

# Essentials of Epidemiology in Public Health

*Center for Infectious Disease Preparedness  
UC Berkeley School of Public Health  
Syllabus for PH 298 (12) CC# 76734  
Fall 2004, Modified 09/01/2004*

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## **INSTRUCTORS:**

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**COURSE DESCRIPTION:** This is a half-semester introduction to the essential principles and practice of public health epidemiology. The emphasis will be on the understanding of core epidemiologic concepts and how to review critically the public health epidemiology studies relevant to microbial threat preparedness. This course complements “Conducting an Outbreak Investigation” which is taught in the 2<sup>nd</sup> half of the fall semester 2004.

**TARGET AUDIENCES:** This course is intended for public health practitioners with limited training or experience in epidemiology, and might include public health nurses, communicable disease investigators, bioterrorism coordinators, emergency medical specialists, and environmental health specialists.

**COURSE PREREQUISITES:** None

**COURSE OBJECTIVES:** Upon completion of this course, participants will be able to:

- Describe components of the epidemiologic approach, including measures of disease occurrence, and how to compare disease occurrences.
- Describe types and goals of public health surveillance.  
Describe the components of descriptive epidemiology, including the process of epidemiologic inference.
- Summarize the overview of epidemiologic study designs, including experimental studies.
- Describe how to design, including the advantages and disadvantages, of cohort studies and case-control studies.
- Describe threats to validity in epidemiology, including bias (systematic error) and confounding.
- Describe how to address random error in study design and analysis.  
Describe effect measure modification.
- Describe the steps involved in a critical review of epidemiologic studies  
Describe the epidemiologic approach to causation.

- Describe screening in public health practice.

**COURSE FORMAT:** Lecture and discussion

**COURSE ENROLLMENT & FEE:** To enroll in this course just show up to the first day of class. This course is FREE to public health practitioners (except for books and materials). CIDP follows the UC Berkeley academic calendar. For the complete Academic Calendar, go to <http://opa.vcbf.berkeley.edu/AcademicCalendar/calendar.cfm>. Registered UC Berkeley students are welcome and encouraged to enroll in these classes (be sure to meet the usual semester registration deadlines even for courses that are offered in 2nd half semester). Non-registered students who want to receive academic credit will need to register and pay the UC Extension fee (see <http://www.unex.berkeley.edu/info/concur.html>).

**COURSE CREDIT/GRADING:** Units: 1; Grading: P/NP

**COURSE LOCATION & SCHEDULE:** Tuesdays, 10:30am-12:00pm, 1918 University Avenue, 4th Floor.

**COURSE BOOKS:**

1. Aschengrau A and Seage GR. Essentials of Epidemiology in Public Health. Jones and Bartlett Publishers, 2003, 1<sup>st</sup> Edition

**COURSE REQUIREMENTS AND EVALUATION:**

1. Class attendance and participation
2. Complete assigned readings
3. Complete 5 Critical Review Forms to be handed in (see below)
4. Complete homework assignments for each Chapter in Aschengrau

**COURSE SCHEDULE OUTLINE**

<i>Date</i>	<i>Wk</i>	<i>Topics</i>	<i>Lecturer</i>	<i>Readings &amp; Due dates</i>
08/31/04	1	The epidemiologic approach Measures of disease occurrence Comparing disease occurrences	Aragon	Aschengrau Chaps 1, 2, 3
09/07/04	2	Public health surveillance and sources of data Descriptive epidemiology	Aragon	Aschengrau Chaps 4, 5
09/14/04	3	Overview of epidemiologic study designs Experimental studies	Aragon	Aschengrau Chaps 6, 7 Critical Review #1 due
09/21/04	4	Cohort studies Case-control studies	Aragon	Aschengrau Chaps 8, 9 Critical Review #2 due
09/28/04	5	Bias Confounding	Aragon	Aschengrau Chaps 10, 11 Critical Review #3 due

<b>Date</b>	<b>Wk</b>	<b>Topics</b>	<b>Lecturer</b>	<b>Readings &amp; Due dates</b>
10/05/04	6	Random error Effect measure modification	Aragon	Aschengrau Chaps 12, 13 Critical Review #4 due
10/12/04	7	Critical review of epidemiologic studies Epidemiologic approach to causation	Aragon	Aschengrau Chaps 14, 15 Critical Review #5 due
10/19/04	8	Screening in public health practice (tentative)	Aragon	Aschengrau Chaps 16

### **STUDENT ASSIGNMENT:**

1. Read a public health research journal article each week and fill out Critical Review Form to hand in weekly. Students can select any original public health research article from a peer-reviewed journal. The topic areas can include infectious diseases, terrorism (including bioterrorism), emergency preparedness or response, or related topic area. You will hand in a copy of the article and a Critical Review Form (which will be distributed in class).
2. Each week, one or more students will present to the class their critical review of a timely and relevant public health research journal article. We will distribute the article to be reviewed one week in advance.

### **GRADING ASSIGNMENT:**

Satisfactory completion of the course requires (1) handing in 4+ Critical Review Forms, (2) presenting 1 or more critical reviews to the class, and (3) class attendance.

### **ADDITIONAL READINGS & RESOURCES:**

1. Critical review articles that are presented in class will be distributed electronically one week in advance.