

## **EPIDEMIOLOGY**

HCSV 463-01 Fall 2009  
Tuesdays & Thursdays, 11 am – 12:15 pm  
Butte 229

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### **I. Course Description**

Epidemiology is the study of the distribution and determinants of health and the application of this study to improve health outcomes. Epidemiological practice involves all health prevention and health care entities: government, non-profit agencies, health care facilities, laboratories, etc. It is the basic science of public health. This course introduces students to the field of epidemiology including methods for assessing factors associated with the distribution and etiology of health and disease. Skills include methods for identifying and evaluating sources of health information, calculation of key epidemiologic measures, and public health surveillance and investigation techniques.

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### **II. Required texts & resources**

1. *Principles of Epidemiology in Public Health Practice*. USDHHS, CDC. ([Packet at bookstore](#)).
  2. Working calculator brought to class.
  3. Functional VISTA access for submitting assignments.
  4. Eight (8) "mini" scantrons (#815-E) for random (extra credit) quizzes.
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### **III. Objectives**

By the end of the course students are expected to be able to:

1. Define the content, uses, and significance of epidemiology as a means of public health investigation.
2. Describe epidemiological approaches to defining and measuring health problems in defined populations.
3. Describe the strengths and limitations of epidemiological study designs.
4. Explain the contributions of epidemiology to disease prevention, health promotion, and health policy.
5. Describe the role of epidemiology in evaluating the effectiveness and efficiency of health care and preventive health services.
6. Identify methods for describing disease rates and other vital statistics.

### **Class Format**

This course consists of lectures, discussions, textbook reading, homework, labs, and group problem-solving exercises. All class participants are expected to have prepared reading assignments before class. It is strongly recommended that students attempt the Exercises imbedded in each chapter of *Principles of Epidemiology in Public Health Practice* before coming to class in preparation for random (extra credit) quizzes.

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## IV. Student Responsibilities

### A. Attendance

Attend each class, contribute to class discussions, and participate in planned activities. Attendance will be recorded. **More than 2 absences will result in a penalty of a reduction of 1/3 final letter grade for each class period missed.**

Our academic schedule is based on Western Christian religious/cultural traditions, for example we do not meet on Sundays, Christmas, Easter, etc. This can create an additional burden on those students who practice other religious/cultural traditions because they must either miss class, ask permission to miss class, or miss important religious/cultural ceremonies and events. Please do not hesitate to inform me of an expected absence required to follow the tenets of your faith &/or culture. This absence will not be officially recorded as such. However, any required academic work should be submitted in advance and will be considered late if not submitted by the due date.

### B. COURSE ASSIGNMENTS

**1. Homework Assignments (3).** Each student will complete each of the 3 homework assignments. Homework can be completed using notes and other materials, but it must be completed individually. Computations must be legible to receive grade.

**2. Disease-of-the-week presentations (1).** These 10 minute presentations will be made at the beginning of each class. Students will work in groups of 2 to prepare a (no more than a 5 slide) PowerPoint presentation and a 1-page brief on a disease chosen from a list provided. See attached.

**3. Random (extra credit) quizzes.** Quizzes will be given randomly throughout the semester. Correct answers will earn you up to 25 extra credit points. There is no penalty for incorrect answers. You must be present and have a scantron to earn these points. The purpose of these quizzes is to encourage and reward reading the materials before class and engagement during our class period. **You will need eight (8) scantrons (#815-E) for these quizzes.**

**C. Midterm & Final Exams** These will be cumulative exams based on texts, lectures, and activities. Exams will be multiple choice, short answer, and computational. Students may bring a 8 x 11.5 paper formulas to exams. Make up exams will only be given under dire emergencies with prior approval and with documentation and are administered during finals week at your professor's convenience.

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### Course Evaluation

Disease of the Week	25 points
Homework (25 points x 3)	75 points
Midterm	100 points
Final Exam	100 points
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	300 points

	B+ = 88 - 89%	C+ = 78 - 79%	D+ = 67 - 69%
A = 94 - 100%	B = 84 - 87%	C = 74 - 77%	D = 64 - 66%
A- = 90 - 93%	B- = 80 - 83%	C - = 70 - 73%	F = 63% or less

Remember: each absence after one will lower your final grade 1/3 a letter grade. For example, if you earned a B for the course and missed 2 class periods your final grade will be reduced to a B- (3rd absence = B>B-).

**IMPORTANT: All grading and attendance discrepancies must be resolved on or before the last week of classes to be considered. Scores are posted on VISTA throughout the semester.**

Date	TOPIC	ASSIGNMENTS	READINGS
8/25	Introductory Concepts & Definitions		
8/27	<i>faculty furlough day – no class</i>		
9/1	Core Functions & Historical Perspectives		Chapter 1 CDC
9/3	Epidemiological Approaches		
9/8	<i>faculty furlough day – no class</i>		
9/10	Epidemiological Models & Concepts		
9/15	Epidemiological Models & Concepts	DoW 1	
9/17	Measures of Disease I: <i>scales, frequencies, measures of central location &amp; dispersion</i>	DoW 2	Chapter 2 CDC
9/22	Measures of Disease I (con't)	DoW 3	
9/24	Measures of Disease I (con't)	DoW 4	
9/29	<i>Band</i>	Homework #1 due	
10/1	<i>Band</i>		
10/6	Exam Review		
10/8	<b>EXAM 1</b>		
10/13	Special Topics in Epidemiology: Chronic Disease	DoW 5 & 6	Vista Reading 1
10/15	<i>faculty furlough day – no class</i>		
10/20	Disease of the Week day	DoW 7, 8, 9, 10, 11	
10/22	Measures of Disease II: <i>rates, ratios, &amp; proportions</i>	DoW 12	Chapter 3 CDC
10/27	Measures of Disease II (con't)	DoW 13	
10/29	Measures of Disease II (con't)	DoW 14 & 15	
11/3	Displaying public health data: Tables, graphs, & maps	DoW 16	
11/5	Displaying data (con't)	DoW 17	Chapter 4
11/10	Public Health Surveillance: Collecting, analyzing and using data	Homework #2 due	Chapter 5 CDC
11/12	Public Health Surveillance (con't)	DoW 18	
11/17	Measures of Disease III: Measures of association & public health impact: risk, rate & odds ratios	DoW 19	Chapter 3 CDC
11/19	Measures of Disease III (con't)	DoW 20	
<b>THANKSGIVING BREAK</b>			
11/30	Measures of Disease III (con't)	DoW 21	
12/3	Special Topics in Epidemiology: Bioterrorism	DoW 22	Vista reading 2
12/8	Investigating an Outbreak	Homework #3 due	Chapter 6 CDC
12/10	Investigating an Outbreak		
12/14	Final Exam: 12-1:50		

**Assignment: Disease/Condition of the Week**

- Groups of 2 students will select one disease/condition from the following list.
- A create and present a 5-slide PowerPoint must also be submitted via VISTA email 24 hours before the due date/time.
- Presentations will be done using PowerPoint and take no more than 10 minutes, so practice your presentation before class. Please note that each disease presentation has a specific date on the course schedule (i.e., plan your life!)

Presentations must present each of the elements discussed below:

Slide 1: Name of disease/condition; Case definition/identification

Slide 2: Infectious agent (if any); Reservoir; Mode of transmission; Incubation period

Slide 3: Occurrence (person-which populations, place-geographic, time-seasonal or lifespan)

Slide 4: Decade (or so) trend information (has incidence increased? decreased?)

Slide 5: Main control measures (Primary, Secondary and Tertiary)

**List of diseases/conditions**

1. rubella
2. yellow fever
3. brucellosis
4. HIV
5. trichinellosis
6. osteoporosis
7. osteoarthritis
8. chancroid
9. gonorrhea
10. amoebiasis
11. diphtheria
12. dengue fever
13. human papilloma virus
14. rabies
15. tetanus
16. mumps
17. leprosy
18. histoplasmosis
19. hantavirus
20. diphtheria
21. candidiasis
22. anthrax

Refer to American Public Health Association. *Control of Communicable Diseases Manual (18th Ed.)* Heymann, D. (Ed). Washington, DC: APHA. (ON RESERVE IN THE LIBRARY)

Some useful online sites:

CDC vector borne diseases	<a href="http://www.cdc.gov/ncidod/dvbid/index.html">http://www.cdc.gov/ncidod/dvbid/index.html</a>
World Health Organization International Classification of Diseases, 10th revision	<a href="http://www.who.int/classifications/icd/en/">http://www.who.int/classifications/icd/en/</a>
Summary of notifiable diseases – United States, 2004	<a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5353a1.htm">http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5353a1.htm</a>
SAMHSA Office of Applied Studies Data Systems and Publications	<a href="http://www.drugabusestatistics.samhsa.gov/">http://www.drugabusestatistics.samhsa.gov/</a>
NIDA Monitoring the Future Survey	<a href="http://www.drugabuse.gov/DrugPages/MTF.html">http://www.drugabuse.gov/DrugPages/MTF.html</a>
NIDA DAWN	<a href="http://www.drugabuse.gov/DESPR/Assessing/Guide7.html">http://www.drugabuse.gov/DESPR/Assessing/Guide7.html</a>
NCI SEER	<a href="http://seer.cancer.gov/faststats/">http://seer.cancer.gov/faststats/</a>
NCI cancer mortality maps & graphs	<a href="http://www3.cancer.gov/atlasplus/index.html">http://www3.cancer.gov/atlasplus/index.html</a>
Nationally Notifiable Infectious Diseases	<a href="http://www.cdc.gov/epo/dphsi/phs/infdis.htm">http://www.cdc.gov/epo/dphsi/phs/infdis.htm</a>
National Health and Nutrition Examination Survey	<a href="http://www.cdc.gov/nchs/nhanes.htm">http://www.cdc.gov/nchs/nhanes.htm</a>
MedWatch, The FDA Safety Information and Adverse Event Reporting Program	<a href="http://www.fda.gov/medwatch/index.html">http://www.fda.gov/medwatch/index.html</a>
Healthy People 2010: Tracking Healthy People 2010: Part C. Major Data Sources for Healthy People 2010	<a href="http://www.healthypeople.gov/Document/html/tracking/THP_PartC.htm">http://www.healthypeople.gov/Document/html/tracking/THP_PartC.htm</a>
FDA Adverse Event Reporting System (AERS)	<a href="http://www.fda.gov/cder/aers/default.htm">http://www.fda.gov/cder/aers/default.htm</a>
Emergency Preparedness & Response: Agents, Diseases, and Other Threats	<a href="http://www.bt.cdc.gov/agent/">http://www.bt.cdc.gov/agent/</a>
CPSC National Electronic Injury Surveillance System (NEISS) On-line	<a href="http://www.cpsc.gov/library/neiss.html">http://www.cpsc.gov/library/neiss.html</a>
CDC Case Definitions	<a href="http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm">http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm</a>
R	<a href="http://www.r-project.org">www.r-project.org</a>
GIS	<a href="http://www.atsdr.cdc.gov/GIS">http://www.atsdr.cdc.gov/GIS</a>
Epi Info and EpiMap	<a href="http://www.cdc.gov/epiinfo">www.cdc.gov/epiinfo</a>
CDC's Morbidity and Mortality Weekly Report	<a href="http://www.cdc.gov/mmwr">http://www.cdc.gov/mmwr</a>
Age groupings used by the United States Census Bureau	<a href="http://www.census.gov">http://www.census.gov</a>
Age categorization used by CDC's National Center for Health Statistics	<a href="http://www.cdc.gov/nchs">http://www.cdc.gov/nchs</a>
Complete and current list of case definitions for surveillance	<a href="http://www.cdc.gov/epo/dphsi/casedef/case_definition.htm">http://www.cdc.gov/epo/dphsi/casedef/case_definition.htm</a>
CDC's program for public health surveillance	<a href="http://www.cdc.gov/epo/dphsi">http://www.cdc.gov/epo/dphsi</a>
CDC's framework for program evaluation in public health	<a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm">http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm</a>
CDC's Epidemic Intelligence Service:	<a href="http://www.cdc.gov/eis">http://www.cdc.gov/eis</a>