SOCI 202.01: Social Statistics

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University of Montana Sociology 202
Department of Sociology Spring 2017

Social Statistics

Course Information
Professor: Kathy Kuipers
Office: Social Science, room 311
Hours: Tuesday (3-5:00) and Wednesday (2-4:00) and by appointment
Phone: 243-4381 (office); 327-9777 (home—only in emergencies)
Email: kathy.kuipers@umontana.edu

TA: Skye Summers
Office: SS 310
Hours: Monday and Wednesday (2-3:00) and by appointment
Email: phoenicia.summers@umontana.edu

Preceptors: Sierra Streuli, Mario Dunn
Office: SS 324, SS 324
Hours: Tuesday and Thursday (11-12:00), Monday and Tuesday (10-11:00) and by appointment
Email: sierra.streuli@umontana.edu, mario.dunn@umontana.edu

Course Objectives:
Social Statistics is a course in basic statistical concepts and techniques. The purpose of the course is to provide a basic understanding of statistics and statistical methodology with an emphasis on social science applications. This course will focus on learning statistics through working with real data. Consequently, emphases will be placed on the applied understanding of statistical methods, the use of computer applications, and critical interpretation of results. In taking this approach, our goal will be to give you a practical feel for statistics and to motivate your interest in the research process.

LEARNING GOALS
Upon completion of the course, you will be able to demonstrate an understanding of the symbols used in statistical research and how they transform numbers to give them meaning. This will include relaying, interpreting, and effectively communicating social information in terms of statistical symbols, operations, and reasoning; and applying creative thinking skills using the language and logic of statistical analysis in order to address a variety of applied and theoretical social problems.

Course Structure:
The course meets 3 days a week and each day is designated for a specific purpose. On Mondays I will introduce material for the week through lecture. Wednesdays will be devoted to preparing students for the problem set assignments: lecture and discussion about the problems and demonstrations using the statistical program SPSS. On Fridays, we will devote ourselves
to in-class work based on Monday’s lecture and Wednesday’s instruction, link the material presented to the problem set, and answer additional questions.

**Getting Help:**
My office hours are listed above. We also have one TA for the class: a graduate student in sociology, Skye Summers, and two undergraduate preceptors, sociology majors who took the class and got top grades in it, Sierra and Mario. We are available to meet with you during our listed office hours and also by appointment and the best way to reach us is by email.

**Prerequisites:**
The formal prerequisites for this course are the successful completion of Math 115. This will assure that you have some facility with quantification as a preparation for the calculations you will be required to perform. Calculus is not good—we won’t be using calculus—advance algebra is what you need. You also should have taken Soci 101 so that you have some basic understanding of the concepts and principles of sociology and are familiar with sociological questions and research answers. Additionally, it helps to have taken or be taking Soc. 318, the research methods class, for a better understanding of how data and research fit together.

**Course Requirements:**
What can we say? You want to pass this class? DON’T MISS CLASS! NEVER! Attendance is required because you will miss material that is essential for you to do well in the class. That material is not available in the book or online. I take attendance periodically and there will be in-class activities that contribute to your grade. Additionally, this is one class where it is important NOT to fall behind, and missing the lecture on Monday or the problem set instruction on Wednesday or Friday will put you seriously behind. There also will be a number of opportunities for extra credit points that are available only through class participation or due the following class meeting. Missing class will make those points unavailable to you. (Be forewarned—we do NOT accept late extra credit assignments.)

**Readings:**
Most readings will come from the primary, required text, available at the campus bookstore, *Elementary Statistics in Social Research, eleventh edition*, by Levin, Fox, and Forde. It is important that you complete the required readings before they are discussed in class. While you may find readings somewhat confusing initially, you should plan on familiarizing yourself with concepts, terms, and formulae before they are discussed in class and then reviewing the readings after the lecture to clarify what was unclear the first time. You should bring the text to class every day.

You will need to use the software program, SPSS, for your problem set assignments. SPSS stands for “Statistical Program for the Social Sciences” and is the software that you will use when you analyze data. You can access SPSS on any of the computers in the library and in SSRL (Social Sciences Building) and in many of the other computer labs around campus. You may want to have your own copy of SPSS (a base version is available for rent at a reduced price for students) so that you can conduct data analysis at home, on your own computer. See the link and details for obtaining the software on our class Moodle site. WE WILL USE SPSS FOR ALL OF THE PROBLEM SETS.

Our goal is to help you learn about statistics in the social sciences and do well in the course. To that end, in addition to lectures, readings, and help from your professor and TAs, will rely heavily on Moodle, for communication and information. You already may be familiar with the course supplement, Moodle. In order to be prepared for class, you will need to check
Moodle regularly—at the very least, before each class meeting for announcements, readings, and extra information. Direct your browser to: http://umonline.umt.edu/

We will use Moodle as a supplement—for communication, problem sets, and exams. (You must access Moodle for the midterm exam and the final.) Moodle also contains an online “grade book” where your scores will be posted. As they become available, the syllabus, additional data, handouts, assignments, grades, and other information will be posted on the site. Bookmark this site and visit it regularly.

Assignments and Evaluation:
1) Problem Sets and In-class Projects (40%): Problems and small projects will be assigned throughout the semester. Most will be homework (ten assignments), although you will occasionally have time during class to work on portions of them. In addition to readings, you should count on having at least one or two assignments each week that will require following instructions in the book, using the computer, and working with data. For assignments that use SPSS, you always will be required to turn in the computer output in addition to the written answers based on the output.
2) Class Attendance (5%): Attendance will be taken on an intermittent basis. Additional in-class exercises also will be collected and used for the calculation of an attendance score.
3) Mid-Term Exam (25%): There will be one midterm exam (in two parts) on March 29 and March 31. You will take the in-class computational part of the exam on the first date. The other part (multiple choice, matching, fill in the blank) will be taken on Moodle in class on the second date. NO MAKE-UPS WILL BE GIVEN.
4) Final Exam (30%): The final exam will be in the same format as the midterm exam (two parts). You will take the computational part during the first hour of the time scheduled for our final. The second part will be taken in-class on Moodle after you have completed the computational part, in the second hour of our examination period.
5) Late assignments will be penalized (points deducted) and, after a certain period, will no longer be accepted.

A few words about plagiarism and academic dishonesty:
"Plagiarism is the representing of another’s work as one’s own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and may be remanded to Academic Court for possible suspension or expulsion.”
(Taken from The University of Montana Student Conduct Code, available online: http://life.umt.edu/vpsa/student_conduct.php) Plagiarism includes:
• Copying from another’s examination or allowing another to copy from one’s own exam
• Unpermitted collaboration—especially on exams
• Unpermitted sharing of lab assignments and data—your problem sets should be your own—output may not be photocopied.
• Giving or receiving unpermitted aid on an examination.

Make sure that your work is your own. Don’t get confused by what is acceptable and what is not. In this class, discussion of ideas and statistical methods is permitted, and even encouraged among classmates. Writing collaboration, however, is not permitted and students should be careful not to work directly from a classmate’s notes, not to copy another’s paper or exam, and not to let others view their exam. If this is unclear, please ask. Be careful!
**Preliminary Course Schedule:**
The material in the course will be presented in a series of lectures, organized around three basic topics: Descriptive Statistics, Probability Theory, and Inferential Statistics. Each lecture will be followed by a lab task (usually using *SPSS*) and a homework assignment due the following week. The lab task will be introduced on Wednesdays with the homework assignment usually due the following Wednesday (see dates below.) This schedule is TENTATIVE, however. While due dates will not change, material content and exercises may change as we see that we need to spend more or less time on a particular topic. It is YOUR RESPONSIBILITY to keep up with the schedule by attending class regularly and checking the *Moodle* announcements frequently and, of course, doing the readings and homework assignments. All readings below are from our textbook unless noted.

**Week 1 (January 23-27)**
**Monday**
Figuring things out—where, what, and when—collecting and coding data

**Wednesday**
Getting acquainted with data—levels of measurement, error, bias, rounding
Read: Chpt. 1, pp. 1-10; Appendix A, pp. 481-96 (all readings in Levin, Fox, and Forde)
Handout: Problem Set #1, jump drive/memory stick with data sets, due *February 8*

**Friday (and all subsequent Fridays unless notified on Moodle and/or in class)**
Meet in LAB groups: Group 1 (LA 304/305); Group 2 (SS 258); Group 3 (SS 262)
Introduction to *Moodle*, the lab and *SPSS*

**Week 2 (January 30-February 3)**
**Monday**
DESCRIPTIVE STATISTICS
A First Look at Data Organization (types of variables, frequency distributions, sample and population, statistics and the social sciences)
Read: Chpt. 1, pp. 11-24

**Wednesday and Friday**
Read: Appendix A, pp. 496-506
Familiarize yourself with our *Moodle* site, check for announcements and tips, and work on your first assignment.

Responses to *Moodle Survey*
Bring jump drive/memory stick (or something to transport electronic files) to class.

**Week 3 (February 6-10)**
**Monday**
More on Distributions and Data: Terminology
Read: Chpt. 2

**Wednesday and Friday**
More about *SPSS* and What the Data Mean
Read: Appendix 2 (if you need it); check with the TAs to review what you don’t know
Due: Assignment #1, jump drive/memory stick with data sets
Handout: Problem Set #2, selected exercises due February 15

Week 4 (February 13-17)
Monday
Central Tendency and Variability (mean, median, mode, standard deviation)
Read: Chpt. 3
Wednesday and Friday
Read: pp. 132-134
Due: Problem Set #2, selected exercises
Handout: Problem Set #3, selected exercises due February 24

Week 5 (February 20-24)
Monday
NO CLASS, PRESIDENT’S DAY HOLIDAY
Wednesday
Lecture: Standard Deviation
Read: Chpt. 4
Friday
Due: Problem Set #3, selected exercises
Handout: Problem Set #4, selected exercises due March 1

Week 6 (February 27-March 3)
Monday
PROBABILITY THEORY
Introduction to Probability (basic concepts and sampling)
Read: Chpts. 5 and skim 6
Wednesday and Friday
Theoretical Distributions (normal, t, F)
Due: Problem Set #4, selected exercises due
Handout: Problem Set #5, selected exercises due March 8

Week 7 (March 6-10)
Monday
More Probability and Sampling
Read: Chpts. 5 (reread) and 6
Wednesday and Friday
INFERENTIAL STATISTICS
Hypothesis Testing (one-sample hypothesis tests, confidence intervals)
Read: pp. 208-209;
Due: Problem Set #5, selected exercises
Handout: Problem Set #6, selected exercises due March 15

Week 8 (March 13-17)
Monday
Hypothesis Testing (differences between means)
Read: Chpt. 6 (reread, make sure you understand this chapter!) and 7

**Wednesday and Friday**
Read: Chpt. 7
Due: Problem Set #6, selected exercises
Handout: Problem Set #7 selected exercises due April 5
Do Extra Credit Practice Exam on Moodle

**Week 9 (March 20-24)**
Spring Break

**Week 10 (March 27-31)**
**Monday**
Hypothesis Testing for Relationships Between 2 Variables: ANOVA
Read: Chpt. 8

**Wednesday**
Midterm: on Moodle IN CLASS

**Friday**
Midterm: in-class computational exam

**Week 11 (April 3-7)**
**Monday**
Reread: Chpt. 8

**Wednesday**
Due: Problem Set #7, selected exercises
Handout: Problem Set #8, selected exercises due April 12

**Friday**
NO CLASS. Professor Kuipers and Skye will attend the PSA meetings in Portland, OR. Work on Problem Set #8 and review midterm exam results. Make appointment with TA or preceptors to understand what you missed.

**Week 12 (April 10-14)**
**Monday**
Hypothesis Testing for Relationships Between 2 Variables: Cross tabulation and Chi-square tests
Read: Chpt. 9

**Wednesday and Friday**
Read: pp. 341-342
Due: Problem Set #8, selected exercises
Handout: Problem Set #9, selected exercises due April 19

**Week 13 (April 17-21)**
**Monday**
Correlation
Read: Chpt. 10
Wednesday and Friday
Due: Problem Set #9, selected exercises
Handout: Problem Set #10, selected exercises due April 26
Complete in-class exercises

Week 14 (April 24-28)
Monday
NO CLASS—GET CAUGHT UP ON PROBLEM SETS; WORK ON PROBLEM SET #10
Wednesday
Regression Analysis
Read: Chpt. 11
Due: Problem Set #10, selected exercises
Friday
Complete in-class exercises

NO LATE PROBLEM SETS ACCEPTED AFTER THIS DATE

Week 15 (May 1-5)
Monday
Choosing Statistical Procedures for Research Problems
Read: Chpt. 13
Wednesday and Friday
In-class exercises and review
Course Assessment

Finals Week
In-class Computational Final Exam
Moodle Exam: IN CLASS on Moodle
Thursday, May 11 (3:20-5:20)