Sociology 360, Lecture 2: Statistics for Sociologists I, Spring 02/03

Professor: Nora Cate Schaeffer
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262-2182

Office Hours: 4438 Social Science
Wed 10:30 a.m.-12 p.m. (use sign-up sheet at office) or by appointment

TA: Jen Weaver
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263-3857

Office hours: 8144 Social Science
Wed 2:30-4:00 p.m.
or by appointment

Lectures: 11:00 -12:15, Tuesday and Thursday, Room 4308 Social Science

Labs: 321: 1:20-3:15 Thursday, 6314 Social Science
322: 7:45-9:40 Friday 6105 Social Science
(Note: Some lab sessions may be held in the Social Science Microcomputer Lab [SSML], Room 3218 Social Science.)

Turn off your cells phones at the beginning of lecture and lab.

Course Description: This course introduces you to statistics, with a focus on how they are used in social research. When you complete this course you should be able to use various tools, including graphs and tables, to describe a single variable and to summarize the distribution of a variable using measures of central tendency and spread. In addition, you should be able to use correlation and regression to describe the relationship between a pair of variables. To teach you the basis for statistical inference, this course discusses the concepts underlying probability sampling, what a sampling distribution is, and the role of a sampling distribution in statistical inference. You then apply these concepts by learning how to test hypotheses about means, proportions, regression coefficients, and pairs of means and proportions; you also learn to calculate the confidence intervals associated with these tests.

Prerequisites: Sophomore standing and basic algebra skills. This is an introductory course, so no previous experience in statistics is required.


There is a website where you view additional supplementary materials and get an extra copy of the formula card: http://www.whfreeman.com/bps/
If you download a copy of the formula card, review it carefully to make sure that all the “-“ and “^” print.
**Recommended books** (available at University Bookstore):


J. Theodore Anagnoson and Richard E. DeLeon. 1997. *StataQuest4.* Pacific Grove, CA: Duxbury Press. This book provides a small statistical software package that you may install on your home computer. It is available for those of you who wish to learn to use it on your own. It is **not required**, and we will not provide instruction in using StataQuest.

**Calculators and other materials:** You will need a calculator for the homework assignments and the exams. The calculator must be able to compute square roots and powers and have some statistical functions (mean, standard deviation, and correlation) built in. Moore provides some advice and recommendations. **You are responsible for learning how to use the statistical functions on your calculator. We do not provide instruction in how to use calculators** You will probably also want to buy some graph paper.

**Special Arrangements for Examinations.** If you have authorization from the McBurney Center for special arrangements for examinations, send me an email message so that we may review your situation. You must send me this email by the end of week 2. Rooms for exams are requested early and are very difficult to change.

**Lectures:** Lectures focus on basic concepts and their application. Attendance at lectures is not required, but is recorded (see **Grading**, below).

Copies of the transparencies for the first lectures will be provided in class. Copies of the overheads for later lectures will be available in a coursepack for sale at the Social Science Copy Center on the 6th floor of Social Science. Be aware that much of the explanation included in the lectures are not included on these transparencies. For the exams, you are responsible for what is covered in class, regardless of whether or not it appears on one of the handouts.

**Preparing for Lectures.** You will not usually need to bring your textbook to class. After the first few topics, you will need to have your formula card and calculator. Here is one way to study: To prepare for class, read the chapter, just skimming the problems, before it is covered in class. After class, read the chapter again and do the homework problems and more if you are having trouble. Then read the text of the chapter again to solidify what you learned.

**Labs:** Lab sessions combine instruction with review of the previous week’s homework assignment. Attendance at lab is optional but recommended. Attendance is recorded. (See **Grading**, below). Lab will meet the first week of class. After the first few topics, you will need to have your formula card and calculator. TA office hours are intended to provide assistance in addition to **not instead of** -- that given in lab.
**Examinations:** There will be three, non-cumulative, in-class examinations. *Tentative exam dates are on the schedule below, but dates may change.* You must attend the exam, even if the date is changed from the tentative date on the schedule. Location of the examinations will be announced in class. Put your ID number on your assignments; no names.

Examination questions will include true/false questions, multiple choice questions, and open-ended questions that require discussion, data analysis and calculation, or the selection of appropriate statistical methods. A copy of the quick reference card from the Moore book will be provided for your use on the exams; you may use this reference card and a calculator, but no other materials for the exam. The quick-reference card has copies of almost all of the formulas covered in the course.

**Missed and Make-up Examinations.** If you have a schedule conflict with an exam you must discuss it in advance with the instructor. If an illness or other unanticipated emergency prevents you from taking an exam, you must contact the instructor as soon as possible. Permission of the instructor is required in order to take a make-up exam. For the first three exams, a make-up exam will be offered within a week of the original exam. A comprehensive final will be required for (1) Students who miss an original and the make-up exams, (2) students who miss the third exam (for which there is no other make-up exam), and (3) students who miss more than one original exam. The comprehensive final will be offered at the time shown in the University Timetable.

In general, the make-up exam will be different from and somewhat more difficult than the original exam. Make-up exam scores can lower, but cannot raise, your final grade. In calculating the final grades, make-up exam scores will be included if they lower the final grade, but not if they raise it. This policy has been adopted (1) in response to student concerns that those taking a make-up were at an unfair advantage because of the additional study time; and (2) to reduce the incentive of students taking a make-up to consult with other students in the class about exam content.

**Diagreements about Grading of an Exam.** If you disagree with the way a question has been graded, you must do the following: (1) Make a copy of the exam with your answer and the grade. (2) Attach to it a written explanation of why you feel the grade is inappropriate. If you dispute a substantive point, document your point of view citing the text, reading or lecture. If you interpreted the question differently from the way it was intended, explain your interpretation and why your answer is correct given that interpretation. (3) Describe in the written statement what you believe would be a fair grade. (4) Give the copy of the exam and the written statement in to the instructor no later than 1 week after the TA hands back graded exams.

We will (1) respond to you in writing; (2) change everyone’s grade accordingly if there is a general problem; (3) note any change in grade as an “adjustment” (to be taken in to account if you have a border-line grade) if you have individual concerns.

**Homework:** There will be weekly homework assignments. Homework is due at the *beginning* of the class period on the due date. Unless a different schedule is announced in class, homework is due the Tuesday after the week in which it is assigned. The TA will go over the solutions in lab that day. Thus, homework not received at the start of class – for example, because you arrive significantly late or are absent -- will be counted as late. Late assignments will still be accepted (with a penalty) if they are turned in before the exam that covers that material. Put your ID number on your assignments; no names.
Grading of homework:  Homework assignments are graded using three grades:  “3” if complete, substantially correct, and well-documented; “2” if there are minor deviations from the “3” standard; “1” if incomplete, poorly presented, or showing little effort.  Individual problems will not be marked in detail, but correct answers will be provided and discussed in lab.  Problem sets that are exceptionally poor or fail to follow instructions may be rejected by the TA and may be resubmitted to earn a grade no higher than “2.”

Penalty for late homework assignments:  Homework turned in after the due date but before the examination on which the material is covered will receive a score 1 lower than if that assignment was turned in on time.  A homework that would have received a “3” would instead receive a grade of “2”, a “2” would instead receive a “1”, and a late assignment that would have received a “1” will count for nothing.  Homework assignments turned in after the examination on which the material is covered receive a grade of “0.”

If an emergency prevents you from turning in a homework on time, you may be able to get a short extension on the homework from the TA before the assignment is due.

Computing final homework grade:  To compute the basis for the final homework grade, I drop your lowest homework grade, sum scores for the rest of the homework problems.  Because the lowest score is dropped, you may skip one homework assignment without a penalty, but you are still expected to know the material on all homework assignments for the exams.

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.  To simply copy another student’s homework assignment and turn it in is cheating.  For the final data analysis exercise, no cooperation or discussion of problems with other students is permitted.  Questions about the final data analysis exercise should be directed to me or the TA.

Final grades:  Grades are a sort of weighted average of your three exam scores.  Although getting 50 out of 100 and getting 0 out of 100 on a major assignment may both be grades of “F”, getting 50 out of 100 will lower your final grade substantially less.  Zero points on a major component of your grade can really lower your final point tally.  Because a significant share of your final grade--32.5%--is based on aspects of the course other than exams, you may improve your grade substantially by doing all the required assignments.

I expect that the components of grades are as follows:

Three Exams--67.5%.  The largest part of the grade is based on three in-class exams.  In order to allow students who do poorly on one exam to have a chance to score well in the class, the lowest exam grade counts for 17.5% of the final grade, the other two exams count for 25% of the final grade each.

Homework--17.5%.  Students who turn in all homework assignments and do a reasonably good job can easily get an “A” on homework.  Students can also significantly hurt their grade by not turning in large numbers of homework assignments.  See “homework” for grading of homework assignments and homework policies.  In final grade calculations your lowest homework grade is dropped.  This may be a homework with a score of zero because it was not turned in.

Final Data Analysis Project--10%.  This is a cumulative assignment that covers all the material in the class.  It will be passed out during the last week or two of classes.  The due date will be announced then, but will be the end of classes or the beginning of final exams.  Treat it like a take-home exam.
**Attendance at Lectures—5%.** Attendance is not required, but is noted and does count a bit toward the final grade. Attendance is measured by signing in at the beginning or end of class. You may not sign in for another student. Students can miss one lecture without any effect on their attendance grade. Starting with the second absence, the attendance grade starts to drop, although students can miss about two additional classes and still have an “A” on attendance. Attendance counts in the grade primarily to provide a bit of grade help for students who seem to be trying hard but not doing well on the exams (effectively it is a measure of “effort”).

**Attendance at Lab** -- for borderline grades. Lab attendance will be recorded by the TA. Although attendance at the lab does not formally count toward your grade, lab attendance records may be used at the end of the semester in decisions about “pulling up” grades of students whose overall point total puts them slightly below the next highest grade.

**E-mail list:** The TA or I may occasionally send messages to the class via an e-mail list. You are responsible for getting an account if you do not have one already, and for checking your e-mail daily to make sure you do not miss announcements. The e-mail list is for the use of the Professor and TA only. Do not send e-mails to the e-mail list address.

The e-mail list is based on a list of persons registered in the course maintained by the registrar. To be on the list, your e-mail address must be registered with the registrar using the EASI program (Extended Access to Student Information). If you activate a WiscWorld account, WiscWorld will automatically notify the registrar within one week. If you are having trouble with your e-mail address or need to get one, call the DOIT Help desk at 256-HELP.

**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 this course should report them to me or else to Professor Adam Gamoran, Chair, 8128 Social Science (gamoran@ssc.wisc.edu).

**Feedback:** I am interested in hearing your reactions to the course, and your suggestions for improvement. At one point during the semester we will have an informal evaluation at which time you are able to write comments or make suggestions anonymously. In addition, please feel free to e-mail comments or suggestions to schaeffe@ssc.wisc.edu or to stop by during office hours.
Soc 360 -- Course Schedule – Spring 02/03

The schedule below and other details are likely to change. Changes will be announced in class or by e-mail, and you are responsible for these changes.

Problem numbers below are from the Moore textbook chapter that is the reading for that topic. Problem 2 for topic 1, then, is problem 2 from chapter 1 (labeled “1.2” in the book). Problem 50 from topic 3 is problem 50 from chapter 1 (labeled 1.50 in the book). Problem 14 from topic 4 is problem 14 from chapter 2 (labeled 2.14 in the book). Most problems are from sections labeled “Apply Your Knowledge,” but some are from “Review” sections.

Homework problems in the text may occasionally be supplemented by a handout.

<table>
<thead>
<tr>
<th>Week</th>
<th>Lec</th>
<th>Topic</th>
<th>Ch</th>
<th>Sections to Read</th>
<th>Problems (Usually due on Tue. of the following week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Introduction, Graphing Distributions</td>
<td>1</td>
<td>1.1</td>
<td>2, 4, 5, 8, 10, 16, 17, 24</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Describing Distributions</td>
<td>1</td>
<td>1.2</td>
<td>28, 31, 34, 36, 42, 46, 48, 82</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Normal Distribution</td>
<td>1</td>
<td>1.3</td>
<td>50, 54, 56, 57, 60, 66, 89 (show calculations)</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Scatterplots and Correlation</td>
<td>2</td>
<td>2.1, 2.2</td>
<td>1, 8, 10, 14, 18, 20, 23, 26, 28, 29</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Simple Regression</td>
<td>2</td>
<td>2.3, 2.4</td>
<td>31, 32, 34, 36, 37, 41, 50</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Simple Regression (continued)</td>
<td></td>
<td></td>
<td>53, 54, 56, 58, 60</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Categorical data: cross tabulations</td>
<td>2</td>
<td>2.5</td>
<td>70, 74, 78, 86, 87</td>
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<tr>
<td>6</td>
<td></td>
<td><strong>EXAM 1 – Thursday, 2/27</strong></td>
<td></td>
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<tr>
<td>7</td>
<td>7</td>
<td>Sampling and Experiments</td>
<td>3</td>
<td>3.1, 3.2</td>
<td>4, 5, 7, 10, 14, 16, 18, 22, 28, 38, 50, 56, 57</td>
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<tr>
<td>8</td>
<td>8</td>
<td>Sampling Distributions</td>
<td>4</td>
<td>4.1, 4.2</td>
<td>2, 10, 16, 18, 22</td>
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<tr>
<td>9</td>
<td>9</td>
<td>Probability, Sample Means</td>
<td></td>
<td>4.3</td>
<td>43, 44, 49, 53 (auto accidents), 63</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td>Confidence Intervals</td>
<td>6</td>
<td>6.1</td>
<td>2, 4, 5, 8, 12, 18, 22, 23, 24</td>
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<tr>
<td>10</td>
<td>11</td>
<td>Significance Tests</td>
<td>6</td>
<td>6.2</td>
<td>26, 28, 30, 32, 34, 38, 39, 40, 44</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td><strong>EXAM 2</strong></td>
<td></td>
<td>6.3</td>
<td>54, 55, 57, 81</td>
</tr>
</tbody>
</table>

Comments:
- Notify me if you have a VISA.
- Bring formula card to class from now on!
- Get calculator before this week!
- These are also week 4 problems.
- Mock exam handed out 2/20.
- Problems due Tuesday after exam.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lec</th>
<th>Topic</th>
<th>Ch</th>
<th>Sections to Read</th>
<th>Problems</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>11</td>
<td></td>
<td>EXAM 2 – Thursday, 4/10</td>
<td></td>
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<tr>
<td>12</td>
<td>12</td>
<td>Inference for the Mean</td>
<td>7</td>
<td>7.1</td>
<td>1, 2, 4, 6, 12, 20, 23, 59</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>Comparing Two Means</td>
<td>7</td>
<td>7.2 (skip *sections)</td>
<td>29, 33, 36, 44 (do part B first), 46, 62</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>Inference for Proportions and Counts</td>
<td>8</td>
<td>8.1, 8.2</td>
<td>8, 10, 18, 19, 26, 29, 40</td>
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<tr>
<td>~</td>
<td></td>
<td>Inference for Two-way Tables</td>
<td>9</td>
<td>9.1, 9.2</td>
<td>To be announced</td>
<td>We will do this topic if there is time. Mock exam handed out 5/1.</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>Inference for Regression</td>
<td>11</td>
<td>11.1, 11.2</td>
<td>1, 2, 3, 5, 6, 9</td>
<td>Final homework due 5/13, 3:00 p.m.</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Inference for regression (continued)</td>
<td>11.3</td>
<td></td>
<td>11, 12</td>
<td></td>
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<tr>
<td>15</td>
<td></td>
<td>EXAM 3 – Thursday, 5/8</td>
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</table>

Final project - due Tuesday 5/13 at 3 p.m. in CDE office, room 4412 Social Science. Final cumulative exam - 5/16 at 2:45 for those who have missed 2 or more exams.