

DEPARTMENT OF SOCIOLOGY
University of Pennsylvania

**Soci 120: Social Statistics
Spring 2021**

PERSONNEL: Pilar Gonalons-Pons, Instructor
Office hours: by appointment
E-mail: pgonalon@sas.upenn.edu

Allison Dunatchik, Teaching Assistant
Office hours: Fridays 2:30-4:30 by appointment <https://allison-dunatchik.youcanbook.me/>
E-mail: adunat@sas.upenn.edu

Samantha Love, Teaching Assistant
Office hours: Thursdays 11:45-1:45 by appointment: <https://samanthalove.youcanbook.me/>
E-mail: samlove@sas.upenn.edu

Official lecture schedule: Monday and Wednesday, 10 a.m. – 11 a.m.
Synchronous on Zoom, recorded for asynchronous viewing

Official recitation schedule: 402: Thursday, 9:30 a.m. – 10:30 a.m., on [Zoom](#)
403: Thursday, 10:30 a.m. – 11:30 a.m., on [Zoom](#)
404: Friday, 12:00 p.m. – 1 p.m., on [Zoom](#)
405: Friday, 1:00 p.m. – 2 p.m., on [Zoom](#)
Synchronous only, occasionally complemented with short videos

OBJECTIVES AND PREREQUISITES

Course description

This course introduces you to statistics, with a focus on how they are used in social sciences research. When you complete this course, you should be able to use various numerical and graphical tools 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.

This course also covers the basics of statistical inference, i.e., a set of methods that allows us to draw conclusions about some broader population on the basis of sample data. It discusses the concepts underlying probability sampling, what a sampling distribution is, and the role of sampling distribution in statistical inference. You then apply these concepts by learning how to test hypotheses about means, proportions, and pairs of means and proportions. You also learn how to calculate the confidence interval associated with these tests.

Prerequisites

Some familiarity with elementary algebraic notation at the high-school level is assumed. This is an introductory course, so no previous experience in statistics is required.

Course website

The course website is available through Upenn's Canvas at <https://canvas.upenn.edu/>. You will need to login using your PennKey to access this website.

TEXTBOOK AND OTHER MATERIALS

Required materials

Moore, David William I Notz, Michael A. Flinger. *The Basic Practice of Statistics*. 8th Edition. New York: W.H. Freeman (Available at the Penn Bookstore)

There is a companion website that includes all of the resources on the Student CDs – applets, data sets, self-quizzes, supplementary exercises, optional companion chapters, and more. You are encouraged to explore these online supplementary materials to prepare for homework assignments and exams. See here:

<https://www.macmillanlearning.com/studentresources/college/collegebridgepage/bps8e.html>

The textbook includes a formula card that you will need for this course. The formula card is also available for download on Canvas. When you print the formula card, review it carefully to make sure that all symbols print correctly.

Optional texts

David Pevalin and Karen Robson. 2009. *The Stata Survival Manual*. McGraw-Hill. This book provides information on how to use STATA, a statistical software that is widely used in the social sciences. This book will complement the instruction provided by the TAs. (Available at the Penn bookstore)

Calculators

You will need a hand calculator for the homework assignments and the exams. The calculator must be able to compute square roots and powers. You may also want to choose a calculator that has 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.

Computer software (Excel, STATA)

Many of the homework assignment questions can be done more efficiently by using Excel. The TAs will provide some instruction in how to use Excel for making common statistical computations and drawing graphs. In order to take advantage of Excel, you should quickly find a way to access a computer with this software, either at home or on campus.

The analysis of survey data can be completed most efficiently by using STATA, the statistical software for which you will receive some instruction. You will receive a short-term license to use STATA on your computer.

The exams will not test your knowledge of Excel or STATA. The use of Excel or STATA for the homework assignments is optional (but strongly recommended). Instruction in using Excel or STATA is provided as means to complete homework assignments more efficiently. Also, you will find these computing tools useful beyond this class.

Web resources

Moore's text comes with many useful online supplements that you are encouraged to explore (<https://www.macmillanlearning.com/studentresources/college/collegebridgepage/bps8e.html>). These include self-quizzes, additional exercises, statistical applets, and data sets. The materials available on the free site are also on the CD that comes with the textbook.

LECTURES

Lectures will be held on Zoom and recorded for asynchronous viewing. They focus on basic concepts and their application. You will not usually need to have your textbook with you to follow lectures, but you will need to have a notepad to take notes. Research shows that students learn more when using pen-and-paper in class. After the first few topics, you will need to have your formula card and calculator.

Attendance at lectures

Attendance is recorded and does count a bit (5%) toward the final grade. Attendance is measured using your participation in PollEverywhere pop quizzes during lectures. We will only track your participation, not your answers. You will get 1 point for each answer, whether correct or not.

In order to participate in these quizzes (either synchronously or asynchronously), you will need to use your cell phone/tablet or a different window on your computer.

Students can miss three lectures without any effect on their attendance grade. After the third absence, the attendance grade starts to drop. A lecture missed for any reason will count as an absence.

Preparing for lectures

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; do additional problems if you are having trouble. Then read the text of the chapter again to solidify what you learned.

RECITATION SESSIONS

Recitation will be held synchronously on Zoom. If you are not able to attend the recitation you are signed up for due to distant time zones, you may attend a different recitation. Sessions combine instruction with review of the previous week's homework assignment. Some activities, such as teaching Excel and STATA, will be done only during recitations. Short videos ("How do I do that?") will be made available for viewing prior to the recitations.

Recitation attendance will also be recorded by the TA. Attendance at recitations does not formally count toward your grade, but recitation attendance records may be used at the end of the semester in decisions about "pumping up" grades for students whose overall point total puts them slightly below the next highest grade.

ONLINE DISCUSSION BOARD

We are using Piazza as a discussion board for this class. This discussion board will be managed by the instructor and the TAs. You may post questions publicly or privately (seen only by the instructors or the TAs). Outside recitations, Piazza will be the main mode of interaction between students, TA and the instructor for questions related to the academic or logistical aspects of the class. You should refrain from using direct e-mail to the instructors or the TAs, except for personal questions that you want to share only with the instructor or your TA.

EXAMINATIONS

There will be two “in-class” (online) exams during the semester and a final (online) exam. Tentative exam dates are on the schedule below, but dates may change. You must take the exam, even if the date is changed from the tentative date on the schedule. Exams will all be take-home exams but they will need to be completed during a specific window of time.

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.

Each of the three exams will count 25% of your final grade. However, you may drop one of your “in-class” exam scores, in which case your final exam will count 50% of your final grade. You must let the instructor know about dropping one of your in-class exam scores before the end of the day of the last class (Wednesday, April 28, 2021, 11:59 PM). NO make-up exams will be given for either of the in-class exams under any circumstances; this includes, but is not limited to, illness, family emergencies, athletic events, trips booked ahead of time, etc. If you do not take a particular in-class exam, for any reason, that will be the exam score which you drop.

Disagreements 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) Send the copy of the exam and the written statement in to the instructor no later than one week after the instructor or TA sends 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 into account if you have a borderline grade) if you have individual concerns.

HOMEWORK ASSIGNMENTS

There will be weekly homework assignments. I will assign homework problems for each chapter, and will post them on Canvas. You will need to post your homework on Canvas before the BEGINNING of the class (10:00 AM) on the due date indicated on the schedule (usually on Wednesday). Late assignments will still be accepted (with a penalty – see below) if they are turned in before the beginning of your recitation of the same week. The TAs will go over the solutions during recitations. Put your name and recitation number on your assignments.

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 during recitations. 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 10:00 AM on the due date but before the beginning of recitation for that week will receive a score 1 point 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 turned in after the beginning of your recitation session will

count for nothing. Since we understand that from time to time your schedule may not allow you to turn in your homework on time, your two lowest scores will be dropped when computing your final homework grade.

Computing final homework grade

To compute the basis for the final homework grade, I drop your two lowest homework grades, and calculate an average homework grade, between 0 and 100. When computing the average grade, a “3” is worth 100 points, a “2” is worth 85 points, a “1” is worth 50 points, and a “0” is worth 0 points. 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.

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** write them up independently. To simply copy another student’s homework assignment and turn it in is cheating.

FINAL GRADES

Final grades will be calculated as follows:

Homework assignment	20%
Attendance in lectures	5%
First in-class exam	25%
Second in-class exam	25%
Final exam	25%

COMMUNICATION

The instructor or TA will send messages to the class via Canvas. You are responsible for checking your e-mail daily to make sure you do not miss announcements. 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.

**SOCI 120 Course Schedule
Spring 2021**

Date	Chapter	Topic	Problems	Comments
W Jan 20 M Jan 25	1	Picturing Distributions with Graphs	Problems due W Feb 3	
W Jan 27 M Feb 1	2	Describing Distributions with Numbers	Problems due W Feb 10	Bring formula card from now on!
W Feb 3 M Feb 8	3	The Normal Distributions	Problems due W Feb 17	
W Feb 10	4	Scatterplots and Correlation	Problems due W Feb 24	
M Feb 15 W Feb 17 M Feb 22	5	Regression	Problems due W Mar 1	
W Feb 24	6	Two-way tables	Problems due W Mar 3	
M Mar 1	8	Producing Data: Sampling	Problems due W Mar 3	
W Mar 3	9	Producing Data: Experiments	Problems due W Mar 17	
M Mar 8	***EXAM 1 – M Mar 8 – Covering Chapter 1-5 ***			
	*** SPRING BREAK MAR 10-11 ***			
M Mar 15	12	Introducing Probability	Problems due W Mar 24	Skip * sections
W Mar 17 M Mar 22	15	Sampling Distributions	Problems due W Mar 24	
W Mar 24 M Mar 29	16	Confidence Intervals – The Basics	Problems due W Apr 14	
W Mar 31 M Apr 5	17	Tests of Significance – The Basics	Problems due W Apr 21	Skip * sections
	*** EXAM 2 – W Apr 7 – Covering Chapters 6, 8, 9, 12, 15 ***			
M Apr 12	No class			
M Apr 19	18	Inference in Practice + first half of Chapter 20	Problems due W Apr 21	Skip * sections
W Apr 21	20	Inference about a Population Mean + first half of Chapter 21	Problems due M Apr 26	
M Apr 26	21	Comparing Two Means	Problems due W Apr 28	
W Apr 28		Exam Review		
	*** FINAL EXAM MAY 10 NOON-2pm*** Covering Chapters 16-18, 20-21			

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