SOCIOMETRY 7: STATISTICS FOR SOCIAL SCIENTISTS
Summer 2012

INSTRUCTOR: Szonja Ivester
OFFICE: Room 468, Barrows Hall
EMAIL: szonja@berkeley.edu

LECTURES: Tues, Wed, Thurs 2-4 pm
LECTURE HALL: Room 170, Barrows Hall
OFFICE HOURS: Thursdays 12:30-1:30

COURSE DESCRIPTION
Sociology 7 is a first course in statistics, covering basic concepts of descriptive and inferential statistics. The topics include graphical displays of data; summary statistics; the binomial and normal distributions; correlations and least squares; simple research designs; probability and random variables; and inferences about means, counts, and simple regression. Students will analyze and display small bodies of data using computers and calculators, and will interpret and evaluate research findings. By the end of the semester, students should be able to summarize data by using graphs, tables, measures of central tendency and spread; compute and interpret correlations and regressions for pairs of variables; use probability concepts to explain random sampling; understand a sampling distribution and its application in inferential statistics; and perform basic statistical inference such as testing hypotheses and calculating and explaining confidence intervals.

COURSE MATERIALS


Web Resources: Moore’s text comes with many useful online supplements that you are encouraged to explore (http://bcs.whfreeman.com/bps5e). These include self-quizzes, additional exercises, statistical applets, and data sets. All of the materials available on the free site are on the CD that comes with your textbook.

SDA (Survey Documentation and Analysis): This is a web-based software program for the analysis of survey data. It is free, it is nicely documented, and it is user-friendly. We will use it for homework assignments as well as for our take-home exams. For more information, see http://sda.berkeley.edu.
**Course Requirements**

**Lectures:** Lectures will focus on basic concepts and their application. Attendance and participation are expected and they will contribute 30% towards your final grade. Beginning with the second week of classes (4th lecture), you will need to bring a 3x5 ruled index card with you each time we meet. You will use these index cards to submit at least one sentence of reaction to that day’s class, indicating what you learned, or something you liked or did not like, found interesting or controversial, found clear or too simplistic, or found confusing and in need of further (or better) explanation; you may also submit comments on the course in general. Please note that you can submit a "reaction" only if you were actually in class. You will get 2 point for each daily reaction submitted, 0 otherwise.

**Homework Assignments:** In order to provide you with hands-on experience with statistics in sociology, I will ask you to complete a series of homework assignments. There will be a total of 5 such assignments. I will hand out homework assignments on Tuesdays in class and you will be expected to hand in your completed work on the following Thursday. Homework assignments are due at the beginning of class on the following Tuesdays: June 21st, June 28th, July 19th, July 26th, July 31st, and August 2nd. You are encouraged to talk to each other about your homework assignments (indeed, we will use some of our class time to discuss them), but the work that you hand in must be your own.

These assignments will jointly count towards 30% of your overall grade (each is worth 4%). You will receive full marks (4 points) on your assignment only if your work is on time, complete, substantially correct, and well documented. Late homework assignments will not be accepted unless (1) you have a doctor’s notice that you were prevented from completing your work, or (2) you have secured my permission (by email) in advance of the submission deadline that a late submission would be accepted. In either case, the maximum points that you will be able to earn on a late homework assignment are 3, instead of the usual 4.

**Take-Home Exams:** There will be two take-home examinations in this class. Both of these will take the form of a mini statistics projects, requiring you to analyze a set of data and to interpret your results. Your first exam is scheduled for Thursday, July 12th and the second is for Thursday, August 9th. On these days we will not meet as a class so you are free to work on your mini project alone. In the case of both of these exams, I will distribute you exam on at the end of class on Tuesday and your work is due at 4:00 pm in my office (Room 468 Barrows Hall) on the day of the exam.

The exams will count towards 50% of your overall grade (with each exam counting 25%). You will receive full credit (25 points) for your exam if it is on time, complete, substantially correct, sensible, and well documented. Late exams will not be accepted unless (1) you have a doctor's notice that you were prevented from completing your work, or (2) you have secured my permission (by email) in advance of the submission deadline that a late submission would be accepted. In either case, the maximum points that you will be able to secure on a late exam are 20 instead of the usual 25.
**Final Grades**

Your final grade in this class will be based on your performance on the two take home exams (50%), your homework assignments (30%), and your class participation (20%). In assigning final grades, I will use the following basic scheme:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>95 – 100.99%</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 94.99%</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.99%</td>
</tr>
<tr>
<td>B</td>
<td>83 – 86.99%</td>
</tr>
<tr>
<td>B-</td>
<td>80 – 82.99%</td>
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<tr>
<td>C+</td>
<td>77 – 79.99%</td>
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<tr>
<td>C</td>
<td>73 – 76.99%</td>
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<tr>
<td>C-</td>
<td>70 – 72.99%</td>
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<td>D+</td>
<td>67 – 69.99%</td>
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<td>D</td>
<td>63 – 66.99%</td>
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<tr>
<td>D-</td>
<td>60 – 62.99%</td>
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<tr>
<td>F</td>
<td>00 – 59.00%</td>
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</table>

In this grade-inflated world of ours I’m not opposed to the idea of awarding students an A+ for exceptional work. However, in order to earn such a grade, you will have to earn a minimum of 101 points in this class. There will be no extra credit work assigned in Sociology 7, so your only way to secure these points is to turn in exemplary work throughout the course.

**Cheating and Plagiarism**

Academic dishonesty is not tolerated at Berkeley. If you are found to be cheating on assignments or to be engaging in scholarly misconduct, you will receive no credit for that task. “Helpfully” signing in a friend for class participation will result in both of you failing the class participation of your total grade.

**Class Website**

I have set up a bSpace website for the class. You can find here a copy of the syllabus, an electronic version of our class schedule, PDF files for some of the assigned readings (under “Resources”), handouts and lecture notes (also under “Resources”). This is also where you will find announcements from me and see your grades. It is essential that you gain access to our class website as soon as possible because (1) many of our required readings reside here and (2) your homework assignments will be posted here.

How do you log in to bSpace? Log in to http://bspace.berkeley.edu with your CalNet ID and Passphrase. If you are enrolled through Telebears, you should see a tab at the top of the screen for our course when you log in. If you are enrolled in more than one course using bSpace you will, of course, see a tab for each course. If you are a concurrent enrollment student you cannot be assigned bSpace access until the status of your application is “Approval Completed.” It is your responsibility to make sure that your application is reviewed and approved in a timely fashion. If you have questions about this, please email concurrent@unex.berkeley.edu.
# COURSE TIMELINE

<table>
<thead>
<tr>
<th>DATE</th>
<th>FOCUS</th>
<th>DEADLINES &amp; ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, June 19</td>
<td>What is Statistics?</td>
<td>Hand out HW #1</td>
</tr>
<tr>
<td>Wednesday, June 20th</td>
<td>Data and Variables</td>
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<tr>
<td>Thursday, June 21st</td>
<td>Describing Distributions with Numbers</td>
<td>Collect HW #1</td>
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<tr>
<td>Tuesday, June 26th</td>
<td>The Normal Distribution</td>
<td>Hand out HW #2</td>
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<td>Wednesday, June 27th</td>
<td>Scatterplots and Correlation</td>
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<td>Thursday, June 28th</td>
<td>Simple Regression</td>
<td>Collect HW #2</td>
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<tr>
<td>Tuesday, July 3rd</td>
<td>No Class - HOLIDAY</td>
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<tr>
<td>Wednesday, July 4th</td>
<td>No Class - HOLIDAY</td>
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<td>Thursday, July 5th</td>
<td>Interpreting Regression</td>
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<td>Tuesday, July 10th</td>
<td>Categorical Data: Cross-Tabulation</td>
<td>Hand out First Exam</td>
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<tr>
<td>Wednesday, July 11th</td>
<td>Catch-Up and Review</td>
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<tr>
<td>Thursday, July 12th</td>
<td>First Take-Home Exam</td>
<td>Due in my office by 4pm</td>
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<tr>
<td>Tuesday, July 17th</td>
<td>Producing Data: Sampling</td>
<td>Hand out HW #3</td>
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<td>Wednesday, July 18th</td>
<td>Producing Data: Experiments</td>
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<tr>
<td>Thursday, July 19th</td>
<td>Randomness &amp; Probability Models</td>
<td>Collect HW #3</td>
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<tr>
<td>Tuesday, July 24th</td>
<td>Sampling Distribution</td>
<td>Hand out HW #4</td>
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<tr>
<td>Wednesday, July 25th</td>
<td>Confidence Intervals</td>
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<td>Thursday, July 26th</td>
<td>Significance Tests</td>
<td>Collect HW #4</td>
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<td>Tuesday, July 31st</td>
<td>Inference for the Mean</td>
<td>Hand out HW #5</td>
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<td>Wednesday, August 1st</td>
<td>Inference for Two Means</td>
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<tr>
<td>Thursday, August 2nd</td>
<td>Inference for Two-Way Table</td>
<td>Collect HW #5</td>
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<tr>
<td>Tuesday, August 7th</td>
<td>Inference for Regression</td>
<td>Hand out Second Exam</td>
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<tr>
<td>Wednesday, August 8th</td>
<td>HW #6 due in class</td>
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<tr>
<td>Thursday, August 9th</td>
<td>Catch-Up and Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second Take-Home Exam</td>
<td>Due in my office by 4pm</td>
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</tbody>
</table>
You are responsible for the "required readings" listed in this section of the syllabus. These are the only readings that I expect you to complete and these are also the only readings on which I will test you in your homework assignments as well as in our exams. From time to time, I have included a few "recommended readings" in this syllabus. These are intended to help you understand basic concepts and ideas, clarify complicated issues and procedures, as well as illustrate the ways in which statistics are applied in actual research. You are not required to consult these readings in the sense that I will not test you on these materials in class. However, you will likely find them useful and I will most definitely refer to them in class.

**WHAT IS STATISTICS?**

*Required Readings:*

*Recommended Readings:*

**DATA AND VARIABLES**

*Required Readings:*

*Recommended Readings:*

**DESCRIBING DISTRIBUTIONS WITH NUMBERS**

**Required Readings:**

**Recommended Reading:**

**NORMAL DISTRIBUTION**

**Required Reading:**

**Recommended Readings:**
SCATTERPLOTS AND CORRELATION

Required Readings:


Recommended Readings:


SIMPLE REGRESSION

Required Readings:


Recommended Readings:


INTERPRETING REGRESSION

Required Reading:


**Recommended Readings:**


**CATEGORICAL DATA: CROSS-TABULATION**

**Required Readings:**


**Recommended Readings:**


**PRODUCING DATA: DESIGNING SAMPLES**

**Required Readings:**


**Recommended Reading:**

PRODUCING DATA: DESIGNING EXPERIMENTS

Required Readings:


Recommended Readings:


RANDOMNESS AND PROBABILITY MODELS

Required Readings:


Recommended Readings:


SAMPLING DISTRIBUTIONS

Required Reading:


Recommended Reference:

Required Readings:


**CONFIDENCE INTERVALS**

**Required Readings:**


**Recommended Readings:**


**SIGNIFICANCE TESTS**

**Required Readings:**


**Recommended Readings:**

INFERENCE FOR THE MEAN

Required Reading:

Recommended Readings:

COMPARING TWO MEANS

Required Reading:

Recommended Readings:

INFERENCE FOR TWO-WAY TABLES

Required Reading:

Recommended Readings:
**Inference for Regression**

*Required Readings:*

*Recommended Readings:*