DISCIPLINE SPECIFIC ELECTIVE COURSE 21 (DSE-21): APPLIED ECONOMETRICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Applied Econometrics (DSE 21)	4	3	0	1	Class 12	Knowledge of Basic Econometrics

Learning Objectives

The course aims at:

- Illustrate key econometric methods (e.g., OLS, IV, GMM) and apply them to real-world data.
- Develop data analysis skills, including data cleaning, model estimation, and diagnostic testing.
- Conduct causal inference and understand the implications of model assumptions and violations.
- Interpret and communicate econometric results effectively for both technical and non-technical audiences.

Learning outcomes

By studying this course, the students will be able to:

- Formulate and interpret regression results obtained from software packages.
- Identify the errors in regression models and rectify the same.
- Analyse the suitability of different models for solving the problem at hand
- Understand the theoretical basis for techniques widely used in empirical research and consider their application in a wide range of problems.

SYLLABUS OF DSE-21

Unit 1: Empirical Model **(3 hours)**

Stages in empirical econometric research

Unit 2: Linear Regression Model **(9 hours)**

The linear regression model in matrix form. Estimation, specification and diagnostic testing.

Unit 3: Instrumental Variable Estimation **(12 hours)**

Omitted variable in a simple regression model. IV estimation and two stage least squares.

Unit 4: Panel Data Regression **(12 hours)**

Independent pooled cross section regression, fixed and random effects models.

Unit 5: Limited Dependent Model **(9 hours)**

Logit and Probit models for binary responses.

Practical: (15 practical sessions; total 30 Hours)

To learn the use of an econometric package STATA/Python/R or any other appropriate one.
To extract data from recognized databases and to execute models from each of the units listed in this each course.

References

1. Gujarati, D. (2014). Econometrics by example, 2nded.Palgrave Macmillan.
2. Gujarati, D., Porter, D. (2012). Basic econometrics, 5th ed.McGraw-Hill
3. Wooldridge, J. (2014). Introduction to econometrics: A modern approach, 5th ed.Cengage Learning.

Additional References:

1. Asteriou, D., & Hall, S. G. (2011). Applied econometrics. Palgrave Macmillan.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.