Principles of Epidemiology (HS261D)

Fall 2009

San Jose State University
Health Science Department

Description: Introduction to epidemiologic concepts and methods with applications to public health practice for students intending to engage in, collaborate in, and interpret epidemiologic studies in the appraisal of disease prevention and health promotion.

Website:	Blackboard FA09 - HS - FA09 HS-261 Epidemiol Prin Section 1 (49575) The all-encompassing course calendar is linked to the course homepage www.sjsu.edu/faculty/gerstman/hs261
Class:	Nov 2 – Dec 20 Please review our Blackboard website daily. Online Elluminate meetings occur Tuesday evenings
Final exam:	Dec 20
Professor:	Bud Gerstman
Email:	Use the *Blackboard* e-mail tool for all correspondence. This is the preferred method of correspondence.
Phone:	(408) 924-2978
Office:	MacQuarrie Hall 514
Office hours:	Tuesdays and Thursdays 11:30 – 1:00; Wednesday 1:00 – 2:00
Required text:	Gerstman, B.B. (2003). *Epidemiology Kept Simple* (2nd ed.) New York: Wiley-Liss.
Required calculator:	Texas Instrument 30XIIS of TI-81
Optional reference:	Last, J. M. (Ed.) (2001). *A Dictionary of Epidemiology* (3rd ed.). New York: Oxford. (ISBN: 0195141695)

ASPH Education Committee MPH Discipline-specific competencies

Epidemiology is the study of patterns of disease and injury in human populations and the application of this study to the control of health problems. Upon graduation a student with an MPH should be able to

1. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussions of health issues.
2. Describe a public health problem in terms of magnitude, person, time, and place.
3. Apply the basic terminology and definitions of epidemiology.
4. Identify key sources of data for epidemiologic purposes.
5. Calculate basic epidemiology measures.
6. Evaluate the strengths and limitations of epidemiologic reports.
7. Draw appropriate inferences from epidemiologic data.
8. Communicate epidemiologic information to lay and professional audiences.
9. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
10. Identify the principles and limitations of public health screening programs.

Objectives: The following essential objectives meet CEPH accreditation expectations:

1. To explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health problems; to define basic epidemiologic terms and methods for describe disease and risk factor occurrence.
2. To understand and apply epidemiologic concepts about the cause and prevention of disease and injury.
3. To apply epidemiologic principles of screening for disease.
4. To calculate and interpret basic epidemiologic measures of occurrence, association, and impact.

6. To draw appropriate inferences from various types of epidemiologic studies, and to comprehend ethical principals involved in the study of human subjects.
7. To identify and assess systematic errors in public health research.
8. To communicate epidemiologic information to lay and professional audiences.

Content: The course covers the following material:

1. **Background and principles:** basic epidemiologic terms, uses of epidemiology, morbidity and mortality patterns in the 20th century, history of epidemiology, causal models and concepts, describing disease occurrence ("descriptive epidemiology").
2. **Occurrence and association:** counts vs. "rates", incidence vs. prevalence, incidence proportion (average risk), incidence rate (density), prevalence, risk difference, relative risk, attributable fraction
3. **Rate adjustment:** crude- and strata-specific rates, concept of confounding, direct method of adjustment, indirect method of adjustment.
4. **Study design:** experimental study principals and examples (clinical trial, field trial, community trial), observational study principals and examples **(**cross-section and ecological, cohort, case-control)
5. **From association to causation:** causal inference principals, Surgeon General's Report of 1964, Hill's Framework for assessing causality
6. **Screening for disease:** repeatability, kappa, validity, sensitivity, specificity, predictive value positive, predictive value negative, prior probability (prevalence), screening programs

Grades: There will be one quiz and on lab assignment each week. Each quiz and assignment is worth 10 points. In addition, there is a 100 point final exam. You scores will be totaled and averaged, and your final grade will be based on the following cutoff points:

100-97%	A+	89-87%	B+	79-77%	C+	69-67%	D+	Below 60%	F
96-93%	A	86-83%	B	76-73%	C	66-63%	D		
92-90%	A−	82-80%	B−	72-70%	C−	62-60%	D−		

Academic integrity. Academic and intellectual integrity is essential to the mission of San José State University. Students are expected to perform their own work except when collaboration is expressly permitted by the course instructor. ***Students are not permitted to consult with students who have already taken the course or with individual outside the course on graded assignments.*** Academic integrity ensures that all students are graded fairly. Violations to academic integrity policy undermine the educational process and demonstrate a lack of respect for oneself, fellow students, the course instructor, and the disciplines of epidemiology and pubic health. Cheating and plagiarism ruins the university's reputation and the value of the degrees it offers. We share the obligation to maintain an environment which practices academic integrity. Violators of the Academic Integrity Policy will be subject to failing this course and being reported to the Office of Judicial Affairs for disciplinary action which could result in suspension or expulsion from San José State University. Faculty are required to report all infractions to the Office of Student Conduct & Ethical Development (S04-12).

In some of my courses in the past, students have gone beyond permissible collaboration and suffered serious consequences. I sincerely believe that when anyone breaks these rules, the entire class suffers. The belief that others are not obeying the rules erodes confidence in the ability to trust and introduces anxieties that those who do follow the rules will be disadvantaged. Investigating possible cheating incidents takes instructor time away from helping students learn the material.

Rules for collaborating

1. **Labs:** Labs may be discussed openly via Bb discussion threads.
2. **Exercises:** Rules for collaboration are determined on an assignment-by-assignment basis. You may collaborate on odd-numbered exercises, but must work independently on even-numbered exercises.
3. **Exams and quizzes:** You may *not* use any print or web materials other than permissible formula sheets on exams or quizzes. You may *not* communicate directly or indirectly with anyone except the instructor on exams and quizzes.

It is a violation for any student to have access to keys distributed during prior semesters.

If you have questions, ask!

Disability: If you need course adaptations or accommodations because of disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible or see me during office hours. Presidential Directive 97-03 requires that students with disabilities register with DRC to establish a record of their disability.