

**Econ 3121D Introductory Econometrics
2018 Winter Term
The Chinese University of Hong Kong**

Instructor: Xu, Dinghai

Lecture: Wednesday 14:30 -17:15, ELB LT4

Office Hours: Wednesday 12:30 -13:30 or by appointment

Office: 1015 Esther Lee Building

Email: dhxu@uwaterloo.ca

Phone: 39439278

Teaching Assistant: Zhan Gao

Office hours: Thursday 14:00-15:00

Office: 1016 Esther Lee Building

Email: 1155014472@link.cuhk.edu.hk

Course Web Page: Access through CUSIS

Course Description

This course covers the core topics in Econometrics at the introductory level. Students will learn the fundamental theory of linear regression models. We will start with the discussions of the classical Ordinary Least Square (OLS) estimator under the set of Gauss Markov assumptions. We will also study the linear regression models when the assumptions are not satisfied. Some popular estimation procedures are discussed, including Weighted Least Square (WLS), Generalized Least Square (GLS), Instrumental Variable (IV) / Two stage Least Square estimators (2SLS).

Students will be required to learn at least one statistical software during the term in order to complete the required assignments (simulation based or empirical data based). It is expected that upon successful completion of this course, students should have basic knowledge of regression analysis on economic data.

Recommended Textbooks

[1] Introductory Econometrics: A Modern Approach, Wooldridge, Jeffrey M., Cengage Learning, 6th edition.

Note: Some of our questions are from this book. The book is available at the University Bookstore, CUHK.

[2] Econometric Analysis, W. H. Greene, Sixth Edition, NY, Macmillan.

Topics

1. **Statistics Review (Appendix B and C)**
 - Overview of basic concepts in statistics
2. **Simple Regression Model (Chapter 1 and 2)**
 - Discussions on OLS estimator properties, interpretation, derivation.
3. **Multiple Regression Models (Chapter 3, Appendix D and E)**
 - OLS estimation, Gauss Markov Theorem, Model misspecification, Matrix Representation (introductory level)
4. **Hypothesis Testing / Inference (Chapter 4)**
 - Testing single and multiple linear restrictions on coefficients
5. **Asymptotic Properties of OLS estimator (Chapter 5)**
 - Discussion on the property of OLS when the sample size increases
6. **Multiple Regression Analysis: further issues (Chapter 6)**
 - Goodness-of-fit, Model Selection, Forecasting
7. **Heteroscedasticity (Chapter 8), Endogeneity (Chapter 15)**
 - Generalized Least Square (GLS), Weighted Least Square (WLS)
 - IV estimator, two stage least square estimator
8. **Other Popular Estimation Methods (Appendix C)**
 - MLE, Method of Moments/GMM
9. **Topics in Time Series (Chapter 11, 12) – time allowed**
 - Stationarity, ACF, AR process, MA process

Note: The topics might not be covered exactly in the above order.

Computing Software

There will be several problem sets which require using statistical software for completion. Feel free to use any computing package you prefer. But, I would suggest Stata, Matlab or R. If time allowed, I may do some numerical demonstrations in class.

Course Requirements

1. Assignments (4 sets) – 20%
2. Midterm exam – 30%
3. Final exam – 50%

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