Office Hours and Office:
Instructor: Professor TH Lee
LEC: MWF 3:10 – 4:00 p.m.
Office hours: MF 2–3 p.m.

Teaching Assistants, Office Hours, and Offices:
Ms. He Wang (LAB, Monday) R 1:00 p.m. – 3:00 p.m.
Ms. Yi Mao (DIS, Wednesday) F 10:00 a.m. – 12:00 p.m.

The TA sessions begin from week 1 (from March 28).


Course Description: The course is an introduction to probability and statistics for econometrics. The goal is to study “mean”, both unconditional and conditional. The keyword of the course is “conditional”. By learning conditional probability, conditional distribution, conditional median, conditional mean, etc., you’ll be prepared for Econ 107.

Course Outline: Chapters 1-5 and 8 cover basic materials. Chapters 6, 7, 9 cover fundamental materials. Chapters 10, 11, 12, 13, 16 are extensions of Chapter 9. Note that the length of each chapter in the textbook is not uniformly distributed.

- Introduction [Chapters 1, 2, 3, 4, 5]
  histogram (unconditional and conditional), mean (unconditional and conditional)
- Probability [Chapters 6, 7, 8]
  distribution (unconditional and conditional), mean (unconditional and conditional)
- Statistics [Chapters 9, 10, 11, 12, 13, 16]
  sample mean (unconditional and conditional), its sampling distribution

Course Contents and Homework Assignments: Chapters 1-5 will be discussed briefly only to motivate the course. Chapters 6, 7, 8, 9, 10, 11, 12, 16 are main chapters of this course. Some sections of these chapters will be skipped. For sections to be included (as indicated below), the following Exercises from the textbook are selected as homework assignments, which you must try on your own. No solutions will be provided in hard copy. Many of them will be discussed in LEC/DIS/LAB.

Chapters 1, 2, 3, 4, 5. Introduction
Exercises 1.3, 1.4, 1.6, 1.7
Exercises 2.33
Exercises 3.5, 3.17, 3.50, 3.54
Exercises 4.2, 4.20, 4.27, 4.63, 4.64, 4.65, 4.66, 4.67
Exercises 5.13, 5.14, 5.17

Chapter 6. Probability
Section 6.1 (sample space, events, and probability): Exercises 6.5, 6.7
Section 6.2 (joint, marginal, conditional probabilities): Exercises 6.17, 6.18, 6.19, 6.20, 6.21, 6.22, 6.23, 6.24, 6.25, 6.26, 6.27, 6.28, 6.43
Section 6.3 (probability tree): Exercises 6.47, 6.52, 6.53, 6.60, 6.61, 6.64, 6.67, 6.70
Section 6.4 (Bayes’ theorem): Exercises 6.76, 6.77, 6.80, 6.81

Chapter 7. Discrete Random Variables and Probability Distributions
Section 7.1 (random variables and probability distributions): Exercises 7.18, 7.19, 7.20, 7.21, 7.26, 7.32, 7.33
Section 7.2 (joint, marginal, conditional distributions): Exercises 7.43, 7.44, 7.45, 7.46, 7.51, 7.54, 7.55, 7.56
Section 7.4 (Binomial distribution): Exercises 7.84, 7.85, 7.86, 7.87, 7.88, 7.89, 7.90, 7.91, 7.93, 7.95, 7.97, 7.100, 7.107, 7.108, 7.109

Chapter 8. Continuous Random Variables and Probability Distributions
Section 8.1 (probability density functions): Exercises 8.1 - 8.8, 8.11- 8.14
Section 8.2 (normal distribution): Exercises 8.15 - 8.41, 8.50 - 8.54

Chapter 9. Sampling Distribution of A Statistic
Section 9.1 (sample mean): Exercises 9.7, 9.8, 9.9, 9.15, 9.21, 9.25
Section 9.3 (difference of two conditional sample means): Exercises 9.45, 9.51, 9.53

Chapter 10. Estimation
Section 10.1 (properties of a point estimator): Exercises 10.1 - 10.8
Section 10.2 (interval estimator): Exercises 10.9, 10.12, 10.21, 10.22, 10.23, 10.31

Chapter 11. Hypothesis Testing
Section 11.1 (introduction and concepts): Exercise 11.1
Section 11.2 (testing on µ when σ is known): Exercises 11.7 - 11.12, 11.13, 11.14, 11.15, 11.28, 11.29, 11.35, 11.36

Chapter 12. Estimation and Hypothesis Testing when σ is unknown
Section 12.1 (inference on µ when σ is unknown): Exercises 12.3 - 12.7, 12.23, 12.25

Chapter 16. Regression
Section 16.1 (a linear model for the conditional mean)
Section 16.2 (estimation of the conditional mean): Exercises 16.1 - 16.7
**DIS and LAB Sessions:** You must attend the registered section. Attendance to discussion and laboratory sessions is mandatory. TAs will provide supplementary lectures, review the class lectures, discuss the homework assignments, and provide help with computer problems. Some problems in homework assignments will require the use of computer. EXCEL will be used with the Add-in program that comes with the textbook. But if you are familiar with any other statistical software (Eviews, Stata, R, Matlab, SAS, Gauss, etc) please feel free to use it. LAB sessions will be held at SPR 2225. Additional computer facilities are in Watkins 2101 and Watkins 2111. To check whether a lab is available, click [here](#).

**Grading:**

- Homework Assignments: 0%
- Attendance: 10%
- Quizzes: 10%
- Midterm 1: 20%  
  4/29/2016, Friday, in class (50 minutes)
- Midterm 2: 20%  
  5/20/2016, Friday, in class (50 minutes)
- Final Exam: 40%  
  6/6/2016, Monday, 7:00 p.m. – 10:00 p.m.

There are many **Homework Assignments** as listed above. Homework Assignments will provide many hand-on examples to help you understanding the lecture material. Homework Assignments will be discussed in DIS and LAB, but will not be graded and therefore there is no need to turn in. It is important that you do Homework Assignments on the synchronized pace with LEC, because it will be impossible for you to do all at once just before the exams. Homework Assignments may be useful for exams.

**Attendance** in all LEC/DIS/LAB is required. If you miss one, you may be lost quickly. You will have to attend only the *registered* DIS/LAB sections to get attendance credits. Attendance will be checked frequently.

There will be several pop-up **quizzes** during LEC/DIS/LAB without prior notice. All quiz questions will be based on LEC materials. There will be no make-up quiz for *any* reasons. Each quiz is 2%, with 1% for your performance and 1% for the attendance.

All three **exams** are mandatory. No make-up exams will be given (take it or lose it). The final exam is comprehensive. All exam schedules can be subject to change with a short notice. Students are responsible for any announcement and information provided during LEC/DIS/LAB. Bring a photo ID to the exams. Cheating, fabrication, plagiarism, or other forms of academic dishonesty are violations of university values and policies.

“I love trying to beat what I've done so far.”  *Taylor Swift*

“You have brains in your head and feet in your shoes. You can steer yourself any direction you choose.”  *Dr. Seuss*