

Fall Semester, 2006
INDIANA UNIVERSITY
IUPUI Campus
School of Medicine
Department of Public Health

COURSE: **PBHL H517** **SPHA H517**
TITLE: **Fundamentals of Epidemiology** **Managerial Epidemiology**

TIME/DAYS: Wednesday, 6:00 -- 8:45 pm
CLASSROOM: Medical Science Bldg., Room B26

PROFESSOR: **Gregory K. Steele, DrPH, MPH**
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COURSE DESCRIPTION: This course will introduce students to basic epidemiologic concepts including determinants of health and patterns of disease in populations, population health descriptive techniques, use of health indicators and secondary data sources. Students will gain an understanding of the role of Epidemiology in developing prevention strategies and policy. Among the topics to be covered are measures of mortality and morbidity, design and analysis of observational studies, community health assessment and program evaluation.

PREREQUISITES: This course is designed for students in the Master of Health Administration and the Master of Public Health degree programs. Students not in one of these two programs must have the permission of the instructor to enroll. All students must have at least a Bachelor's Degree.

OBJECTIVES: The students will be able to perform the following tasks at the completion of this course:

Primary Objectives:

1. Define and discuss the basic concepts of Epidemiology.
2. Explain when it is appropriate to use various epidemiologic techniques.
3. Interpret patterns of disease or risk observed in patterns of person, place or time characteristics.
4. Identify appropriate health indicators.
5. Identify sources of existing data for potential studies and list the strengths and weaknesses of using secondary data.
6. Demonstrate the ability to collect epidemiologic data in a sound manner.
7. List the limitations of various types of study designs.
8. Calculate measures of disease rates and measures of association between factors and diseases.
9. Use a statistical computer program (SPSS or other) to analyze and interpret data.
10. Understand how to conduct a community based health needs assessment.
11. Specify the components of program monitoring and evaluation.
12. Apply concepts to actual community settings.

Secondary Objectives:

1. Identify key components of research projects that attest to their validity.
2. Demonstrate the ability to present information in a professional manner.
3. Demonstrate the ability to effectively use the Internet to access needed information.

COURSE MATERIALS:

Required:

Textbook: Friis, Robert H. and Sellers, Thomas A. *Epidemiology for Public Health Practice*, 3rd Edition, (Jones and Bartlett Publishers, Boston; ISBN 0-7637-3170-6), 2004

Lecture Outlines: (<http://oncourse.iupui.edu>)

Recommended :

Timmreck, Thomas C. *An Introduction to Epidemiology* (Jones and Bartlett Publishers, Boston; ISBN 0-7637-0635-3), 1998

Soriano, F.I. *Conducting Needs Assessments: A Multidisciplinary Approach* (Sage Publications, Thousand Oaks, CA; ISBN 0-8039-5212-0), 1995

INSTRUCTIONAL METHODS: This course is designed to expose the students to the basic

concepts of Epidemiology using lectures, discussions and readings. The instructor will continuously integrate current developments into the classroom discussion and the students will be instructed to regularly search the World Wide Web for sites with relevant material. Lecture outlines will be distributed in oncourse. These are designed to provide a guide for the lecture, identify the lecture objectives, and provide structure for the students' notes. Exercises will be assigned that will help the students apply the concepts discussed in class. These will be from the textbook, distributed in class, or available on oncourse. The reading material is a reference for the classroom presentations. The instructor will assume the assigned reading was accomplished and spend his time elaborating on that material and expanding the discussion beyond the information included in the text. There may be weekly quizzes on the reading assignments. Students will be encouraged to initiate and participate in classroom discussions.

EXERCISES: Exercises will be assigned in conjunction with the lecture outlines. Exercises will be due one week after they are assigned. Late exercises will not be accepted. The value of the exercises are as follows:

<u>Assignment</u>	<u>Points</u>	<u>Due Date</u>
Assignment 1	10 points	August 30
Assignment 2	30 points	September 6
Assignment 3	22 points	September 13
Assignment 4	40 points	September 20
Assignment 5	15 points	September 27
Assignment 6	150 points	November 29
Assignment 7	20 points	November 8
Assignment 8	30 points	December 6

RESEARCH PAPER: This paper will allow students to investigate a situation of historical epidemiologic significance and answer to the best of their abilities, the stated question(s). The student will choose one of the following issues (no substitutions will be permitted):

- 1) **Love Canal** - The student will answer all of the following questions:
 What happened at Love Canal?
 Who do you believe really was at fault?
 Should the EPA have evacuated the individuals residing in proximity to Love Canal?
 What have been the outcomes of EPA's actions?
 What has been the resulting effect on the health of the population exposed at love canal?
- 2) **Dow Corning Silicon Breast Implants** – The student will answer the following question: Based on all of the epidemiologic evidence, should silicon breast implants been banned?
- 3) **Asbestos** – The student will answer all of the following questions:

What did the asbestos industry know regarding the adverse health effects from asbestos and when did they know it?

What is the history of litigation, either toxic tort or product liability, in the asbestos industry? (major cases only)

What are the current efforts/activities in Congress regarding asbestos and asbestos health effects?

Should the asbestos industry be immune from litigation or have the amount of litigated damages limited or capped?

4) **Food Product Safety** – The student will answer the following questions.

Based on the book “The Jungle” by Upton Sinclair, how likely is it that the problems described in his book could appear in today’s society?

Compare and contrast recent events in “meat” safety and how they relate to the findings described by Mr. Sinclair. Note: this will require you to read the book, The Jungle. This is an excellent book to read if you have not done so already. It is very easy reading.

This exercise will be graded on the quality of the literature review, incorporation of epidemiologic data, clarity of the problem statement, critical thought, correctness of interpretation of literature reviewed, correctness of writing style, and effectiveness of presentation. The reports are to be typed, based on the Department’s style manual (APA Style), double spaced, 12 point font, no longer than 20 pages and contain an appropriate number of references to scientific journals in the literature review. Since most of the literature reviewed for this paper will be older publications, few articles/references may be available on the web. Papers based solely on web based references will not receive a passing grade. Written reports are due **November 29, 2006**. Late reports **will not** be accepted. Reports that are longer than 20 pages, not double spaced, not using a 12 point font will be **penalized at least 10%**.

QUIZES: There may be weekly quizzes over the assigned readings for that week. Quizzes will be given at the start of each class period. Each quiz will be for a maximum of 10 points. Students missing a quiz will receive a 0 for that quiz. Quizzes may not be made-up.

EXAMINATIONS: There are two scheduled examinations for this course, a mid-term exam and a final exam. The final examination is not comprehensive. Both exams are objective in nature (fill-in-the-blanks, true or false, multiple choice, matching, calculations, short answer, etc.). Neither test is open note or open book. All tests are curved. Upon prior arrangement, and only due to some unforeseen schedule conflict, the mid-term and the final exam *may* be taken early. No test may be taken after its scheduled date.

ATTENDANCE: Careful attention to the lectures will be necessary to successfully pass this course. However, the instructor will not take attendance.

GRADING POLICY: The students' final grade will be determined as follows: mid-term exam -- 1/3rd; final exam -- 1/3rd; and exercises, papers, and quizzes-- 1/3rd. The scores received on each of these three items will be averaged into a total score. Any extra credit given will only apply to the exercise and project grade. Final grades will be assigned using the following scheme:

98% to 100% -- A+	78% or 79% -- C+
92% to 97% -- A	72% to 77% -- C
90% or 91% -- A-	70% or 71% -- C-
88% or 89% -- B+	68% or 69% -- D+
82% to 87% -- B	62% to 67% -- D
80% or 81% -- B-	60% or 61% -- D-
	59% or less -- F

A grade of "I" (incomplete) may be arranged for a student, who through circumstances beyond his or her control (such as illness, active military duty, etc.), is unable to complete the course on schedule. The instructor will require a written request from the student before a grade of "I" will be recorded. The student and instructor will develop a schedule for the student to complete the course requirements.

A grade of "W" (withdrawal) may be assigned, upon request to students who decide to drop the course, according to the University guidelines. A student who is failing the course will be given a grade of "F" if he or she withdraws from the course after the published deadline for automatic grade of "W".

STUDENT ETHICS: The instructor requires students to adhere to established ethical guidelines for behavior. Although students are encouraged to work together on exercises and in studying for the exams, collaboration and dishonesty on the exams will not be tolerated.

The student research reports must be the student's own work. Submitting material written by others without proper citation is plagiarism and, consequently, will result in academic discipline.

In fairness to all students, please refrain from such activities and any appearance of such activities.

As a courtesy to the instructor and fellow classmates, ***all*** cellular telephones and pagers must be turned off prior to the start of class. The only exception to this policy is for physicians who are on "call". They may have their phones on "silent" mode. Any student disregarding this request will be asked to leave the classroom. To avoid further disruption of the class, the student will not be permitted to return to the class for the duration of the class, that day. Any student accepting or making telephone calls during examinations will be considered cheating and will receive a zero (0) for that test.

STUDENT LEARNING OUTCOMES AND PERFORMANCE MEASURES:

1. By completing the reading assignments and participating in the classroom discussion, students will develop an understanding of the basic concepts of Epidemiology and the ability to interpret patterns of disease and risk by person, place and time.
2. By completing the assigned exercises, students will demonstrate the ability to identify existing sources of data and the appropriate use of various measures of mortality, morbidity and measures of effect.
3. By completing the research project, students will demonstrate the ability to collect epidemiologic data in a sound manner as well as the ability to use a computer program to assist in analyzing and interpreting the data.
4. Through participation in the classroom discussion and completing the associated assignments, students will develop the ability to apply concepts to community applications.

MPH PROGRAM CORE COMPETENCIES COVERED BY THIS COURSE:

A, C, D, E, E, F, H, I, and M

RECOMMENDED INTERNET SITES FOR RESEARCH:

1. For information on current epidemiologic developments:
http://www.cdc.gov/epo/mmwr/mmwr_wk.html
<http://www.state.in.us> search for Indiana Epidemiology Newsletter
<http://www.epibiostat.ucsf.edu/epidem/epidem.html>
2. For information on cancer:
<http://www.cancer.org>
<http://cancernet.nci.nih.gov>
3. For information on heart disease:
<http://www.amhrt.org>
4. For information on AIDS:
<http://www.cdcnac.org>
5. For general statistics:
<http://www.wonder.cdc.gov>
<http://www.cdc.gov>
<http://www.nih.gov>
[http:// www.hhcdatamart.com](http://www.hhcdatamart.com)
6. For fun:
<http://www.ph.ucla.edu/epi/snow.html>

PBHL H517 Schedule of Topics and Readings

DATE	TOPIC AND READINGS
Aug 23	Lecture 1 Introduction, Terms, Etiology, Communicable Disease, Prevention. Assignment 1: Milton Terris Article, (Handout). Due August 30 Readings: Friis, Chapters 1 and 2
Aug 30	Lecture 2 Infectious Communicable Diseases Assignment 2: Outbreak Exercise, Due September 6 Readings: Friis Chapters 9 and 12
Sept 6	Lecture 3 Uses of Epidemiology, Historical Developments, Ethical Concerns. Assignment 3: Questions 1-11, pp.40-42 in Text, Due September 13 Readings: Friis Chapter 1
Sept 13	Lecture 4 Classification of Disease and Outcomes, Measures of Health Status, Morbidity and Mortality Measures. Assignment 4: Measures of Disease Occurrence in Populations. Due September 20. Readings: Friis Chapter 3
Sept 20	Lecture 5 Data Sources, Vital Statistics, Notifiable Diseases, Hospital Discharge, Census. Assignment 5: Managing a Database. Due September 27. Readings: Friis Chapter 5
Sept 27	Lecture 6 Primary Data Collection, Instrument Design Assignment 6: Research Paper, Due November 29. Readings: Friis Chapters 5 and 10
Oct 4	Lecture 7 Patterns by Person, Place and Time. Readings: Friis Chapter 4
Oct 11	Mid-term Exam

PBHL H517 Schedule of Topics and Readings, continued.

DATE **TOPIC AND READINGS**

Oct 18 **No Class**

Oct 25 **Lecture 8**
Go over Mid-term Exam,
Chronic disease; Observational study designs; Cross-sectional; Case-control;
Cohort; Causality, Experimental program designs; Clinical trials; Community trials;
Quasi-experimental design; Study subject rights; Screening tests.
Readings: Friis Chapters 6, 7, 8, and 13

Nov 1 **Lecture 9**
Analysis of epidemiological data; Relative risk; Attributable risk; Odds ratios
Confidence intervals; Statistical tests.
Assignment 7 : Rate Calculations. **Due November 8 (Send in electronically).**
Readings: Friis Chapter 9

Nov 8 **American Public Health Association Meeting - No Class Help Session**

Nov 15 **Lecture 10**
Screening Tests, Causality, Associations
Readings: Friis Chapter 11

Nov 22 **No Class Thanksgiving Break**

Nov 29 **Lecture 11**
Standardization of rates; Age adjustment.
Assignment 8 : Age Adjustment exercise, **Due December 6**
Readings: Friis Chapter 11

Dec 6 **Lecture 12**
Health assessment techniques; Surveys; Health records; MIS; Group methods.
Readings: None

Dec 13 **Final Exam in classroom at normal time.**