ECON 41: STATISTICS FOR ECONOMISTS
Summer 2017

Department of Economics, UCLA
Ming Gu

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Office Hours: My office is located in Bunche 9386. Time TBD

Description: This course is an introduction to the theory and practice of statistics with an emphasis on its use in economics. It will introduce basic statistical concepts such as random variables, probability distributions, estimation, confidence intervals and hypothesis testing.

Textbook: The textbook for the course is *A Brief Course in Mathematical Statistics* by Elliot A. Tanis and Robert V. Hogg (Prentice Hall). No access code is required.

Course Outline:
1. Probability
   a. Basic Concepts
   b. Methods of Enumeration – Only three topics including Sampling with Replacement, Combination, Binomial Coefficients
   c. Conditional Probability
   d. Independent Events
   e. [Skip Section 1.5 Bayes's Theorem]
2. Discrete Distributions
   a. Discrete Probability Distributions – Topics include Mean, Variance, Sample Mean, and Sample Variance
   b. Expectations. [Unbiased estimation and Chebyshev's inequality deferred until after continuous random variables.]
   c. Special Discrete Distributions. Discuss only the definition of Poisson. [Skip relationship between binomial and Poisson. Skip every other distribution in the section.]
   d. Linear Functions of Independent Random Variables. [Law of large numbers discussed later.]
   e. Covariance [Skip the rest of Section 2.6 Multivariate Discrete Distributions]
3. Continuous Distributions
   a. [Skip Section 3.1]
   b. Continuous Probability Distributions. [No percentile]
   c. The Normal Distribution [Skip Example 3.4-7]
   d. (Optional) Estimation in the Continuous Case
   e. Central Limit Theorem. [Skip every example except Example 3.6-1]
   f. Approximations for Discrete Distributions. [Skip Example 3.7-5]
4. Applications of Statistical Inference

a. Chebyshev's Inequality, Law of Large Numbers and Estimation
b. Section 3.3. Brief Introduction to chi-square, t- and F-distributions. No other distributions will be discussed.
c. Summary of Necessary Theoretical Results.
d. Section 4.2. Just discuss confidence intervals using T. Two-sample problems on pp 165-168 optional.
e. Confidence Intervals and Tests of Hypotheses
f. [Skip the rest of this chapter, i.e., 4.4-4.11]

Homework: There will be weekly homework assignments, which will be posted on the course website. Normally each homework assignment will be distributed on Monday and due in class the next Monday. Late homework will not be accepted.

Exams: There will be an in-class **midterm exam** on **Wednesday, August 23, 2017 (subject to change)**, and a final exam in the last week of the summer session. The final exam will cover everything discussed in this quarter, including the material covered in the midterm exam.

Evaluation: Your final letter grade will be based on the weighted average of the homework assignments, the midterm exam and the final exam. No other factor will be considered when your letter grades are determined. The weights given to the homework assignments, midterm and final exams are as follows:

- Homework assignments: 10% (Each assignment has equal weight and the lowest score will be dropped.)
- Midterm: 40%
- Final: 50%

Other Rules: Consult the Common Syllabus, which can be found at:
http://www.econ.ucla.edu/undergraduate/?p=commonsyllabus.