

**University of Arkansas for Medical Sciences
Fay W. Boozman College of Public Health**

**Department of Environmental and Occupational Health
Spring 2012**

**PBHL 5011
Biology for Public Health: Infectious Disease**

Blackboard 9.1 On-line Course

Course Syllabus

Instructor: Kristina Bondurant, PhD, MPH

PBHL 5011
Biology for Public Health: Infectious Disease

Course Description

Biology for Public Health is an introductory course which provides a foundation of biology concepts necessary for the practice of public health. The lectures in this course will focus on the biology basics related to infectious disease including an overview of infectious disease epidemiology; the different types of pathogens; the immune system and response to pathogens; treatment, prevention, and control of infectious disease; and the role humans play in the evolution of infectious disease. Each lecture series will relate covered biological concepts back to examples of common infectious diseases affecting US and worldwide populations. The course will also assist students in their preparations for the National Board of Public Health Examiners' (NBPHE) Certification Exam.

Prerequisites

There are no prerequisites for this course.

Required Text

The following text is an excellent resource for students interested in taking the NBPHE Certification Exam and it contains several chapters relevant to topics covered in this course:

Battle, C. U. (2009). In Riegelman R. (Ed.), *Essentials of public health biology: A guide for the study of pathophysiology* (1st ed.). Sudbury, Massachusetts: Jones and Bartlett Publishers. (ISBN-13: 9780763744649)

Class Format

The class will be delivered online. The first lecture will be posted on **January 13, 2012**. PowerPoint presentations as well as supplemental reading materials will be assigned. Additional study guides and/or materials will be available for most lectures.

Examinations

There will be a total of 5 quizzes, one each at the end of the 5 units of study and a final exam at the end of the course. Each quiz and the final will be taken online through Blackboard 9.1. Questions will be in a multiple choice format. The quizzes and final exam are timed. The final exam should be completed no later than **February 28, 2012**.

Grading

Course grades will be based on the following:

50% Quizzes (a total of 5 quizzes, 10% each quiz)

50% Final Examination

Final grades will be assigned in the following manner:

Pass: 75-100%

Fail: ≤74%

Course Schedule

Date	Exams	Units	Audio Presentation	Corresponding Chapters from Text
Jan 13		Unit 1: Introduction to Infectious Disease	Section 1: The Pathogens	Chapters 21 and 22
			Section 2: Important Concepts	Chapters 7 and 16
			Section 3: Resistance	Chapters 23 and 27
Jan 20	Quiz 1	Unit 2: Host Response to Pathogens	Section 1: General Structure and Function of the Immune System	Chapters 16 and 17
			Section 2: Innate Immunity	Chapters 16 and 17
			Section 3: Adaptive Immunity	Chapters 16 and 17
			Section 4: Example - Poliovirus Pathogenesis	WHO Polio Fact Sheet: http://www.who.int/mediacentre/factsheets/fs114/en/index.html
Jan 27	Quiz 2	Unit 3: Flu	Section 1: History	Chapter 31
			Section 2: Basic Science Concepts	Chapter 31
			Section 3: Public Health Perspective	Chapter 31
Feb 3	Quiz 3	Unit 4: HIV	Section 1: History Section 2: Biology and Transmission Section 3: Public Health Implications	Chapter 24 Chapter 25 Chapter 26
Feb 10	Quiz 4	Unit 5: Infectious Agents and Cancer	Section 1: HPV Section 2: <i>H. pylori</i>	Chapter 29 Chapter 30
Feb 17	Quiz 5			
Feb 24	Final			

Course Objectives

At the end of the course, a student should be able to:

1. Describe the infectious disease cycle and explain its role in public health (H)
2. Explain the molecular basis of cell processes and cellular components and their influence on infectious disease (E)
3. Describe the basic components of the host response to pathogens (H, E)
4. Identify measures for controlling, preventing, and treating infectious disease in a population (B)
5. Describe the pathogenicity of specific infectious disease examples such as Tuberculosis and Poliovirus (H, E)

CORE COURSE LEARNING OBJECTIVES

- A. Define the components of community-based public health practice.
- B. Describe basic and contemporary issues of public health, including tools of community-based health assessment, surveillance, health promotion, disease prevention, policy, cultural competency, and ethics.
- C. Demonstrate the ability to complete descriptive analyses as well as nonparametric, regression, multiple comparisons of means and analysis of variance for one- and two-factor experiment biostatistics for datasets.
- D. Demonstrate an understanding of core statistical concepts, including database principles, basic probability principles, diagnostic test statistics, tests of hypotheses, sample-size estimation, and power of tests.
- E. Describe the elements of the common chemical, physical, and biological hazards in the occupational and community settings, along with the ways in which these hazards are evaluated, controlled, and regulated.
- F. Define the major components of at least two models of health behavior change, i.e., the Health Belief Model, Transtheoretical Model, Social Cognitive Theory.
- G. Describe the organizational arrangements, financing, health status issues, health insurance, health manpower, cost of health care, quality of health care, access and regulatory issues of the health care delivery system in the United States.
- H. Describe the core concepts of epidemiology, including its history and theoretical basis; measures of morbidity, mortality, disease transmission and risk; major study designs; measures of association; bias, confounding and interaction; evaluation of screening tests; inference; and causality.

Fay W. Boozman College of Public Health Policies

Attendance: Students are expected to be diligent in the pursuit of their studies and in their class attendance. Students have the responsibility of making arrangements satisfactory to the instructor regarding all absences. Such arrangements should be made prior to the absence if possible. Policies of making up work missed as a result of absence are at the discretion of the instructor, and students should inform themselves at the beginning of each semester concerning the policies of their instructors.

Students with a disability: It is the policy of the UAMS Fay W. Boozman College of Public Health to accommodate students with disabilities pursuant to federal law, state law, and the University's commitment to equal educational opportunities. Any student with a documented disability who needs accommodation should request to meet with the course instructor and the Director of the Office of Student Services and/or Associate Dean of Academic Affairs no later than within the first 14 days (two weeks) following the first class meeting to develop an accommodation plan. Any student with a documented disability who determines later in the semester to seek accommodation or who develops a disability during the semester, should refer to the procedures outlined in the college catalogue. Failure to follow these procedures may be construed as a waiver of your rights under the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.

Academic Integrity: UAMS Fay W. Boozman College of Public Health has an Honor Council that responds to allegations of violations of common rules of academic integrity, including plagiarism; giving or receiving any form of aid on quizzes or examinations that is not expressly permitted by the instructor; or falsification of any report,

experimental results, or research data. Please review the Honor Code in the COPH Student Handbook, which can be found at <http://www.uams.edu/coph/cophandbook.pdf>.

Plagiarism: Plagiarism is defined as adopting, appropriating for one's own use and/or incorporating in one's own work, without acknowledgement, passages, tables, photographs, models, figures, and illustrations from the writings or works of others; presenting parts of passages of other's writing as products of one's own mind. Any student who plagiarizes may be subject to receiving a zero on the written work and may be dismissed from the Fay W. Boozman College of Public Health. Other penalties may be imposed by the COPH Honor Council, as described in the COPH Student Handbook.

The Fay W. Boozman College of Public Health subscribes to a web-based plagiarism detection and prevention system that is used by colleges and universities nationwide. The system works by scanning the student's document and matching the document against databases of texts, journals, electronic and web sources (including web sites that distribute or sell pre-written essays or term papers). Course instructors may, at their discretion, submit students' written work to the plagiarism detection system for the purpose of evaluating whether students have plagiarized. *If the instructor of a COPH course opts to use the plagiarism detection system, he or she will inform students of this, and will instruct students about how to submit their written work to the instructor.*

Instructor Information

Name: Kristy Bondurant, PhD

Phone: 501-686-8326

E-mail: BondurantKristinaL@uams.edu

Office number: COPH/EDIII 6213

Office hours: By appointment