

**Introductory Health Statistics (HS 067) Section 4
Fall 2008**

GE Area B4 (Mathematical Concepts)
Department of Health Science
San Jose State University

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| Professor: Bud Gerstman | B.B.Gerstman@sjsu.edu |
| Meeting times: Tu & Th 10:30–11:45 in SB 253 | Office: MH 514 |
| Website: www.sjsu.edu/biostat → click “hs 67” | (408) 924-2978 |
| Dr. Gerstman’s Office hours: please see www.sjsu.edu/faculty/gerstman until further notice | |

Course Description: This course provides a practical introduction to statistical methods used in a variety of health and human service settings. Concepts are illustrated with examples that demonstrate how principles operate and are applied to common health problems.

Prerequisite: Satisfaction of university Entry Level Math (ELM) requirements.

Required Materials

1. *Textbook:* Moore, D. S. (2007). *The Basic Practice of Statistics. Fourth Edition.* New York: W. H. Freeman and Company.
2. *Statistical calculator:* The TI-30XIIS will be supported. You may also use a TI-8x [graphing] calculator, but this model will not be supported in class.
3. *Graph paper:* four lines per inch.

General Education Objectives (Area B4): The primary goal of GE area B4 is to enable the student to use numerical and graphical data in personal and professional judgments and in coping with public issues. Learning objectives for area B4 GE courses are:

1. To use mathematical methods to solve quantitative problems, including those presented in verbal form.
2. To demonstrate the ability to use mathematics to solve real life problems.
3. To arrive at conclusions based on numerical and graphical data.

These learning objectives are addressed in virtually every unit we cover.

Content includes:

“*Diversity.* Issues of diversity should be incorporated in an appropriate manner.” Diverse populations are sampled using statistically valid techniques. Variability in populations is addressed graphically (e.g., stemplots, histograms, bar charts, scatterplots) and numerically (e.g., interquartile range, standard deviations).

“*Writing.* The minimum writing requirement is 500 words in a language and style appropriate to the discipline.” Writing assignments consist of two to three statistical reports and narrative responses on exams. Reports are graded based on appropriate use of statistical methods, accurate results and conclusions, organization of the report (Purpose, Methods, Results, Discussion, References), and mechanics of writing (word choice, logic, grammar, spelling,

punctuation, citations and references). A separate handout available on the course website describes the writing assignment.

The curriculum follows selected chapters in the textbook by Moore (see website for topics and coverage) and includes content on a) basic mathematical techniques for solving quantitative problems, b) elementary numerical computation, c) organization, classification, and representation of quantitative data in various forms including the use of tables, graphs, rates, percentages, measures of central tendency and spread, d) application of mathematics to everyday life as they apply to health outcomes, and e) applications of mathematical concepts to statistical inference.

The SJSU General Education Board would like you to know that courses that meet Areas R, S, and V for SJSU Studies courses must be taken from three different departments or distinct academic units.

Course Organization

The course meets twice weekly. In general, the first class each week is devoted to lecture and the second class session is devoted to discussing problem sets.

Attendance: You must attend *every* class. If you miss a class, you are responsible for catching-up on materials covered in the missed class as soon as reasonably possible. This will require extra work and effort. The SJSU policy on attendance states: “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class” (SJSU academic senate F69-24).

| Learning Objectives Specific to the Course | Chapter assignments* |
|--|----------------------|
| 1. Calculate, display, and interpret “rates” and proportions used in studies of health and disease. | 1, 2, 4, 6 |
| 2. Organize and present data using tables, graphs, and summary statistics. | 1, 2 |
| 3. Use probability as a tool for addressing random variation in statistical relationships. | 10, 11, 14, 18, 19 |
| 4. Calculate and interpret confidence intervals for means and differences in means. | 14, 18, 19 |
| 5. Understand the conceptual basis of significance testing; calculate and interpret statistical tests for means and mean differences (paired and independent samples). | 11, 15, 18, 19 |
| 6. Determine sample size requirements for selected types of statistical inferences. | 11, 14, 15, 18 |

* Problem sets are posted each week. See website for specific assignments and due dates.

Academic Integrity (from the Office of Student Conduct & Ethical Development)

“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 course work. 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 the Schedule of Classes for details about drop procedures.

ASSIGNMENTS AND ACTIVITIES

| Component | Description | % of grade |
|---------------------|--|------------|
| Homework exercises | Homework sets are assigned every week. Late papers will not be accepted. | 20% |
| Participation | In-class problem-solving. | 10% |
| Statistical Reports | See separate handout posted on the website. | 10% |
| Exams | Midterms and final (closed-book). | 60% |
| Total | | 100% |

Grades cutoffs:

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|---------|----|--------|----|--------|----|--------|----|-----------|---|
| 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- | | |

Example of a grade calculation:

| COMPONENT | % EARNED | × | weight | = | contribution |
|---------------------------|----------|---|--------|---|--------------|
| HW exercises | 95 | × | .20 | = | 19.00 |
| Participation | 95 | × | .10 | = | 9.50 |
| Statistical report | 85 | × | .10 | = | 8.50 |
| Midterm #1 | 92 | × | .20 | = | 18.40 |
| Midterm #2 | 82 | × | .20 | = | 16.40 |
| Final | 85 | × | .20 | = | 17.00 |
| Weighted average = | | | | | 88.80 |
| | | | | | Grade: B+ |

The course schedule and assignments are posted on the Web site and are part of the syllabus by reference.