

B.A (Prog) with Statistics as Non-Major/Major Semester-VIII**Category-II****DISCIPLINE SPECIFIC CORE COURSE-8: FUNDAMENTALS OF 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		
Fundamentals of Econometrics	4	3	0	1	Class XII pass with Mathematics	Knowledge of sampling distributions

Learning Objectives

The learning objectives include:

- Interpretation and critical evaluation of the outcomes of empirical analysis.
- To judge the validity of the economic theories
- To carry out evaluation of economic theories in numerical terms
- To extract useful information about important economic policy issues from the available data.
- The course is designed to provide the students with the basic quantitative techniques needed to undertake applied research projects.

Learning Outcomes:

After completing this course, students should have developed a clear understanding of:

- The fundamental concepts of econometrics.
- Specification of the model.
- Simple Linear Regression.
- Multiple Linear Regression.
- Multicollinearity.
- Heteroscedasticity.
- Autocorrelation.

SYLLABUS OF DSC-8**Theory****UNIT I****(15 hours)****Introduction**

Nature and Scope of Econometrics: Objective behind building econometric models, nature of econometrics, model building, role of econometrics, interpretation of regression, nature and sources of data for econometric analysis, different measurement scales of variables

UNIT II (15 hours)

Regression Models

Simple and Multiple Linear Regression Model: Estimation of model by method of ordinary least squares (OLS), properties of estimators, goodness of fit, tests of hypotheses, confidence intervals, coefficient of determination, Gauss-Markov theorem and forecasting.

UNIT III (5 hours)

Autocorrelation

Auto correlation: Concept, consequences of auto correlated disturbances, detection and solution of autocorrelation.

UNIT IV (10 hours)

Multicollinearity and Heteroscedasticity

Violations of Classical Assumptions: Multicollinearity- Concept, Consequences, Detection and Remedies. Heteroscedasticity and serial correlation- Concept and Consequences.

PRACTICAL/LAB WORK- (30hours)

List of Practical:

1. Problems based on estimation of simple linear model.
2. Testing of parameters of simple linear model.
3. Multiple Regression.
4. Problems concerning specification errors.
5. Problems related to consequences of Multicollinearity.
6. Diagnostics of Multicollinearity.
7. Problems related to consequences Heteroscedasticity.
8. Diagnostics of Heteroscedasticity.
9. Estimation of problems of General linear model under Heteroscedastic distance terms.
10. Problems related to selection of best regression model.

Practical work to be conducted using electronic spreadsheet / EXCEL/ Statistical Software Package/ SPSS/ calculators.

ESSENTIAL READINGS:

- Gujarati, D. Porter, D. and Pal M. (2020). Basic Econometrics, 6th Ed., McGraw Hill Companies.
- Johnston, J., Dinardo, J. (1997). Econometric Methods, 4th Ed., McGraw-Hill Education (ISE Editions).

SUGGESTIVE READINGS:

- Koutsoyiannis, A. (2004). Theory of Econometrics, 2 Ed., Palgrave Macmillan Limited.
- Maddala, G.S. and Lahiri, K. (2009). Introduction to Econometrics, 4 Ed., John Wiley & Sons.
- Greene, W. H. (2018) Econometric Analysis. 8th Edition, Pearson.

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