Lecturer

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Course Target
The aim of this course is to introduce the students to advanced econometric theories and models that are applicable to empirical problems. Students who successfully complete the course shall be able to perform business and economic data analysis by using existing econometric models, interpret the statistical output and identify potential problems in the model/data.

Challenge
Students may expect applying matrix algebra, random variable distributions and asymptotic theory during this course.

We will use EViews for data analysis. No experience in EViews is required.

Timetable

Lecture: TBA
Tutorial: TBA
Office Hour: TBA

Assessment
• 3 assignments are worth 30% with 10% for each.
• 1 final exam is worth 70%

Schedule of Topics
The following topics are planned as follows:

1. Review of Matrix Algebra and Statistics
   (a) Matrix Basic Operations, Inverse, Block Inverse, EigenValues and Eigenvectors, Idempotent Matrix
   (b) Random Distributions: Gaussian, Student-t, Chi Squared, F distribution
   (c) Asymptotic Theory: Law of Large Numbers, Central Limit Theorem

2. Multiple Regression Analysis
   (a) Linear Model, Guass-Markov Theorem
   (b) Multiple Regression Analysis
   (c) Hypothesis Testing

3. Method of Moments and Instrumental Variables
   (a) Exogenous/Endogeneous Variables, Omitted Variable, Instrumental Variable, Proxy Variable
   (b) Method of Moments, Generalized Method of Moments(GMM), Two-Stage Least Squares
   (c) Hypothesis Tests

4. Panel Data Models
   (a) Pooled Least Squares
   (b) Fixed Effect Model
   (c) Random Effect Model
5. Limited Dependent Variable Models

(a) Logit and Probit Model
(b) Tobit Model
(c) Censorship and Truncation, Sample Selection

Reference
There is no required text book for this course. The following books are for your reference.