

Statistics for Economists

ECON 103

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1 Course Description

This is an introductory course on Statistics, where we will learn the basics about:

- Probability Theory (the framework under which we model and study randomness),
- Descriptive Statistics (how we describe a data sample),
- Inferential Statistics (how we use the sample to learn about the population).

The course also includes a brief introduction to the programming language R (and its front-end, RStudio).

2 Requirements

2.1 Prerequisites

Multivariable calculus (Math 104 and 114/115).

2.2 Textbook

We will work with [Introductory Statistics](#), 5th ed., by Thomas Wonnacott and Ronald Wonnacott (1990). Online access to the textbook provided by Penn libraries. I don't recommend purchasing the textbook only for this class.

In the (tentative) Course Schedule below, textbook readings are listed alongside their corresponding lectures. We'll probably go beyond the textbook in lectures, so it is crucial that you don't miss the latter. Reviewing the textbook is highly recommended, as it provides insightful guidance. Some sections seem long, but the writing isn't dense and there are a lot of figures.

Other Texts: If you think more practice would be useful, previous instructors have recommended the textbook's supplement, [Student Workbook to accompany Introductory Statistics for Business and Economics](#). Online access is also provided by Penn libraries.

2.3 Canvas and Piazza

We will use Canvas for most of class-related communication, and assignments; I will post announcements regularly, so it is important you pay attention to the site. Within Canvas, we will use Piazza as our main tool to answer questions regarding class contents and assignments. That is, rather than emailing questions, I encourage you to post your questions on Piazza so everyone can benefit.¹ For the previous reason, please check Piazza regularly; there's a chance your doubt might have been answered there.

2.4 Statistical Software

We will learn the basics of the statistical software R (and its front-end, RStudio) throughout the course. Both R and RStudio are free and open source. Previous knowledge is not necessary.

3 Course Structure

1. Lectures (asynchronous): lectures will consist of short videos uploaded to Canvas. I will use both slides and the whiteboard to illustrate examples and solve sample problems. The corresponding textbook chapters will be described in the syllabus. You get to decide when you watch the lectures, and when you review the textbook. As a recommendation, it is a good idea that you do so before the week's Q&A sessions.
2. Q&A Sessions (synchronous): I will host Zoom Q&A sessions at least once a week. These will be focused on answering questions regarding lectures, but also solving problems on the whiteboard. I **strongly** recommend that you attend.
3. R Tutorials (asynchronous): I will post a recommended list of weekly R tutorials for you to follow on your own. These won't be graded, but the course will include a Data Analysis project and I might include R-related questions in the assignments.

4 Grading

Preliminary grading policy as follows:

1. Homework (40 pts): there will be 5 homeworks covering all the material studied in class. No homework will be dropped when calculating your grade.
2. Data Analysis Project (25 pts): this project will evaluate both mastery of the class' contents and statistical software R. Further description will be provided throughout the semester.
3. Final (25 pts): cumulative exam.

+5 points in participation in Review Sessions and Canvas. Letter grades will be assigned according to the following table.

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
98–100	92–97	90–91	88–89	82–87	80–81	78–79	72–77	70–71	68–69	60–67	≤ 59

¹Piazza also allows you to write equations using \LaTeX , which is a great advantage over emails.

Regrades (and Other Policies)

Everything stated [here](#) applies to this course. I will highlight that regrade requests must be made in writing within a week of receiving your graded quiz or exam. *Since I will re-grade the entire thing, your score could rise or fall.* You may not discuss your answers with me before submitting a regrade request.

5 Course Schedule (tentative)

Per schedule [here](#):

1. Last day to drop with no financial obligation: 01/06.
2. Last day to drop with 50% financial obligation, or change grade status: 09/06.
3. Last day to withdraw: 23/06.

Week	Date	Topics	Readings	Assignment
1	24/5	Introduction, Summary Statistics Basic Probability	1, 2.1-2.3, 3.1-3.6, Basic Combinatorics (Canvas)	HW1
2	31/5	Probability, Discrete RVs	3.7, 4.1-4.3, 4.7	HW2
3	7/6	Continuous RVs, Sampling Distributions		HW3
4	14/6	Confidence Intervals		HW4
5	21/6	Hypothesis Testing, Regression		HW5, Data Project, Final
	30/6*	End of Summer I		