Sociology 360, Statistics for Sociologists I
Lecture 1, Spring, 2012

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Classes: Tuesdays and Thursdays, 9:30-10:45 a.m., 6240 Sewell

Midterm exam: Tuesday, March 13, during class.

Final exam block: Thursday, 5/17/2012, 2:45PM - 4:45PM

Course description: This is a first course in statistics designed for students in the social sciences. The first part of the course focuses on using statistics to describe data. We will cover strategies for exploring and interpreting data and for examining the relationship 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 experiments and surveys as ways of producing data.

The second part of the course focuses on statistical inference, or using data from samples to understand larger populations. In this part of the course we will discuss some logic and methods of making inferences about populations from sample data. Topics covered in this section include: probability basics, the meaning of statistical significance, how to calculate confidence intervals, and how to conduct inference 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." I plan to put copies of my lecture slides on this site, usually the same day as the lecture.

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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.)

Stata: We will be using the professional statistical analysis package Stata for many of the homework problems. Your TA will be providing instruction about 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.

Web Resources: The textbook 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 originally came with your textbook.

Calculators: You will need a calculator that can do "two-variable statistics" for the homework assignments and exams. Such calculators should be able to compute correlations and simple two-variable regressions. These calculators are relatively inexpensive, usually not more than $15. You might check with your TA for a recommended model. *Programmable* calculators are not permitted during exams.

Homework:

There will be homework problems assigned for each chapter, which will usually be due at the *beginning* of class on Thursdays on the *week after* the discussion of the chapter was completed in lecture. Homework received after the assigned time will be counted as late. Problem sets will usually be returned in class the next week and then discussed in lab.

Grading of Homework: Homework will be given one of four marks: zero, passable, good or outstanding. Work marked zero must be redone and resubmitted, but cannot then receive a mark any better than "passable." Correct answers will be provided and discussed in lab.

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. Homework turned in after the due date but by the beginning of Tuesday's class will receive one mark lower than if turned in on time. If the assignment would have received a "good" if turned in on time, it will receive a "passable." Homework will not be accepted after the beginning of class on the Tuesday after it was due. You may turn in late assignments to your TA or in class on Tuesday. 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

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homework assignments, your lowest score will be dropped when computing your final grade.

Cooperating on Homework Assignments: You may discuss the problems on the weekly homework assignments with other students in the class to further your understanding of the material, but you must do any computations and complete your write-ups 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 one midterm and a final exam. The midterm will cover Chapters 1 - 6, 8 and 9. The final will cover (only) the remaining chapters starting from Chapter 10. 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 (non-programmable) 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.

Materials for Lecture. After the first week of class, you are expected to bring your calculator to each lecture.

Preparing for Lecture. You are responsible for reading the entire chapter for each topic scheduled to be started during a lecture, unless indicated otherwise. A good way to prepare for lectures is to read the chapter and skim the problems. After class, read the

chapter again, do the assigned 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 expected and may contribute to your final grade.

Final Grades:

Final grades will be calculated as follows:

Midterm exam	25%
Final exam	30%
First data analysis project	10%
First data analysis project	15%
Weekly homework	15%
Attendance & participation	5%

To assure proper weighting of the components (as listed above), grades will be curved as appropriate, and then transformed to this standard scale before calculating the final grade: A = [94, 100], AB = [88, 94), B = [82, 94), BC = [76, 82), C = [70, 76), D = [60, 70), F = [0, 60).

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 two 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/saja/misconduct/misconduct.html) 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 Logan or Ms. Wiegel, or else to Professor Mara Loveman, Associate Chair, or Professor James Montgomery, Chair, 8101 Social Science.

Soc 360 Course Schedule, Spring 2012

NOTE: The "Chapter or topic" column indicates when I expect to begin discussing each chapter (after finishing up the previous one if needed). You are responsible for having read the scheduled chapter before class. The notation "included stared section" refers to sections of the book that are marked with asterisks. *The schedule below may change.* Announcements regarding schedule changes will be announced in lecture or lab. *You are responsible for keeping up to date on these changes.*

Week	Ses.	Date	Chapter or topic	Homework problems
1	1	T Jan 24	1. Picturing distributions	1.6, 1.8, 1.10, 1.24, and 1.32.
	2	R Jan 26	2. Describing distributions (Include starred section.)	2.6, 2.9, 2.30, 2.40, 2.44
2	3	T Jan 31	*(continuation)*	
	4	R Feb 2	3. The normal distribution (Include starred section.)	3.10, 3.14, 3.32, 3.34, 3.36, 3.38, 3.40.
3	5	T Feb 7	*(continuation)*	
	6	R Feb 9	4. Scatterplots and correlation.	4.7, 4.8, 4.11, 4.24, 4.26, 4.35.
4	7	T Feb 14	5. Regression	HW5: 5.9, 5.12, 5.31, 5.42.
	8	R Feb 16	*(continuation)*	
5	9	T Feb 21	6. Two-way tables.	HW6: 6.2, 6.4, 6.6, 6.8, 6.19 to 6.23.
	10	R Feb 23	8. Producing data: sampling.	8.2, 8.4, 8.9, 8.12, 8.27, 8.50
6	11	T Feb 28	9. Producing data: experiments	HW9: *9.4, 9.12, 9.14, 9.36, 9.42, 9.45.*
	12	R Mar 1	*(continuation)*	
7	13	T Mar 6	10. Introducing probability (Include starred section.) (NOT INCLUDED ON MIDTERM.)	10.4, 10.6, 10.10, 10.12, 10.15
	14	R Mar 8	REVIEW FOR MIDTERM EXAM	
8	15	T Mar 13	MIDTERM EXAM	
	16	R Mar 15	11. Sampling distributions. (Skip starred sections.)	Skip * sections. HW11: *11.2, 11.4, 11.6, 11.7, 11.8, 11.9, 11.38, 11.41.*
9	17	T Mar 20	*(continuation)*	
	18	R Mar 22	12. General rules of probability	12.1, .4, .5, .11, .17, .36, .41
10	19	T Mar 27	13. Binomial distributions	13.3, .6, .12, .22, .29
	20	R Mar 29	14. Confidence intervals	*14.1, 4, 6, 8,13, 17, 21, 22, 23, 34*
			Spring Break – No Classes, Apr 1 - Apr 7	
11	21	T Apr 10	15. Tests of significance (Include starred section.)	*15.2, 4, 7, 10, 14, 16, 19, 22, 25-28, 38, 47*
	22	R Apr 12	*(continuation)*	
12	23	T Apr 17	16. Inference in practice. (Include starred sections.)	*16.4, 16.9, 16.10, 16.34 (a & b only)*
	24	R Apr 19	18. Inference about a population mean	*18.6, 18.7, 18.8, 18.10, 18.28*

Week	Ses.	Date	Chapter or topic	Homework problems
13	25	T Apr 24	19. Two-sample problems. (Include starred sections, *except* the last one, on the F test.)	*19.6, 19.7, 19.9, .19.14, 19.16, 19.30, 19.32*
	26	R Apr 26	20. Inference about a population proportion	*20.3, 20.4, 20.9 [use the large sample CI formula], 20.12, 20.13, 20.16.*
14	27	T May 1	23. Two categorical variables. (Skip pages 566-568.)	*23.2 (do bar graph in Stata), 23.6, 23.8, 23.10, 23.12 (a & b only), 23.30.*
	28	R May 3	24. Inference for regression. (Skip the "Inference about Prediction" section, pp. 596-600.)	*24.1, .2, .7, .9, .14, .25, .41*
15	29	T May 8	*(continuation)*	
	30	R May 10	**REVIEW FOR FINAL**	
Final Exam will be given in scheduled exam period listed on page 1 of the syllabus.				