

Economic Statistics and Econometrics I

Professor Xiaoxia Shi
Social Sciences Building #6428
xshi@ssc.wisc.edu
Office Hours: Monday 1:30-2:30pm and by appointment

TA SeoJeong (Jay) Lee
Social Sciences Building #7308
slee279@wisc.edu
Office Hours: 11am - 12pm Friday

Course Description and Prerequisite

This course is an introduction to probability theory and statistical inference designed for first year economics Ph.D. Students.

Students will be expected to have taken calculus, linear algebra and some introductory probability and statistics.

Organizations

Each week there will be two lectures of 1 1/4 hours. M/W 11:00am – 12:15pm at PSYCHOLOGY 121

In addition there will be 3 identical TA sessions each Friday in which problems sets and other issues from lecture will be discussed.

TA session time:

9:55am - 10:45am (Ingraham 115)

3:30pm - 4:20pm (Soc Sci 5322)

4:35pm - 5:25pm (Soc Sci 5322)

Grading:

Problem sets will be assigned approximately weekly and will be discussed in the TA sessions.

Grades will be based on a midterm exam (30%), a final exam in December (50%) and the problem sets (20%).

Books:

The textbook for the course is:

Hogg, Craig and McKean, 2004, "Introduction to Mathematical Statistics," 6th edition, Prentice Hall. (HCM)

Problem set questions will primarily be from this book.

References:

Billingsley, 1979, "Probability and Measure," New York: Wiley (A good book for an introduction to measure theoretic probability theory)

Casella and Berger, 2002, "Statistical Inference," 2nd edition, Pacific Grove, CA: Duxbury. (A book at a somewhat higher level than that of HCM)

Course Outline (Tentative)

1. Probability Theory
 1. Elementary Probability Theory
 2. Conditional Probability, Independence
 3. Random Variables, Distribution Functions, Functions of Random Variables
 4. Transformations and Expectations
 5. Joint and Conditional Distributions
 6. Special Distributions
 7. Convergence, Laws of Large Numbers, Central Limit Theorems
2. Statistical Inference
 1. Maximum Likelihood Estimation and Simple Linear Models
 2. Point Estimation
 3. Interval Estimation
 4. Bayesian Estimation
 5. Hypothesis Testing

****Recording of the class is prohibited.**

****Students with disabilities: please see me as soon as possible if you will need accomodation.**