, Review Articles, Project directions, Discussion preparation
Course Objectives

1. Students will learn basic concepts of cell structure, genetics, and evolution in the context of infectious diseases such as The Black Death, Tuberculosis, Influenza and AIDS.
2. Students will learn to apply course material to everyday decisions regarding health of the individual and of the population
3. Students will demonstrate knowledge across cultural settings and will learn the impact of culture, gender, and age on emerging epidemics as evidenced by patterns of human behavior
4. Students will demonstrate ethical knowledge pertaining to the utility of government policies surrounding infectious disease and structures programs to protect the human population.

Assessment

- 30% Exam #1 - take home exam
- 30% Exam #2 - take home exam
- 30% Final Group Project - in-class Presentation
- 10% Participation: Attendance and engagement; preparation for discussion; movie critique

The undergraduate grading system for Summer Session is as follows:

- A (4.00), A- (3.67)
- B+ (3.33), B (3.00), B- (2.67)
- C+ (2.33), C (2.00), C- (1.67)
- D+ (1.33), D (1.00), D- (.67)
- F (.00)

All students can access final grades through Agora after the grading deadline each semester. Transcripts are available through the Office of Student Services.

Deadlines and Late Work

The take-home exams must be turned in on the scheduled day. Late exams will be marked down incrementally for each late day and can only be excused for illness (requires health professional documentation) or family emergency (requires Dean’s documentation)

Final Project

Purpose: To research the biological effects of a current disease and to communicate its impact on individuals and society.

Process:

- work in teams of 2 or 3
- identify an infectious disease of interest (using the instructor’s guidelines)
- research the biology of the disease
- research the context
  - demographics
  - politics
  - economics
  - human impact
- Complete periodic written worksheets on progress to completion

Make up Classes: Due to university scheduling and Memorial Day holiday, we will need to have two make-up periods.
1. Viewing the movie “And the Band Played on” will be done on-line
2. Each group will need to schedule at least 3 one hour periods (12:30-1:30 T, W, TH) where they can work on their project and consult with me. Alternative times can be arranged if necessary.
## Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading/homework</th>
<th>Tentative Discussion Topics</th>
<th>Project assignments</th>
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</thead>
<tbody>
<tr>
<td>5/14</td>
<td>Microbial World</td>
<td>Power of Plagues: Ch. 1, Appendix</td>
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<td>Project teams identified</td>
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<td>Bacteria Primer</td>
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<td>Virus Primer</td>
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<tr>
<td>5/15</td>
<td>The Immune</td>
<td>Power of Plagues: Ch. 9, 10</td>
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<td>Turn in project topic</td>
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<tr>
<td>5/16</td>
<td>Small Pox, Polio, Vaccination</td>
<td>Develop project focus</td>
<td>Vaccination controversy: A look at Measles today</td>
<td>Turn in rough outline of research to date and an explanation of interest</td>
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<td></td>
<td>Vaccination</td>
<td>Vaccination policy articles</td>
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<td>5/21</td>
<td>Influenza</td>
<td>Review article</td>
<td>Should lethal viruses be re-created to further our research needs? A look at the 1918 strain of Influenza</td>
<td>Turn in overall focus of presentation</td>
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<td></td>
<td>Power of Plagues: pp 238-240</td>
<td>Exam 1 handed out</td>
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<td>5/22</td>
<td>TB and Antibiotics</td>
<td>Power of Plagues: Ch 11, 13</td>
<td>Can or should borders be protected from resistant pathogens?</td>
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<td>Andrew Speaker articles</td>
<td>Exam 1 due in class</td>
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<td>Exam 1 due in class</td>
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<td>And the Band Played On</td>
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<td>5/23</td>
<td>HIV and AIDS</td>
<td>Power of Plagues: Ch 5</td>
<td>Can the 90-90-90 plan eliminate HIV from the US population?</td>
<td>Turn in Presentation title and a list of questions being pursued</td>
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<td>Movie comments due</td>
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<td>5/28</td>
<td>Black Death and Ebola</td>
<td>Power of Plagues: Ch. 4, Exam 2 handed out</td>
<td>Us vs Them: Lessons from society and sharing personal stories</td>
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<td>5/29</td>
<td>Project workshop</td>
<td>Exam 2 due in class</td>
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<td>Work with project team</td>
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<td>5/30</td>
<td>Presentations</td>
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<td>Turn in project assessment at end of class</td>
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