

SOC/STAT/CSSS 221: Statistical Concepts and Methods for the Social Sciences

Syllabus, Winter 2017

Meetings 9:30 – 10:20 on Monday, Wednesdays, and Fridays
Savery 260

Instructor **Mahesh Somashekhar**
Email: msoma@uw.edu
Phone: 206-543-2085
Office: Savery 237
Office Hours: 10:40 – 12:00 on Fridays, and by appointment

Teaching Assistants	Devin Didericksen Sections: BC & BD OH: Tues 1:30-2:30, PDL A-314 Email: diderick@uw.edu	Janny Wang Sections: BE & BF OH: W 10:30-11:30, CMU B023 Email: jannyw@uw.edu	Daphne Liu Sections: BA & BB OH: M 3:30-4:30, CMU B023 Email: dhliu@uw.edu
----------------------------	--	---	--

Course Webpage Available on Canvas

Contact For simple questions, email is the best way to reach me or your TA. We will respond to your messages within 72 hours. For more involved questions or discussions, please use our office hours.

Course Description and Objectives:

This course is an introduction to how social scientists use and interpret statistics. Statistics is both a tool and a language that helps people describe large amounts of information. As a tool, statistics allows analysts of the social world to simplify and organize quantitative data into coherent, rigorous observations. As a language, statistics enables social observers to talk about large-scale data in clear and precise ways. The types of data analyzed by statisticians come from many sources—television, social media, the government, marketing firms, even regular interactions with other people in social settings. A mastery of statistics can help students make useful contributions to their current and future employers, the social causes they fight for, and the communities of which they are a part.

The overall objective of the class is twofold. First, the course aims to provide you with the ability to use statistical tools to critically evaluate data. Second, the course teaches you to be an analytical consumer of information in the mass media. By the end of this course, you will be able to:

1. Define real world questions and problems in statistical terms.
2. Solve statistical problems.
3. Analyze and interpret the meanings of statistical solutions in relation to real world issues.

Prerequisites:

There are no prerequisites for this course. This is not a mathematics course, but you are expected to be capable of doing arithmetic. You will also be expected to be able to think through problems clearly and communicate your results. This course is designed to help you practice these skills.

Required Equipment:

Text: David S. Moore. 2015. The Basic Practice of Statistics (7th Edition). New York: W.H. Freeman.
Buying a used copy is fine. You will not need access to the online resources that come with a new copy. Note that most of the material we cover in this course is also available in the 5th and 6th editions of the book, but if you choose to get an older edition, you take full responsibility for any information or materials that are in the 7th edition but not in older ones.

Calculator: You will need a calculator that can add, subtract, multiply, divide, and take square roots. It is wise to bring this device to class every day because we will do many in-class activities that require them. **During midterms and exams, you cannot use a device that communicates with other devices (such as a cell phone) as your calculator. You also may not bring to class a Texas Instruments TI-type calculator on exam days.**

Assignments and Grading:

Your course grade will be based on the following:

- **Homework (27%)**

There will be 9 homework assignments. Each will be posted on the course website. All assignments are due on Fridays at 8:00 am and must be turned in on the course website. Late homework assignments will be accepted up to 2 days after the due date, and 20% will be deducted from your assignment grade for each day it is late. Homework that is more than 2 days late will not be accepted. For the final grade, your lowest score will be dropped, and your highest score will be doubled.

- **Midterm 1 (11%), Midterm 2 (11%), and Final Exam (25%)**

There will be three exams administered over the course of the quarter, two midterms and one final. The midterms will be non-cumulative, but for the final, you will be tested on material covered during the full quarter. Exams will include a variety of question types including multiple-choice, fill-in, and problems requiring calculations and interpretation. You will be allowed to use one page (8.5 x 11 inch double-sided) of notes during each exam. No make-up exams will be administered except under extreme circumstances and with approval *prior to* the scheduled examination time.

- **Quiz Section Assignments (20%)**

Quiz section assignments will include software assignments and practice problems that are completed during quiz section. To account for circumstances, the lowest two grades on quiz section assignments will be dropped.

- **Participation (6%)**

This course includes extensive in-class activities where you will practice working through statistical problems and participate in analytical discussions of your results. Your participation in these activities will count towards your grade. On 9 randomly determined class days, your work from these in-class activities will be turned in. You will receive one participation point for each of the in-class activities that you turn in. To receive full credit for participation in the course, you must turn in at least 6 in-class activities. In other words, if you miss three in-class activities, you still get full participation credit. More than three absences will decrease your participation grade.

Academic Accommodations:

To request academic accommodations due to disability, please contact the Disability Resources for Students Office, 011 Mary Gates Hall, (206) 543-8924. I will be happy to provide academic accommodations if you have a letter requesting such from the Disability Resources for Students Office. Please feel free to see me after class or during office hours to discuss this.

Things You Should Do to Succeed in This Class:

This course tries to engage you in active rather than passive learning. That means it is not a standard 50-minute lecture course. You will be expected to participate in activities and discussion in class. The following things will help you to succeed in this kind of course:

1. Read and study the assigned sections of the text *before* class. This is where you will learn the content of the course.
2. Come to and participate in class and quiz section. This is where you will learn how to use the content in the textbook.
3. Do homework assignments soon after class. Doing homework assignments soon after you have read the textbook and participated in class activities will help solidify your learning and ensure better retention.
4. Use the university resources for statistics described below. These are fantastic resources on campus and are completely free.
5. Think about the numbers, statistics and graphs that you see on the internet, in the newspaper, on TV, or in other classes. What do they tell you about the world? How do they relate to what we have been studying in this class? How could they be misinterpreted if you did not have statistical training?
6. Most importantly, ASK QUESTIONS. If you are confused, others likely are too. You will be doing your classmates a favor, and make it easier to keep up, by asking the question early.

University Resources for Statistics and Writing:

The University of Washington maintains several centers that support students working on statistics. You should absolutely use these resources, which are free of charge and will help you to better understand and complete your work correctly.

Department of Statistics Tutor and Study Center:

Offers free tutoring on statistics that can help you with homework, studying for quizzes, working on group projects, and answering statistical questions.

Website: <http://www.stat.washington.edu/tutorcenter/>

Location: Communications 023

Center for Social Science Computation and Research (CSSCR):

Operates a drop-in computer lab with SPSS software. Provides free consulting on using computer software for statistics, five days a week, by drop-in or appointment.

Website: <http://julius.csscr.washington.edu/default.htm>

Consulting Office: 119 Savery

Drop-In Computer Lab: 118 Savery

Class Rules:

1. Maintain a good learning environment by:
 - entering quietly and politely if you happen to arrive late
 - turning off the ringers on your cell phones and any other devices
 - using your devices discretely for class related purposes
 - avoid loud eating or talking
2. Respect your class partners by:
 - participating honestly and earnestly
 - pulling your weight during in-class group assignments
 - listening carefully to other students, TAs, and the instructor.

Academic Honesty:

All students are expected to do their own work on all assignments and exams. Students representing the work of others as their own or cheating in any other way will receive a zero for the assignment in question and may fail the course or be referred to the college for disciplinary action.

Schedule of Topics and Required Readings:

*****Note that the dates listed below are subject to change. Changes will be announced in class and/or the class website*****

Dates	Topics	Required Reading	Due Dates and Notes
1/4	Introductions to the Course and Overview of Statistics	None	
1/6	Producing Data: Surveys and Sampling	Moore, Chapter 8	
1/9	Producing data: Experiments	Moore, Chapter 9	
1/11	Graphical Techniques	Moore, Chapter 1	<i>Bring an Example of a Good Graph or a Bad Graph to Class on 1/11</i>
1/13	Frequency tables	None	Assignment 1 due by 8:00 am on 1/13
1/18 to 1/20	Measures of Central Tendency and Variability	Moore, Chapter 2	<i>No Class on MLK Day, 1/16</i> Assignment 2 due by 8:00 am on 1/20
1/23	Probability	Moore, Chapter 12	
1/25	Normal Distributions	Moore, Chapter 3	

1/27	Review or Jump Start to Next Section	None	Assignment 3 due by 8:00 am on 1/27
1/30	MIDTERM #1		
2/1	Sampling Distributions	Moore, Chapter 15	
2/3	Confidence Intervals	Moore, Chapters 16 and 22	Assignment 4 due by 8:00 am on 2/3
2/6 to 2/8	Hypothesis Testing for One Sample	Moore, Chapter 17	
2/10	t-Distributions	Moore, Chapter 20	Assignment 5 due by 8:00 am on 2/10
2/13	Hypothesis Testing for Two Samples	Moore, Chapter 21	
2/15	Review or Jump Start to Next Section	None	Assignment 6 due by 8:00 am on 2/17
2/17	MIDTERM #2		
2/24 to 2/27	Scatterplots and Correlation	Moore, Chapter 4	<i>No Class on Presidents' Day, 2/20</i> <i>Class Cancelled on 2/22</i> Assignment 7 due by 8:00 am on 2/27 [NOTE DUE DATE CHANGE]
3/1	Bivariate Regression	Moore, Chapter 5	
3/3 to 3/6	Multivariate Regression	Moore, Chapter 29	Assignment 8 due by 8:00 am on 3/3
3/8	Two-Way Tables	Moore, Chapter 6	
3/10	Review (And a Sneak Peek at Statistics Beyond This Class)	None	Assignment 9 due by 8:00 am on 3/10
3/15	FINAL EXAM, 8:30 – 10:20, Savery 260		