YORK UNIVERSITY
GRADUATE STUDIES
DEPARTMENT OF ECONOMICS
ECONOMICS 5025
ECONOMETRICS

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Course Description

This is an intermediate course for students who have already taken an introductory course(s) in econometrics or regression analysis. The objective is to introduce students to the estimation and testing methods used in practice, and to provide sufficient theoretical background for the extensions of the general linear model. Those extensions will include the heteroscedasticity, error-in-variables models, mulivariate linear models and their estimators. Nonlinear models such as the Poisson, logit and probit models, and the maximum likelihood estimator will also be covered. This course will be focused on the analysis of cross-section data. Time series methods will be discussed in Winter in the Econ5220 course. All theoretical concepts will be illustrated in class by empirical examples. Additional examples and problems will be provided to students in assignments. Students will be allowed to work in teams of two or (maximum) three. Suggested software are SAS, STATA and R. Students who are not familiar with any of these can use SAS codes available from this website. The prerequisites for this course are basic calculus, mathematical statistics and matrix algebra. Detailed instructions on how to use SAS on WEBFAS are provided on the ECON website. In order to access SAS go to: https://webfas.yorku.ca/Citrix/WEBFASWeb/

Requirements, Evaluation and Other Details

1. Mid-term exam 30%: date of exam, October 25
2. Final exam 50% (date to be determined later)
3. Assignments 20%: to be handed in on October 18, November 15 and 29.

Books and Other Materials

Required: Greene, W.H. "Econometric Analysis", Prentice Hall editions 6th, 7th or 8th

Suggested:

lecture notes for Econ 5025 at http://www.jjstats.com

Ajmani, V.B. "Applied Econometrics Using the SAS System", Wiley 2009.

Davidson, R., and J. MacKinnon "Estimation and Inference in Econometrics", Oxford University Press, 1993
Gourieroux, C., and A. Monfort "Statistics and Econometric Models", Vol I and II, Cambridge University Press 1995

Course Content

1. Review: General Linear Regression Model and OLS (Greene 2,3)

2. Small sample properties of the OLS (Greene 4)

3. Asymptotic theory and the asymptotic properties of the OLS (Greene 4)

4. Maximum Likelihood (ML) estimator-properties, examples: linear, binomial and Poisson models (Greene 16)

5. Restricted estimation, asymptotic tests: Wald, LM, LR; (Greene 5)

6. Heteroscedasticity and Seemingly Unrelated Regression (SUR) model (Greene 10)

7. Panel data, the Generalized Least Squares (GLS) estimator (Greene 11)

8. Error-in-variable model, the Method of Moments (MM) and Instrumental Variables (IV) estimators (Greene 12)

9. Simultaneous equations model and the Two-Stage Least Squares (2SLS) estimator (Greene 13)

10. Probit and Logit models for qualitative variables, ML (Greene 16)