ECON 41 – STATISTICS FOR ECONOMISTS
Instructor: Xuanyu Iris Fu
UCLA, Summer Session A, 2019

Lecture Days and Times: TR 10:45am-12:50pm
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Course website: https://moodle2.sscnet.ucla.edu/course/view/191A-ECON41-1

Course 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, estimations, confidence intervals and hypothesis testing.

Prerequisite: Mathematics 31A (Differential and Integral Calculus) and Mathematics 31B (Integration and Infinite Series)

Textbook: The textbook for this course is A Brief Course in Mathematical Statistics by Elliot A. Tanis and Robert V. Hogg (Prentice Hall). We do not use the entire book. The publisher edited a special version containing only the chapters that we use. It is a little cheaper. The ISBN for this special version is 1256324108.

Course Outline:
1. Probability
   a. Basic Concepts
   b. Methods of Enumeration-Only three topics including Sampling with Replacements, Combination, Binomial Coefficients
   c. Conditional Probability
   d. Independent Events
   e. [Skip Section 1.5 in textbook on Bayes’s Theorem]
2. Discrete Distribution
   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 Distribution – Only discuss the Binomial and Poisson Distributions [Skip relationship between Binomial and Poisson and other distributions in the section]
   d. Linear Functions of Independent Random Variables [Law of Large Numbers discussed later]
   e. Covariance
3. Continuous Random Variables
   a. [Skip Section 3.1 in textbook]
   b. Continuous Probability Distributions [No percentile. Skip Example 3.2-5]
c. The Normal Distribution [Skip Example 3.4-7]
d. Section 3.3 as well as Section 4.1: Brief introduction to Chi-square, t- and F-
distributions
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 4.2 – Only discuss confidence interval using T.
   c. Confidence Intervals and Test of Hypotheses.
   d. [Skip rest of this chapter]

5. [Skip Chapter 5]
6. [Skip Chapter 6]

**Homework:** Homework problems will be listed in the Lecture Notes, which will be available at the web site. You are not required to turn in your homework. (At least 30% of midterm and final questions will be based on the homework problems, so you should really understand how to solve the problems).

**Exams:**
- There will be midterm exam on July 11, 2019 and a final exam on August 1, 2019
- The midterm will cover material up until and including the section on Linear Functions of Independent Random Variables
- The final exam will be cumulative, including the material covered in midterm exam
- The midterm is a 60-minute exam, and the final is a 120-minute exam
- In the midterm exam, no table will be provided. In the final exam, Tables V and VI will be provided
- The exams will be in a multiple-choice format
- In both exams, you will be required to bring a Canon LS-100TS calculator to all exams. This is the ONLY calculator that will be permitted, and you are not allowed to use a cell phone as a calculator
- If you fail to bring a calculator, or your calculator malfunctions/runs out of battery, you will be asked to take the exam without a calculator
- In both midterm and final, multiple versions of the exams will be distributed to minimize cheating. (All the versions will contain identical set of questions, ordered differently.) Clearly indicate the version of the exam on the scantron form. If you do not indicate the version, your score will be subtracted by an amount discussed on the cover page of the exam.

**Academic Dishonesty:** If you cheated in any exam, your score will be imputed to be zero. In addition, all cases of cheating will be reported to the Office of the Dean of Students. For more details, please refer to the Office of the Dean of Students website at [https://www.deanofstudents.ucla.edu/Academic-Integrity](https://www.deanofstudents.ucla.edu/Academic-Integrity)

**Evaluations:** The final letter grade will be based on the weighted average of the midterm exam and the final exam. No other factor will be considered when your letter grades are determined. The weights given to the midterm and final exams will be 40% and 60% respectively.
Center of Accessible Education (CAE): Any student with a pre-existing illness or condition who requests special arrangements must (a) qualify under CAE rules for such special arrangements and (b) must take the exam with CAE. Any such arrangements with CAE must be communicated to the instructor during the first week of classes. For additional information and the qualification conditions of the Center for Accessible Education please visit their website at https://www.cae.ucla.edu/. All other students must take the exam at the scheduled time under the same time constraints. It is the responsibility of all students who request special arrangements with CAE to be familiar with all of their rules as well as the rules of this class.