ECON 6310: Econometric I

Spring 2023

Instructor:	Sung Hoon Choi	**Time:**	TuTh 12:30PM – 1:45PM
Email:	sung_hoon.choi@uconn.edu	**Place:**	OAK 109

Teaching Assistant: Kunze Li (kunze.li@uconn.edu)

Office Hours: Wednesday 3:00 - 4:00, OAK 336B.

Course Description: The main purpose of this course is to introduce basic (and some advanced) probability and statistical inference topics that you will find helpful as you pursue a graduate education in Economics. At the end of this course, you should be familiar with basic concepts in probability theory, commonly used univariate and multivariate distributions, different types of convergence and estimation methods, and general principles of constructing confidence intervals.

Course Website: The huskyCT website, https://lms.uconn.edu/, contains all the information for this course, including lecture notes, reading assignment, references, homework, updated syllabus, as well as supplemental material and exercises.

Main References:

- Casella, G. and Berger, R. Statistical Inference, Cengage Learning (2nd edition), 2001.

- Hansen, Bruce E. Probability & Statistics for Economists. Princeton University Press, 2022. Note: This book is a companion book to Bruce E. Hansen's *Econometrics*.

Other references:

- Linton, Oliver. Probability, Statistics and Econometrics, Elsevier, 2017.

- Wooldridge, Jeffrey M. Econometric analysis of cross section and panel data. MIT Press, 2002.

- Wooldridge, Jeffrey M. Introductory econometrics: A modern approach. Cengage learning, 2015. (Undergraduate level)

- Stock, James H., and Mark W. Watson. Introduction to econometrics. New York: Pearson, 2012.

Software: Python, R, or Matlab

Class Policy and Grading: Regular attendance is essential and expected. Participation (15%). Homework (25%). Midterm (30%). Final Exam (30%).

Tentative Course Outline:

1. Review of Probability and Distribution Theories

   - Set theory
   - Basics of probability
   - Random variables
   - Common families of distributions

- Important inequalities

2. Large Sample Theory

   - Convergences in probability and in distribution
   - Law of Large numbers
   - Central Limit Theorem
   - Delta method

3. Mathematical Statistics

   - Identification and completeness
   - Maximum Likelihood Estimations (MLE) and Efficiency
   - Computations

4. Statistical Inferences

   - Hypothesis testing
   - Interval estimation

5. Linear regression model and its properties

Important Dates:

> Midterm . . . . TBA
> Final Project . . . . TBA

Due Dates and Late Policy: All due dates and deadlines will be clearly announced in the class. The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner. Late policy is that any submission later than the due dates or deadlines will receive a late penalty on the grades.

Academic Integrity: Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each personís work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

Students with Disabilities: The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.