Sociology 360, Statistics for Sociologists I
Lecture 1, Spring 2009

Prof:	Christine R. Schwartz	Office hours:	Wed 10:30am-Noon,
	4404 Sewell Social Science		or by appointment
	262-5791		
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TA:	Nicole Butkovich Kraus	Office hours:	Tues 8:45-10:45am,
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Classes: Tuesdays and Thursdays, 11:00am-12:15pm, 4308 Sewell Social Science

Labs: Section 301: Fridays, 1:20pm-3:15pm, 6109 Sewell Social Science
Section 302: Fridays, 3:30pm-5:25pm, 6109 Sewell Social Science

(Note: When we use STATA in lab, the mobile computer lab will come to the 1:20-3:15pm lab's regular classroom [6109 Social Science]. For the 3:30-5:25pm lab, many sessions will be held in the computer classroom in 3218 Social Science.)

Course description: This is a first course in statistics designed for students in the social sciences. The first part of the course focuses on descriptive statistics. We will cover strategies for exploring and interpreting data and for examining relationships between variables. Topics covered include: describing data with bar charts, boxplots, and histograms; summary statistics; the normal distribution; scatterplots and correlation; regression; and two-way tables. We will also discuss the strengths and weaknesses of various methods of data production.

The second part of the course focuses on statistical inference. In this part of the course, we will discuss the logic and methods of making inferences about populations from sample data. In so doing, you will learn how to test hypotheses with a variety of statistical tests. Topics in this section include: the meaning of statistical significance, how to calculate confidence intervals, and how to conduct statistical tests for means, count data, and regressions. Throughout the course, you will analyze small bodies of data and write up your findings.

Prerequisites: Sophomore standing and basic algebra skills.

Course website: The course website is available through Learn@UW. If you are enrolled in the course, you can access the site by going to http://learnuw.wisc.edu and entering your NetID and password. Once there, click on the link to Soc 360 under "My Madison Courses."

Course materials:

Required Text: Moore, Davis S. 2007. *The Basic Practice of Statistics,* **Fourth Edition.** New York: W.H. Freeman. (Available at the University Bookstore.)

Optional Text:

- o Fligner, Michael A. and William I. Notz. 2006. *Study Guide for Moore's the Basic Practice of Statistics, Fourth Edition.* New York: W.H. Freeman. (Available at the University Bookstore.)

  The study guide offers a review of each section's concepts and step-by-step solutions to selected problems.

STATA: We will be using the statistical package STATA for many of the homework problems. Your TA will be providing instruction in STATA in lab.

Outside of lab, you can access STATA in the Social Science Microcomputer classroom in 3218 Social Science if there is not another class being held there, or in 4218 Social Science, which is the primary lab for student drop-in use. You will also be able to access STATA remotely from home. Your TA will cover how to do this in lab. Finally, if you anticipate using STATA regularly and would like to purchase it, it is available for a reduced rate through the University. See http://www.ssc.wisc.edu/sscc/info/gradplan.htm for details.

Web Resources: Moore's text comes with many useful online supplements that you are encouraged to explore (http://bcs.whfreeman.com/bps4e). These include self-quizzes, additional exercises, statistical applets, and data sets. In addition, all of the materials available on the free site are on the CD that comes with your textbook.

Calculators: You will need a calculator for the homework assignments and exams. It should have a square root and a power function. For inexperienced calculator users, you will find it useful to buy a calculator for which the TA can give you instruction. I recommend the Texas Instruments TI-36X Solar (available at the University Bookstore Digital Outpost), which runs about $20. Instruction on how to use the TI-36X will be given in lab.

Homework:

There will be homework problems assigned for each lecture, which will usually be due at the *beginning* of class (11:00am) on Tuesdays. Homework received after 11:00am on Tuesdays will be counted as late. Problem sets will be returned in class on Thursday and discussed in lab.

Grading of Homework: Homework will be graded on a "+," "✓", "-" system. Exemplary assignments will be given "+"s (those that are virtually entirely correct and well-

documented), "✓"s will be given for good assignments, but which have significant deviations from the "+" standard, and "-"s will be given for poor or incomplete assignments. You may also receive a "✓⁺" or "✓⁻" as an intermediary grade. If you miss a week or turn in an exceptionally poor assignment, you will receive a "0." Correct answers will be provided and discussed in lab.

Penalty for Late Homework Assignments: Homework turned in after the due date but before the beginning of the lab session in which the answers to the assignment are discussed will receive a maximum score of a "✓." If the assignment would have received a "✓" if turned in on time, it will receive a "-." Homework will not be accepted after the beginning of the first lab session in which the assignment is discussed, that is, 1:20pm on Fridays. Turn in any late assignments to Professor Schwartz's box on the 4th floor of the Social Science building or to your TA.

If an emergency prevents you from turning in your homework on time, you may be able to get a short extension on the homework by contacting the TA **before** the assignment is due. In addition, since we understand that your schedule may not permit you to devote as much time as you would like to all of the homework assignments, your lowest score will be dropped when computing your final grade.

Cooperating on Homework Assignments: You are encouraged to discuss the problems on the weekly homework assignments with other students in the class to further your understanding of the material, but you must write them up independently.

Data analysis projects:

In addition to the homework, there will be two data analysis projects. These projects are meant to put the material presented by Moore into context and to help solidify what you have learned. The first is a short project that focuses on descriptive statistics and graphical display of data. The final project will require you to apply the skills you have learned throughout the course. Further details will be distributed in class.

Exams:

There will be three non-cumulative exams. Exam questions will consist of a mix of multiple choice, true/false, and open-ended questions, requiring you to interpret results, discuss appropriate analytic methods, and perform relevant calculations. You may bring your calculator to the exams but you must show enough handwork to demonstrate understanding.

Make-up Examinations. If you cannot take an exam because of an unavoidable scheduling conflict (e.g., religious holiday, athletic event), you must **contact the instructor** (not the TA) via email at least *2 weeks prior to the exam date.* If you have an emergency that prevents you from taking an exam, **contact the instructor as soon as possible**. Permission of the instructor is required in order to take a make-up exam. A

make-up exam will be scheduled either before or after the original exam date. Be aware that the make-up exam may be different from and more difficult than the original exam.

Lectures:

Lectures focus on basic concepts and their application as presented in Moore. Attendance and participation are expected, and will contribute to your final grade. Your participation grade will be based on your engagement with the material in class, for example, participating in group problem solving exercises, volunteering answers to questions, and asking clarifying questions.

Materials for Lecture. After the first week of class, you are required to bring your calculator and Moore's formula card to each lecture. The formula card will be posted to the course webpage.

Preparing for Lecture. You are responsible for reading the entire chapter for each topic, unless indicated otherwise on the schedule below. A good way to prepare for lectures is to read the chapter. After class, read the chapter again, do the homework problems (and more if you are having difficulty), and then read the text of the chapter again to solidify what you learned.

Labs: Labs will consist of review of the material covered in lecture, discussion of homework problems, and instruction in STATA. Attendance in lab is not required but students who miss lab do so at their own risk. Moreover, if your final grade in the class is on the border between two grades, participation in lab can bump you up into the next grade category.

Final Grades:

Final grades will be calculated as follows:

Exams	55% (15%, 20%, 20%)
Weekly homework	15%
Data analysis projects	25% (10%, 15%)
Attendance & participation	5%

Special Needs: To make special arrangements for testing, assignments, or other aspects of the course you must qualify for disability services through the McBurney Center. Their website has detailed instructions on how to qualify: http://www.mcburney.wisc.edu/. Please notify me within the first 2 weeks of class if you have or anticipate having authorization from the Center and we will make the necessary arrangements.

Academic Honesty: As with all courses at the University of Wisconsin, you are expected to follow the University's rules and regulations pertaining to academic honesty and integrity. Students are expected to know and follow the standards outlined by the Offices of the Dean of Students. See their website (http://www.wisc.edu/students/conduct/uws14.htm) for a complete description of behaviors that violate the University's standards as well the disciplinary penalties

and procedures. If you have questions about the rules for any of the assignments or exams, please ask me or your TA.

Departmental Notice: The Department of Sociology regularly conducts student evaluations of all professors and teaching assistants near the end of the semester. Students who have more immediate comments, complaints, or concerns about Sociology 360 should report them either to Professor Schwartz or your TA, or else to Professor Ivan Ermakoff, Associate Chair, 8116a Social Science (ermakoff@ssc.wisc.edu) or to Professor Doug Maynard, Chair, 8101 Social Science (maynard@ssc.wisc.edu).

Soc 360
Course Schedule
Spring 2009

NOTE: <u>The schedule below may change.</u> All announcements regarding schedule changes will be emailed to you or announced in lecture or lab. *You are responsible for keeping up to date on these changes.*

Week	Date	Topic	Chapter	Comments
1	T Jan 20	Introduction & picturing distributions	Ch. 1	
	R Jan 22	Picturing distributions, continued	Ch. 1	
2	T Jan 27	Describing distributions	Ch. 2	Include * section.
	R Jan 29	The normal distribution	Ch. 3	Include * section.
3	T Feb3	The normal distribution, continued	Ch. 3	
	R Feb 5	Scatterplots and correlation	Ch. 4	Data project 1 assigned.
4	T Feb 10	Regression	Ch. 5	
	R Feb 12	Regression, continued	Ch. 5	
5	T Feb 17	Categorical data: two-way tables	Ch. 6	
	R Feb 19	Producing data: sampling	Ch. 8	Data project 1 due in class (11:00am). Practice exam questions distributed.
6	T Feb 24	Review and catch-up		
	R Feb 26	**Exam 1 (Ch. 1-6)**		
7	T Mar 3	Producing data: experiments	Ch. 9	
	R Mar 5	Introducing probability	Ch. 10	Skip * section.
8	T Mar 10	Sampling distributions	Ch. 11	Skip * sections.
	R Mar 12	Confidence intervals: the basics	Ch. 14	
	T Mar 17	**Spring Break– No Class**		
	R Mar 19	**Spring Break– No Class**		
9	T Mar 24	Confidence intervals, continued	Ch. 14	
	R Mar 26	Tests of significance: the basics	Ch. 15	Include * sections.
10	T Mar 31	Tests of significance, continued	Ch. 15	Include * sections.
	R Apr 2	Inference in practice	Ch. 16	Skip * sections. Practice exam questions distributed.
11	T Apr 7	Review and catch up		
	R Apr 9	**Exam 2 (Ch. 8-11, 14-15)**		
12	T Apr 14	Inference about a population mean	Ch. 18	Final Project assigned.
	R Apr 16	Two-sample problems	Ch. 19	Skip * sections.
13	T Apr 21	Inference about a population proportion	Ch. 20	
	R Apr 23	Comparing two proportions	Ch. 21	
14	T Apr 28	Two categorical variables: the chi-square test	Ch. 23	Skip pages 566-568.
	R Apr 30	Inference for regression	Ch. 24	Skip the "Inference about Prediction" section (pp 596-600). Practice exam questions distributed.
15	T May 5	Catch up and Review		
	R May 7	**Exam 3 (Ch. 16, 18-21, 23-24)**		

Final project due by NOON on 5/12 in the CDE office (4412 Social Science Building).