

Econ 103- Statistics for Economists

Summer 2022

Course instructor: Sean McCrary

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Office Hours: TBD on Zoom

Course Description: The course focuses on elementary probability and inferential statistical techniques. The course begins with a survey of basic descriptive statistics and data sources and then covers elementary probability theory, sampling, estimation, hypothesis testing, correlation, and regression. The course focuses on practical issues involved in the substantive interpretation of economic data using the techniques of statistical inference. After completing this course, you will be able to carry out statistical analyses yourself using the computer package R.

Prerequisites: Econ 01 and Econ 02 and Math 104 And (Math 114 or Math 115).

Textbook and Software: The textbook for this course is *Introductory Statistics*, Sheldon M. Ross, 4th edition, Elsevier. This book can be accessed for free online from the UPenn library. We will use the statistical package R via a front-end called RStudio throughout the course. Both R and RStudio are free and open source.

Homework: I will post suggested problems from the textbook and additional review exercises after lecture. These exercises will not be collected for a grade, but you are *strongly* encouraged to attempt these problems. Many of the exam questions will be related to these exercises.

Exams and Grading: There will be three midterms and a final exam that count towards your course grade. Exams are open note and will be posted on Canvas after which you will have a 24 hours window to complete and upload your solutions. Note, all midterms and the final will involve coding in R. All exams are cumulative, but they are weighted more heavily towards recent material. Each midterm counts for 20% of the course grade, and the final will count as 40%. Letter grade cutoffs are given in the table on the next page. If necessary, I will curve overall course scores upwards to get an average GPA in the 3.0-3.2 range. I will not curve course grades down.

Piazza: We will be using an online discussion forum called Piazza, accessible via Canvas, for all written communication in this course. We will use Piazza to make course announcements, answer questions about course material and respond to private messages from individual students regarding personal issues. By asking your question and getting an answer on Piazza, you create a positive externality: other students benefit from your questions and you benefit from theirs. You can even post anonymously if you like. I will actively moderate Piazza both to answer questions and approve (or correct) answers written by your fellow-students. All written communication for Econ 103 should be directed to Piazza.

Regrade Requests: Exam regrade requests must be made in writing within a day of receiving your graded exam. As we re-grade the entire exam, your score could rise or fall. You may not discuss your answers with the instructor before submitting a regrade request.

Academic Integrity: All suspected violations of the code of academic integrity as set forth in the Pennbook will be reported to the Office of Student Conduct. Confirmed violations will result in a failing grade for the course.

Grading Scale												
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
98-100	93-97	90-92	88-89	83-87	80-82	78-79	73-77	70-72	68-69	63-67	60-62	<59

Course Schedule (Tentative)				
Day	Date	Topic	Reading	Exam
Mon	5/23	Introduction to Statistics	1.1-1.4	
Tue	5/24	Introduction to R		
Wed	5/25	Sample Statistics I	3.1-3.7	
Thu	5/26	Sample Statistics II	3.1-3.7	
Fri	5/27	Data Analysis in R		
Mon	5/30	No Class - Memorial Day		
Tue	5/31	Basic Probability I	4.1-4.6	
Wed	6/01	Basic Probability II	4.1-4.6	
Thu	6/02	Basic Probability III	4.1-4.6	
Fri	6/03	No Class - Midterm		Midterm I
Mon	6/06	Discrete Random Variables I	5.1-5.6, 5.8-5.9	
Tue	6/07	Discrete Random Variables II	5.1-5.6, 5.8-5.9	
Wed	6/08	Continuous Random Variables I	6.1-6.8	
Thu	6/09	Continuous Random Variables II	6.1-6.8	
Fri	6/10	No Class - Midterm		Midterm II
Mon	6/13	Sampling Distributions I	7.1-7.4	
Tue	6/14	Sampling Distributions II	8.1-8.4	
Wed	6/15	Confidence Intervals I	8.5-8.7	
Thu	6/16	Confidence Intervals II	8.5-8.7	
Fri	6/17	No Class - Midterm		Midterm III
Mon	6/20	No Class - Juneteenth observed		
Tue	6/21	Hypothesis Testing I	10.1-10.7	
Wed	6/22	Hypothesis Testing II	10.1-10.7	
Thu	6/23	Regression I	12.1-12.5	
Fri	6/24	Regression II	12.7-12.9	
Mon	6/27	Regression III	12.10-12.11, 12.13	
Tue	6/28	Open - Review		
Wed	6/29	No Class - Final Exam		Final