

Computational Public Health Statistics (HS267)

Spring 2010 (Campus)

San Jose State University
Department of Health Science

- Description: Methods of public health and biostatistical data collection, management, analysis and reporting using microcomputers, including the detection and control of confounding factors.
- Prerequisite: HS 167 or instructor consent.
- Professor: Bud Gerstman. Please use the Bb e-mail tool for course correspondence. My office is MH 514. My office hours are: Tu 3:00 – 5:00; We 1:00 – 2:00; Th 1:30 – 2:15
- Class: Thursdays from 3:15 to 5:30 in MH 321. Labs require additional time and may be completed at home or in MH 332 during open hours. You must check Bb for postings at least three times weekly.
- Text: Gerstman, B.B. (2008). *Basic Biostatistics: Statistics for Public Health Practice*. Jones & Bartlett: Boston.
- Calculator: Any calculator you know how to use
- Software: SPSS (any version) and WinPEPI (see www.epi-perspectives.com/content/1/1/6)
- Website: www.sjsu.edu/faculty/gerstman/hs267

The course schedule, exam dates, and assignments are posted on the course website.

Learning objectives We intend to learn inference about proportions (Ch 16), comparing proportions from cohort and case-control studies (Ch 17 & Ch 18), stratified analysis (Ch 19), and correlation and regression, including multiple regression (Ch 14 & Ch 15). The principles are more important than the calculations. We also intend to learn how to report data to lay and professional audiences.

General objectives The following objectives meet CEPH accreditation expectations. Asterisks (*) indicate content introduced in pre-req course:

1. Describe the roles biostatistics serves in public health.*
2. Identify principles of measurement and study design, with application to public health research.*
3. Apply descriptive and inferential statistical techniques according to the type of study design, for answering particular research questions.*
4. Describe basic concepts of probability, random variation, and commonly used statistical probability distributions.*
5. Distinguish different measurement scales, and implications for selection of statistical methods.
6. Demonstrate reliable data management using EpiData, SPSS, and other statistical software. [Apply basics techniques with vital statistics and public health records in the description of public health characteristics and public health research and evaluation.]
7. Apply descriptive techniques to summarize public health data. Explore and describe data using summary statistics, frequency tables, and exploratory plots.

8. Apply common statistical methods of inference. Calculate and interpret confidence intervals and significance tests for comparing means, variances, risks, correlation coefficients, and regression coefficients.
9. Identify appropriateness of statistical methods based on validity and distributional assumptions. Describe methodological alternatives to commonly used statistical methods when assumptions are not met.
10. Interpret results of statistical analyses found in public health studies.
11. Apply statistical methods in examples drawn from public health practice. Develop written and oral presentations based on statistical analyses for public health professionals and educated lay audiences.

Rules for independent work* and Academic Integrity†

You may collaborate on labs. Homework exercises must be done entirely on your own. You may use your Procedure Notebook on exams and quizzes (see separate list of rules for Procedure Notebooks), but you may not use published (print or web) materials other than those items expressly permitted in written form when working on exams and quizzes. You may not communicate about examination materials, even indirectly, with anyone other than the instructor.

Why do we devote so much attention to the rules and ethics for collaborating on course work? Despite the fact that intellectual honesty is essential to learning, cheating, plagiarism, and other forms of academic dishonesty are widespread in schools and universities. For example, a recent article (“Fuqua students may face expulsion”, Durham Herald-Sun, 4/28/2007, A1,A4) reported on 37 Duke business students accused of cheating on a take-home exam. The article also mentioned a Center for Academic Integrity 2002-2004 survey of American MBA students in which 56% reported having cheated. As unpleasant as this seems, plagiarism and cheating are common in higher education.

“Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the University's Academic Integrity Policy requires you to be honest in all your academic courses. Faculty are required to report all infractions to the office of Judicial Affairs.” The SJSU policy on academic integrity can be found at www2.sjsu.edu/senate/S04-12.htm

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.

University Drop Policy Please see Schedule of Classes for details about drop policies and procedures.

Grades – The components of your grade appear on a separate tab on the course calendar. The letter grade cutoffs are as follows:

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–	

* Based partially on materials provided by UNC Professor Vic Schoenbach.

† From the Office of Student Conduct & Ethical Development / Judicial Affairs.