

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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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. 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.

Satisfies Natural Science core for BC students

Prerequisites: None

Textbooks & Readings (Required)

The Power of Plagues by Irwin Sherman, 2nd edition 2017 (ASM Press)

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

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

Attendance

Attending class is an important component of learning. Students are expected to attend all class sessions. When circumstances prevent a student from attending class, the student is responsible for contacting the instructor before the class meets. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class. Attendance and engagement with discussion are critical to attaining the learning objectives for this course; unexcused absences will be reflected in grades for participation and in the final project.

Accommodation and Accessibility

Boston College is committed to providing accommodations to students, faculty, staff and visitors with disabilities. Specific documentation from the appropriate office is required for students seeking accommodation in Summer Session courses. Advanced notice and formal registration with the appropriate office is required to facilitate this process. There are two separate offices at BC that coordinate services for students with disabilities:

- The Connors Family Learning Center (CFLC) coordinates services for students with LD and ADHD.
- The Disabilities Services Office (DSO) coordinates services for all other disabilities. Find out more about BC's commitment to accessibility at www.bc.edu/sites/accessibility.

Scholarship and Academic Integrity. Academic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on exams or assignments, or submitting the same material or substantially similar material to meet the requirements of more than one course without seeking permission of all instructors concerned. Please see the [Boston College policy on academic integrity](#) for more information.