

Biostatistics (HS167)
Fall 2005
San Jose State University
Dept. of Health Science

Prerequisites	Undergraduate students: completion of the GE Math (B4) requirement with a statistics course or permission of the instructor. Graduate students: graduate student standing with completion of GRE exam.
Website	www.sjsu.edu/faculty/gerstman/hs167 There is a link to this page on www.sjsu.edu/biostat <i>The website includes the course calendar, schedule of topics, and exam dates.</i>
Professor	B. Gerstman, DVM, MPH, PhD Email: gerstman@email.sjsu.edu Office: MH514 Office hours: please see www.sjsu.edu/faculty/gerstman to be determined.
Assistant	Cheryl Mariscal-Hergert
Lecture	Tuesdays 3:00 - 4:15 in SH100
Lab activities (all labs in MH321)	Section 2: Tu 4:30 - 5:45 Section 3: We 12:00 - 1:15 Section 4: Th 3:00 - 4:45 (end time mistaken in my.sjsu.edu) Section 5: Mo 3:00 - 4:45
Required materials	(1) <i>Course Lecture Notes</i> . Available in Spartan bookstore. (2) <i>Lab Manual</i> . Available in Spartan bookstore. (You must purchase the bound manual.) (3) <i>Statistical calculator</i> You may use any statistical calculator, but only the TI-30XIIS will be supported. (4) Quadrille-ruled composition notebook (for your <i>Procedure Notebook</i>).
Optional materials	(1) <i>SPSS</i> Statistical Software (student version 11 or higher). (2) <i>Statable</i> probability calculator (Web version, Windows version, or Palm version → free via www.cytel.com/statable/)
Academic integrity	It is students' responsibility to be aware of and adhere to the SJSU Academic integrity policy. Principles and policies are laid out on http://sa.sjsu.edu/judicial_affairs/index.html . Academic dishonesty type defrauds all those who depend upon the integrity of the University, its courses, and its degrees. The public is defrauded if faculty knowingly or unwittingly allow dishonest acts to be rewarded. Claiming the work of others as your own is plagiarism. (See section on HW for further clarification.)

Objectives

Learning objectives by unit include:

- 1 Measurement and sampling—To understand that statistics is not merely a compilation and computational techniques; to define what is meant by *measurement*; to identify measurement scales of variables; to understand the GIGO principle; to differentiate measurement error from processing error; to be able to select a simple random samples from a population.
- 2 Frequency Distributions—To be able to construct and interpret stem-and-leaf plots; to be able to compile and interpret professional-quality frequency tables and histograms.
- 3 Summary Statistics—To calculate, interpret, and avoid the misuse of means, median, standard deviations, quartiles, and interquartile ranges; to be able to construct and interpret boxplots.
- 4 Probability—To define probability; to be able to calculate and interpret binomial probabilities; to be able standardize scores, use the *z* table, and determine Normal percentiles and probabilities.
- 5 Introduction to estimation—To understand the logic of the sampling variability of a mean by understanding its sampling distribution; to estimate μ when σ is known (confidence interval based on *z*); to estimate μ when σ is *not* known (confidence interval based on *t*); to determine a reasonable sample size required to estimate μ with given precision.
- 6 Introduction to hypothesis testing—To understand the logic of testing a statistical claim; to test a mean when σ is known (one-sample *z* test); to test a mean when σ is *not* known (one-sample *t* test).
- 7 Paired samples—To discern between paired and independent samples; to explore and describe paired samples; to calculate 95% confidence intervals for a mean difference based on paired samples; to test a mean difference for significance; to determine the approximate power of a *t* test.
- 8 Independent samples—To explore the difference between two independent samples; to calculate and interpret a 95% confidence interval for an independent mean difference; to test an independent mean difference; to determine the sample size requirements for a *t* test.
- 9 Inference about a proportion—To calculate a 95% confidence interval for a proportion (Normal approximation method); to test a proportion for significance (Normal approximation method); to determine the sample size needed to estimate a proportion with given precision.
- 10 Cross-tabulated counts and independent proportions—To compare independent proportions; to test independent proportions for a difference with a chi-square test.

GRADING

Your grade will be based on a weighted average of your HW scores (33%), midterms (33%), and final (33%). Exam dates are posted on the website.

Grade cutoffs are: $A \geq 92$, $90 \leq A- \leq 91$; $88 \leq B+ \leq 89$; $82 \leq B \leq 87$; $80 \leq B- \leq 81$, and so on.

An example of a grade calculation is included here to help you understand how to calculate your grade based on this weighting scheme:

Component	% Correct	×	Weight	=	Points
Homework Avg.	94	×	0.33	=	31.3
Midterm 1	90	×	0.17	=	15.0
Midterm 2	80	×	0.17	=	13.4
Final	85	×	0.33	=	28.1
					87.7
					Grade: B+

Homework

1. Homework is assigned each Tuesday and is due at 3:00pm (no later) the following week. Late assignments will not be accepted without *prior* permission of the instructor. (No exceptions.)
2. Homework is essential for your learning. Please be diligent in doing homework.
3. Exercises are posted on the *StatPrimer* website (linked the course website). Do not print the exercises before they are assigned. Check the version date on the printout to make certain you are doing the correct assignment.
4. You may collaborate on odd-numbered problems.
5. You may *not* collaborate on even-numbered problems. Do not copy answers on even numbered problems. Copying of this sort is *plagiarisms*. Plagiarism will be reported and will result in an automatic F in the course.
6. Read each question carefully. If you do not understand the question, *do not hesitate* to ask questions in lecture, lab, or via the online discussion group.
7. Everyone is expected to subscribe to the online discussion group. The easiest way to subscribe is to send an email message to hs167-subscribe@yahoogroups.com.¹ Questions and responses should be sent to hs167@yahoogroups.com. Everyone in the class will receive copy of posted message. Please respond to your classmates' questions.
8. Graded assignments are returned in class the week after they are due. If you do not pick up your assignment in class, it will be placed in the pick-up in lab.
9. It should go without saying, but just a reminder: work *neatly*, use *judgement*, use proper *grammar*, pay attention to accuracy, do not over-simplify, etc.

¹ Use of all Yahoo! groupware functions requires you must attach your Yahoo ID to your group membership.