

The Molecular Biology of Emerging Diseases

Monday 6:00- 8:30 Shanklin 201

Professor Michael A. McAlear

Course Schedule

Mon, Jan. 24 th	Introduction , Basic Molecular & Cellular Biology Germ theory, Koch's postulates
Mon, Jan. 31	Bacteria and Antibiotics
Mon, Feb 7 th	Antibiotic Resistance
Mon, Feb 14 th	Anthrax, Cholera
Mon, Feb 21 st	Viruses , Ebola, reading 'The Hot Zone'
Mon, Feb 28 th	Class test I
Mon, March 7 th	Spring break, no class
Mon, March 14 th	Spring break, no class
Mon, March 21 st	West Nile virus - The Polymerase Chain Reaction: Part I
Mon, March 28 th	The Flu virus and HIV - PCR: Part II
Mon, April 4 th	Parasites, Malaria , Solar disinfection
Mon, April 11 th	Prions , Creutzfeldt-Jakob disease
Mon, April 18 th	Mad Cow Disease
Mon, April 25 th	Astrobiology: is there life out there?
Mon, May 2 nd	Class Test II

GLSP course description

The Molecular Biology of Emerging Diseases

Whereas only a few decades ago it seemed that modern medicine was well on its way to dealing with many of the bacterial and viral diseases that afflicted mankind, recently we have seen the emergence, and re-emergence of a host of deadly, infectious pathogens. This course will focus on a subset of these diseases, including antibiotic-resistant bacteria, mad cow disease, West Nile virus, anthrax and Ebola. The majority of the course will deal with how these infectious agents work at the molecular level, and how they can be treated (if at all). We will also consider how changes in populations, social practices, and environments have contributed to their emergence. Students will be expected to research one of these topics in depth, and to give an in-class presentation as well as submit a paper. Students will also get the opportunity to learn and perform a modern diagnostic technique (PCR) that is used to identify infectious agents. A background in basic biology (equivalent to introductory college level biology) will be useful but not necessary. Readings will include review articles, primary scientific literature and book chapters (provided) on the different diseases.

Grading

Class Test I	25%
Class Test II	25%
Presentation	25%
Paper	25%

Texts and books

The Coming Plague L. Garrett
Epidemic! R. DeSalle
The Hot Zone R. Preston