

Sociology 360: Statistics for Sociologists I
University of Wisconsin-Madison
Summer 2023

Instructor:	Cullen Cohane	Lectures:	Recorded (available on Canvas)
Email:	cohane@wisc.edu		
Office hours:	Thursday 1-2 or by appointment		
Office hours link:	https://uwmadison.zoom.us/j/96473362419?pwd=bFJlaE5KVE93V0Jvelp5M0phNERuUT09		
Canvas page:	https://canvas.wisc.edu/courses/355747		
Course chat:	https://soc360summer.slack.com		

Course Overview

Welcome! This class is designed to equip you with the basic knowledge and skills in data exploration and analysis. Upon completion of the course, you will be a more critical reader of news articles, academic work, and advertising materials that present statistical evidence. You will also be ready to execute and present elementary statistical analyses of your own.

There are two parts to the course. In Part I: Describing Data, we will describe variables with bar charts, boxplots, and histograms; we will learn to read summary statistics and understand what a normal distribution is. We will describe relationships between variables with scatterplots, correlation, regression, and two-way tables.

In Part II: Drawing Inference from Data, we will discuss the logic and methods of making inferences about populations from samples. This is the part of the course where you get to make statements with data – we will learn how to test hypotheses with statistical tests. Topics in this section include sampling and experiments, the meaning of statistical significance, how to calculate confidence intervals, and how to conduct statistical tests.

Throughout the course, you will analyze small bodies of data and write up your own findings.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement. Basic algebra skills.

Credits: This is a 4-credit course. The credit standard for this course is met by an expectation of a total of 180 hours of student engagement with the course learning activities, which include regularly scheduled lectures and labs, reading, writing, homework, and other student work as described in this syllabus.

Learning Outcomes

Upon successful completion of the course, you will be able to:

- Define concepts such as probability, sampling, and sampling distributions

- Describe and summarize variables and relationships between variables with numbers, charts, and tables
- Calculate and interpret quantities such as correlations, regression coefficients, and confidence intervals
- Test statistical hypotheses and interpret their results
- Infer population means from a sample
- Statistically compare two means and proportions
- Design statistical analysis projects to answer basic questions in social sciences

Required Materials

Textbook: Moore, Davis S. 2018. *The Basic Practice of Statistics, Eighth Edition*. New York: W.H. Freeman.

Software: We will use Stata for applied statistical work in this course. Stata is available for FREE download to enrolled UW students: <https://software.wisc.edu/cgi-bin/ssl/csl.cgi>. You may also access Stata remotely through the Social Science Computing Cooperative's Winstat server. For more information, see <https://www.ssc.wisc.edu/sscc/pubs/winstat.htm>.

Calculator: You will need a non-programmable calculator (i.e., no graphing calculators) for quizzes and take-home exams. I would recommend the TI-30XIIS or TI-30Xa, but there are other alternatives. It should have a square root and a power function.

Communication

This course is fully **online and is partially synchronous (assignment deadlines) but lectures will be accessed asynchronously (they will be recorded and posted in Canvas)**. For any quick questions, please send a message on Slack: <https://soc360summer.slack.com>. You can send your questions directly to me, but it is likely that other students have the same question or know the answer. Therefore, it might be a good idea to post questions in class channels (e.g., “#general”), which are visible to everyone. Using Slack saves you time crafting emails and will hopefully create a sense of community for members of the class!

Feel free to come to my virtual office hours. Due to the virtual nature of our meetings, more than one student might attend office hours at the same time. If you would prefer a private meeting or have a scheduling conflict, please send an email or a Slack message to make an appointment.

Course Components

Readings: You are responsible for reading the entire chapter (unless specified otherwise) for each topic *before viewing the lecture on that topic*. The lecture slides will be available on the Canvas site before lectures are delivered. If you come across any questions as you read the chapter, you are welcome to post it on the #general channel on Slack. You are encouraged to respond to others' questions.

Lectures: Lectures will be recorded and posted to Canvas three times a week (Monday, Wednesday, and Friday). You are free to access these lectures at any time during the week. However, do note that the quizzes for each lecture are always due the Sunday of that week (see more details below), so it is not possible to “put off” the course for weeks at a time.

Quizzes: Following each lecture, there will be a short quiz (3~5 questions) on Canvas to test your understanding of the content. An early version of the quiz will be available before the lecture is released and you can feel free to start working on it after reading the chapter. All quizzes will be due on Sundays. **Every Sunday, you will therefore have three quizzes due** (from the Monday, Wednesday, and Friday lectures respectively).

You may use (and may need) your calculator for the quizzes. Many quiz questions are adapted from exercises in the textbook. To allow for illness and emergencies, only the best 18 quizzes (out of 22 total) are used in the calculation of the final grade. **You can chat about quiz questions with your classmates, but not with me.** You can post any related thoughts and questions on the #quizzes channel on Slack. Do note that the purpose of the Slack channel is not to just give someone the answer and you should not do this. Instead, the purpose is to answer questions in order to help your peers understand how to do these things themselves.

Take-home exams: There will be three non-cumulative take-home exams. Exam questions will consist of questions similar to those from quizzes. You will need your calculator for the exams. You will be given almost a week to complete each take-home exam and **you must complete the exams independently.**

Data analysis projects: One of the goals of this course is to help you develop skills as a producer of social research. This will be accomplished through two data analysis projects. The first project focuses on descriptive statistics and graphical display of data. The second project will require you to apply the skills you have learned throughout the course. Further guidelines will be posted on Canvas. **You are encouraged to chat about data projects with your classmates and with me.** Feel free to post on the #projects channel on Slack to brainstorm ideas and help each other.

Participation: The participation grade will be assessed holistically based on participation in the Slack channel.

Grading

Your grades are calculated as follows:

Quizzes (best 18, 1% each)	18%
Three take-home exams (15% each)	45%
Data analysis project 1: descriptives	15%
Data analysis project 2: inference	20%
Participation	2%

The final grade distribution is as follows:

A	93-100
AB	88-92
B	83-87
BC	78-82
C	70-77
D	60-69
F	Below 60

Late Policy

A take-home exam or data analysis project submitted within 24 hours after the due date will only be eligible for 80% of the maximum number of points. An exam or project submitted within 24-48 hours after the due date will be eligible for 60% of the maximum number of points. Exams and projects submitted more than 48 hours after the due date will not be accepted. Quizzes submitted after the due date will not be accepted (this is necessary to allow me to go over them in lecture each Monday).

Accommodations

You may be eligible for special arrangements or accommodations for testing, assignments, or other aspects of the course. This may be the case if English is not your first language or you experience a physical or psychological condition that makes it difficult for you to complete quizzes or exams without some modification of those tasks. Accommodations are provided for students who qualify for disability services through the McBurney Center. Their website has detailed instructions about how to qualify: <http://www.mcburney.wisc.edu/>. I will reach out to anyone with accommodations during the first week of class to confirm. If you are eligible for accommodations and don't hear me from by the end of the first week of class, please reach out to me to confirm that I've received your accommodations.

If you wish to request a scheduling accommodation for religious observances, **send an email stating the specific date(s) for which you request accommodation**; campus policy requires that religious observances be accommodated if you make a timely request early in the term. See the university's web page for details: <https://kb.wisc.edu/page.php?id=21698>.

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.

According to Wisconsin Legislature: Chapter UWS 14, academic misconduct is defined as:

- Seek to claim credit for the work or efforts of another without authorization or citation;
- Use unauthorized materials or fabricated data in any academic exercise;
- Forge or falsify academic documents or records;
- Intentionally impede or damage the academic work of others;
- Engage in conduct aimed at making false representation of a student's academic performance;
- Assist other students in any of these acts.

Sexual Harassment and Misconduct

Professional conduct and appropriate behavior are critical to create a safe learning environment for students and instructors alike. Here is a statement about sexual harassment from the University:

What is sexual harassment? Unwelcome sexual advances, requests for sexual favors, and verbal or physical conduct of a sexual nature constitute sexual harassment when:

- Submission to such conduct is a condition of employment, academic progress, or participation in a university program; or
- Submission to or rejection of such conduct influences employment, academic or university program decisions; or
- The conduct interferes with an employee's work or a student's academic career, or creates an intimidating, hostile or offensive work, learning, or program environment.

Departmental Notice of Grievance and Appeal Rights

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 concerns about this course should report them to the instructor or to the chair, Prof. Eric Grodsky (egrodsky@ssc.wisc.edu).

Intellectual Property Rights

Lecture materials and recordings for Soc 360 are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation.

[Regent Policy Document 4-1] Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Lecture Schedule

Note: I will announce any changes in the schedule in lecture or via email.

	Date	Topic	To-do after class
1	6/23	Introduction	Quiz 1 due
2	6/26	Ch 1: Picturing Distributions with Graphs	Quiz 2 due
3	6/28	Ch 2: Describing Distributions with Numbers	Quiz 3 due
4	6/30	Ch 3: The Normal Distributions	Quiz 4 due
5	7/3	Ch 4: Scatterplots and Correlation	Quiz 5 due
6	7/5	Ch 5: Regression	Quiz 6 due
7	7/7	Ch 5: Regression, continued	Quiz 7 due
8	7/10	Ch 6: Two-way Tables	Quiz 8 due
9	7/12	Ch 8: Produce Data: Sampling	Quiz 9 due; Take-home exam 1 due on 7/15
10	7/14	Ch 9: Producing Data: Experiments	Quiz 10 due
11	7/17	Ch 12: Introduction to Probability	Quiz 11 due
12	7/19	Ch 13: General Rules of Probability	Quiz 12 due
13	7/21	Ch 15: Sampling Distributions	Quiz 13 due
14	7/24	Ch 16: Confidence Intervals	Quiz 14 due; Data analysis project 1 due on 7/25
15	7/26	Ch 16: Confidence Intervals, continued	Quiz 15 due
16	7/28	Ch 17: Tests of Significance	Quiz 16 due
17	7/31	Ch 17: Test of Significance, continued	Quiz 17 due
18	8/2	Ch 18: Inference in Practice	Quiz 18 due on 11/8 Take-home exam 2 due on 8/1
19	8/4	Ch 20: Inference about a Population Mean	Quiz 19 due;
20	8/7	Ch 20: Inference about a Population Mean, continued	Quiz 20 due Data analysis project 2 due on 8/8
21	8/9	Ch 21: Comparing Two Means	Quiz 21 due
22	8/11	Ch 22: Inference about a Population Proportion/Comparing Two Proportions	Quiz 22 due; Take-home exam 3 due on 8/13