

ECON 510: Probability and Statistics II (Econometrics)

Instructor: Mirza Trokić
Office: A105
Phone: 290-1890
Office Hours: Wednesdays 14:00-15:00

Lecture Hours: Mondays 8:30-10:20
Wednesdays 10:30-12:20

Room: MA103

Teaching Assistant: Burak Eroğlu

The course website will be: <http://www.mirzatrokic.ca/index.php/teaching/econ510>

Course Description

This course is a fundamental course in econometric theory. The course will open with regression models and their properties. Along the way, we will cover hypothesis testing, confidence intervals and bootstrap theory. We will also cover nonlinear regressions, generalized least squares, method of moments and instrumental variables estimation. The course will close with a look at discrete models, multivariate models, nonparametric regressions, and unit roots and cointegration. The primary aim of the course is to provide students with a sound understanding of econometric theory and prepare them for research positions in the field. Once you complete this course, your skill set will not only be of use in economics and finance, but in virtually any field which requires the use of regression analysis.

Course Literature

Required Textbook: Davidson and MacKinnon (2004)
Recommended Textbook: Hansen (2014)

Although you are responsible only for what is covered in class, you are encouraged to obtain at least the required text if for no other reason than to have access to additional practice problems.

Course Software

Homework assignments may require the use of statistical software. The typical software of choice at this level is *R*, *Matlab*, *STATA*, or any other comparable software package. If you are not familiar with a programming language, you are strongly encouraged to begin learning as soon as possible. The T.A. will also be available to help you in this regard should you require assistance.

Course Outline

- Week 1 Regression Models
- Week 2 Properties of Linear Regressions I
- Week 3 Properties of Linear Regressions II
- Week 4 Hypothesis Testing in Regression Models and Bootstrapping
- Week 5 Confidence Intervals and Bootstrapping
- Week 6 Nonlinear Regression
- Week 7 Generalized Least Squares
- Week 8 Instrumental Variables Estimation
- Week 9 Generalized Method of Moments
- Week 10 Discrete Models

Week 11 Nonparametric Regression

Week 12 Multivariate Models

Week 13 Unit Roots and Cointegration I

Week 14 Unit Roots and Cointegration II

Grading

The grading breakdown for the course is as follows:

Assignments: 30% There will be approximately one assignment per week.
Midterm I: 30%
Final Exam: 40%

Assignments will be posted up on the course web page and you are expected to hand your assignments in to the T.A. during the T.A. review session. Solution sets will be posted on the course web page in a timely fashion. Please note that late assignments will **not** be accepted and there will be **no** makeup for missed assignments and midterms.

References

Russell Davidson and James G MacKinnon. *Econometric theory and methods*. Oxford University Press New York, 2004.

Bruce Hansen. *Econometrics*. 2014. URL www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf.