Computational Public Health Statistics (HS 267)  
SPRING 2007  
Department of Health Science  
San Jose State University

**Description:** Methods of public health and biostatistical data collection, management, analysis and reporting using microcomputers, including the detection and control of confounding factors.

**Prerequisite:** HS167 or equivalent.

Website:  [www.sjsu.edu/biostat](http://www.sjsu.edu/biostat) → click HS 267 direct URL:  
[www.sjsu.edu/faculty/gerstman/hs267](http://www.sjsu.edu/faculty/gerstman/hs267)

Class: The class meets every Thursday from 3:00 – 5:45 in MH 321

Professor: B. Gerstman, Phone: (408) 924-2978, Office: MH514,  
[B.B.Gerstman@sjsu.edu](mailto:B.B.Gerstman@sjsu.edu)

Office hours: Tu & Th 10:30 – 11:45 and We 2:00 – 2:45 and by appointment.

Required materials:  
2. *Statistical calculator* (the TI-30XIIS will be supported).
3. *Graph paper*. Four lines per inch.
4. College of Applied Sciences and Arts computer account (sign up during first lab).
5. Reliable world-wide web access.

Optional materials:  
1. *SPSS* (version 11 or higher) — although all the software you need is available in the lab, and the lab has open- hours each week ([www.casa.sjsu.edu](http://www.casa.sjsu.edu)), many students find it useful to have their own copy of *SPSS*.

The calendar and assignments are posted online and are included as part of this syllabus by reference.

**Objectives**

The following objectives meet CEPH accreditation expectations:

1. Describe the roles biostatistics serves in the discipline of public health.
2. Identify principles of measurement and study design with application to public health studies.*
3. Apply descriptive techniques and inferential statistics as appropriate for answering particular research questions.*
4. Describe basic concepts of probability, random variation, and commonly used statistical probability distributions.*
5. Distinguish between different measurement-scales, with implication for selection of statistical methods. [Expanded explanation of #2.]
6. Demonstrate reliable data management and analysis using appropriate data base and statistical software (e.g., SPSS and EpiData).
7. Apply descriptive techniques commonly used to summarize public health data. Explore and describe data using summary statistics frequency counts and tables, and exploratory plots. [Expansion of #3.]
8. Apply common statistical methods of inference including confidence intervals and tests of significance in comparing means, variances, risks, and correlation and regression coefficients. [Expansion of #3.]

9. Identify appropriateness of statistical methods based on validity and distributional assumptions. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.

10. Interpret results of statistical analyses found in public health studies.

11. Demonstrate reliable data management and analysis using EpiData, SPSS and other statistical software packages.

12. Apply statistical methods in examples drawn from public health and health education practice. Develop written and oral presentations based on these statistical analyses for public health professionals and educated lay audiences.

* Primary coverage introduced in HS 167.

**Educational objectives include** improving reasoned judgment, learning how to recognize pseudoscience, learning the strengths and limitations of data exploration, and learning to interpret inferential statistics intelligently.

**Course Organization.** The course meets weekly for 2¾ hours. In general, the first half of class is devoted to lecture and the second half of class is devoted to lab. It is important for you to attend every class session. 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. Here is part of the SJSU policy on this issue: “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).

**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](http://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.
Grades

Your course grade is based on a weighted average of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>% of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework exercises</td>
<td>Homework exercises. Late papers will not be accepted.</td>
<td>20%</td>
</tr>
<tr>
<td>Lab work</td>
<td>In-class lab exercises and problem-solving</td>
<td>15%</td>
</tr>
<tr>
<td>Exams</td>
<td>Midterms and final (closed-book, formula card allowed).</td>
<td>65%</td>
</tr>
</tbody>
</table>

Total: 100%

Grades cutoffs:
- best in class
  - A+ 89-87%
  - B+ 79-77%
  - C+ 69-67%
  - D+ Below 60%
  - F
- 99%-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:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>% EARNED</th>
<th>weight</th>
<th>contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW exercises</td>
<td>100</td>
<td>.20</td>
<td>20.00</td>
</tr>
<tr>
<td>“Participation”</td>
<td>100</td>
<td>.15</td>
<td>15.00</td>
</tr>
<tr>
<td>Midterm #1</td>
<td>100</td>
<td>.20</td>
<td>20.00</td>
</tr>
<tr>
<td>Midterm #2</td>
<td>82</td>
<td>.20</td>
<td>16.40</td>
</tr>
<tr>
<td>Final</td>
<td>85</td>
<td>.25</td>
<td>21.25</td>
</tr>
</tbody>
</table>

Weighted average = 92.65

Grade: A

The course homepage (www.sjsu.edu/biostat → click HS 267) is “page 4” of this syllabus.