

**Centre for International Trade and Development
School of International Studies**

Course: MA in Economics (with specialisation in World Economy)

Course Title: IE 504: Advanced Econometrics

Course Type: Optional

Course Teacher: Professor Amit S Ray and Dr Suman Das

Semester: Monsoon

Credits: 4

Contact Hours: 4 per week

Course Objectives

The course introduces a selection of advanced econometric methods and their applications to students with the pre-requisite knowledge of the course IE408: Introduction to Statistics and Econometrics (or equivalent).

Learning Outcomes

- Develop analytical skills to enable students to read and critically evaluate econometrics research output and to design and execute applied econometric research.
- Develop technical skills to understand and apply these econometric tools as expected from a professional economist working in the academic or corporate sectors.

Evaluation Methods

Evaluation will comprise mid-semester and end-semester examinations and a small project consisting of designing and estimating an applied econometric model using secondary data.

Course Content

1. Review of CLRM and its assumptions
2. Specification errors – Functional form, Inclusion of irrelevant variables
3. Problem of endogeneity - Omitted variables, measurement errors, reverse causality
4. Instrumental Variables Method
5. Systems of Equations
 - a. Seemingly Unrelated Regressions
 - b. Simultaneous Equations Model
6. Use of dummy variables in econometrics – structural change, threshold effects
7. Treatment effects
 - a. Difference in difference (DID)
 - b. Randomised control trials (RCT)
8. Models with discrete dependent variables:
 - a. Binary
 - b. Multinomial, Ordered, Sequential, Randomised
9. Models of limited dependent variables
 - a. Censored model
 - b. Truncated models
10. Models for Panel data
 - a. Fixed effect versus random effects models

Readings

1. W. Greene, *Econometric Analysis*, Prentice Hall
2. J.M. Wooldridge, *Introductory Econometrics: A modern approach*, SouthWestern Cengage Learning
3. J. Johnston and J. DiNardo, *Econometric Methods*
4. G. S. Madala, *Limited Dependent and Qualitative Variables in Econometrics*, Cambridge University Press
5. G. Judge et al., *The Theory and Practice of Econometrics*, Wiley