

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

Department of Environmental and Occupational Health

Spring 2012

**PBHL 5311
Biology for Public Health:
Current Topics in Public Health**

Blackboard 9.1 On-line Course

Course Syllabus

Instructor: Kristina Bondurant, PhD, MPH

PBHL 5311
Biology for Public Health: Current Topics in Public Health

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 current topics in public health including an overview of the biology of growth and development, biology of aging, biology of cancer, micronutrients and dietary supplements, and obesity. Each lecture series will relate covered biological concepts back to major issues surrounding current 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.

Recommended 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 **March 30, 2012**. PowerPoint presentations 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 **May 15, 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
Mar 30		Unit 1: Biology of Growth and Development	Section 1: Genes, Chromosomes, and Genetic Traits
			Section 2: Prenatal Period
			Section 3: Genetic Disorders and Birth Defects
			Section 4: Childhood, Adolescence, and Adulthood
Apr 5	Quiz 1	Unit 2: Biology of Aging	Section 1: Age-related Physiological Changes
			Section 2: Diseases Associated with Aging
			Section 3: Public Health Concerns with an Aging Population
Apr 13	Quiz 2	Unit 3: Biology of Cancer	Section 1: Basic mechanisms of cancer etiology
			Section 2: Genetics and Cancer Susceptibility
			Section 3: Cancer and Endogenous Factors
			Section 4: Cancer and Environmental Factors
			Section 5: Cancer Therapy and Pharmacogenomics
Apr 20	Quiz 3	Unit 4: Metabolism and Nutrition	Section 1: General Nutrition and Metabolism
			Section 2: Endocrinology of Energy Uptake and Expenditure
			Section 3: Nutrition and Public Health
			Section 4: Nutrition and Disease
Apr 27	Quiz 4	Unit 5: Obesity	Section 1: Physiological Issues Related to Obesity
			Section 2: Special Issues in Childhood
			Section 3: Special Issues in the Elderly
			Section 4: Obesity - A Public Health Concern
May 5	Quiz 5		
May 11	Final Exam		

Course Objectives

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

1. Describe current topics in disease and explain their role in public health (H)
2. Explain the molecular basis of cell processes and cellular components and their influence on growth and development, aging, cancer, dietary supplements, and obesity disease (E)
3. Describe the basic components or risk factors leading to problems with development, cancer and obesity (H, E)
4. Identify measures for controlling, preventing, and treating developmental disorders, cancer and obesity in a population (B)
5. Describe the pathology of specific examples such as childhood genetic disorders or breast cancer (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

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