

MIC 201: Modern Plagues and Society (Fall 2015)

Course Goal: Provide students with an understanding of the many ways infectious diseases impact human society.

Content: Coverage of various aspects of three modern diseases (AIDs, TB, and Malaria)
Biology of the infectious agents and diseases (microbiology, immunology)
Evolutionary considerations
Current treatment options
Current research efforts
'Conquered' plagues (smallpox, polio-almost, etc.)
Brief coverage of other current infectious diseases (student-led)

Course Description: Will examine various aspects of the three infectious diseases that currently impact a significant fraction of the human population. On numerous levels, AIDs, tuberculosis, and malaria (caused by a virus, a bacterium, and a parasite, respectively) represent major public health challenges. This course will take a 'bottom-up' approach by first exposing students to the infectious microbes themselves and how they interact with the human immune system. This will include a discussion of the 'natural history' and historical perspective of each disease (e.g., HIV, the cause of AIDs, is believed to be of recent origin in humans, in contrast to *Mycobacterium* and *Plasmodium*, the causes of tuberculosis and malaria, respectively, which are known to have been co-existing with humans for several millennia). A second point of emphasis will be on the past and current efforts of the medical research communities, both in the developed and developing countries, towards eliminating these diseases much like what has been achieved in the fight against smallpox and, nearly so, polio. A third major emphasis of this course is to expose students to the intricacies of how health care is delivered to individuals suffering from these diseases and how, at higher levels of organization, politics, infrastructure, and geographical factors determine public health outcomes. This course will draw upon the UM community to share their experiences either as eye-witnesses to the initial stages of a plague in this country (AIDs) or as medical workers in TB- and malaria-endemic countries. The final section of this course will involve each student becoming an 'expert' in an on-going human infectious disease (e.g., influenza, ebola, cholera, etc.) that will involve an in-class oral presentation.

Target audience: Freshman/Sophomores
Science and non-science majors
Nursing majors
No prerequisites

Course rubrics: 2 Exams (100 pts each)
In-class Presentation (50 pts)
Lecture Critique Assignment (50 pts)
Attendance, participation, and quizzes (50 pts)
350 pts total + writing credit

Syllabus:

8/25 T	Class #1.	Introduction
8/27 R	Class #2.	Past, current, and 'conquered' plagues
9/1 T	Class #3.	Basic Virology, HIV, and AIDS
9/3 R	Class #4	AIDS in Miami: The Beginning (Dr. G. Scott)
9/8 T	Class #5	AIDS Therapeutics and Prevention: Drug Approaches
9/10 R	Class #6	AIDS Therapeutics and Prevention: Immune Approaches (Dr. G. Stone)
9/15 T	Class #7	The Origins of AIDS and Scientific and Political Controversies
9/17 R	Class #8	National and International Anti-AIDS Efforts
9/22 T	Class #9	Basic Bacteriology and Bacterial-Caused Diseases
9/24 R	Class #10	The Biology of Mycobacterium and Tuberculosis
9/29 T	Class #11	Tuberculosis in Human History and Today
10/1 R	Class #12	Therapeutic Strategies for Tuberculosis
10/6 T	Class #13	WHO's 'End TB' Campaign
10/13 T	Class #14	Exam I
10/15 R	Class #15	Parasites and Parasitic Diseases
10/20 T	Class #16	The Biology of Plasmodium
10/22 R	Class #17	Human Malaria
10/27 T	Class #18	Prevention and Therapeutic Approaches for Malaria (Dr. A. Ager)
10/29 R	Class #19	Malaria in History
11/3 T	Class #20	Malarial Immunity in Theory and in Practice (Dr. P. Haslett)
11/5 to 12/3	Classes #21-27	Student Presentations
12/8 T	Class #28	Exam II