Econ UA-18.001 STATISTICS
Summer 2016, NYU Economics
Syllabus

Ercan Karadas - Lecturer

Term	: May 23 - June 30
Lectures	: MoTuWeTh, 9.00AM - 10.45AM (TISC, LC11)
Lab	: Th, 2:15PM - 3:50PM (19W4, 102)
Office Hours	: By Appointment
Office	: 19 West 4th St, Room 717
Email	: ercan@nyu.edu

Course Description: This course offers an introduction to statistics. In the first part, we begin with introducing the basics of data descriptives and samples from a data set. We will learn how to construct and interpret certain descriptive statistics, such as the mean and the variance, that characterize the distribution of data. After covering some basic concepts in probability theory, we will introduce the idea of a random variable and the distribution of a random variable, and look at some distributions that are important in applications, including the normal distribution, poisson and the binomial distributions.

The second part of the course is devoted to statistical inference and hypothesis testing. We will learn some methods for making certain type of inferences regarding a population characteristics from a sample statistics associated with random samples from that population. In the final part of the course we will study simple and multi-regression models to quantify the affect of a set of explanatory variables on an independent variable, and we will also see how statistical inference and hypothesis testing are indispensable parts of these models.

Prerequisites: Math-UA 121 with a minimum grade of C, or AP3 CALCAB or CALCBC with a score of 4, Math-UA 122, or Math-UA 123, or Math-UA 211. This course is not open to Stern students. Students must also register one of the lab sections UA-18.017 - 020.

Textbook: *Statistics for Business and Economics*, Paul Newbold, William Carlson, Betty Thorne, Prentice Hall, 8th Edition.

Computer Application / Programming: Depending on our pace if time permits, we will use R programming language for statistical computing. I will show you how to install this program in class and then will go through basic statistical applications along the semester together as we need. In that case, I will also post some lecture notes for the programming part.

Grading:

Midterm 1	30%
Midterm 2	30%
Final Exam	40%

Grade Distribution (%)

A&A-	30-35%
B+&B&B-	40-45%
C	20-25%
D&F	5-10%

Content of the Course:

Chapter 1	Describing Data: Graphical
Chapter 2	Describing Data: Numerical
Chapter 3	Probability
Chapter 4	Discrete Random Variables and Probability Distributions
Midterm 1	Content: Ch 1,2,3,4 ; Date: TBA
Chapter 5	Continuous Random Variables and Probability Distributions
Chapter 6	Sampling and Sampling Distributions
Midterm 2	Content: Ch 5,6 ; Date: TBA
Chapter 7	Estimation: Single Population
Chapter 9	Hypothesis Testing: Single Population
Chapter 11	Simple Regression
FINAL	Content: Ch 5,6,7,9,11 ; Date: June 30

How to Study for this Course?

- **Sources:** Lecture Slides, Practice Problems, and the Textbook.

- **Lecture Slides**

  - Slides for the upcoming lectures will be posted on NYU Classes in advance.
  - Try to spend 10-15 minutes to skim through the slides before the lecture and come with print-outs

- **Practice Problems**

  - Each problem set will contain around 10 - 12 problems, and will be organized in two sections. The first section will be discussed in the recitations and second section will consist of similar problems but they are for your own practice. Solutions will be provided for both sections.
  - Attempt to solve the problems in the first section before going to the recitation and when you try to solve the problems in the second section **do not look at the solutions too soon!**.

- **Textbook**

  - I like this textbook mainly because it contains many good exercises, so try to solve some extra problems from the book if you have time.
  - Since we will use the textbook mainly to draw problems from, you can purchase either 8th or 7th edition. Because, I think, they contain the same set of exercises.