Course Code: ECON-325

Title: Econometrics-II

Credit Hours: 03

Prerequisite: Econometrics I

Course Objectives:

This course follows up the data analysis and data estimation techniques included in Econometrics I. The major objective of this course is to enable the student for competing in a job market where positive analysis is increasingly becoming subject to highly intensive and extensive analytical formulations, largely owing to the unprecedented and remarkable development in information technology. This course is designed for senior undergraduates more inclined towards quantitative studies. The objective is to enable the students dive deep into complex problems of the real world economic life. The students have to learn certain computer packages like, E-views and STATA besides Excel.

Lab work

The students are required to devote at least two hours per week to computer laboratory. They have to attend classes to learn various Econometrics software for practical application of Econometric models they have learnt so far.

Learning Outcomes:

On successful completion of this course, students will be able to:

- Research with econometrics
- Explain econometrics concepts and results intuitively
- Derive econometric results mathematically

Course Contents:

Hetero-skedasticity	Meaning of Hetero-skedasticity, The nature of the problem with reference to economic theory, Cross-section data and the problem of non-constant variances, Consequences for OLS estimators, Detection of the problem and remedial measures in brief, Introduction to the Generalized Least-Squares model (GLS).
Model Specification	Model selection criteria, Types of specification errors, Consequences of model, specification errors, Tests of specification errors, Errors of measurement, Model selection criteria, Endogeneity: where X is not fixed in repeated sampling, Nature of Endogeneity, OLS estimation in presence of Endogeneity, Detection of Endogeneity, BLUE estimator in

	the presence of Endogeneity, Consequences of Endogeneity in OLS estimation, Remedial measures.
Simultaneous Equation Models & Estimation Methods	Simultaneous equation models, Nature of simultaneous equations, Examples of simultaneous equation models from economic theory, Inconsistency of OLS estimators, Identification problem, Notations and definitions, Unidentified, exactly identified and over identified, Rules for identification, Simultaneous equation approaches to estimation, Method of indirect least squares (ILS), Method of two stage least squares (2SLS), Instrumental Variable approach to 2SLS.
Time Series Econometrics	Concept of Stationarity, Tests of Stationarity, Unit Root test, Transforming Non-stationary Time Series, ARMA and ARIMA Models, Comparison of forecast based on ARIMA and regression models, Co-integration and Error Correction Mechanism (ECM),
Autocorrelation	Autocorrelation and its causes, Time-series data and emergence of the problem with reference to economic theory, Serial Correlation, The AR (1) process, Consequences of Autocorrelation for OLS estimators, Detection of the problem and remedial measures

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course and lab work done during the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Stock H. J. and Watson M. W. (2003), Introduction to Econometrics, India: Pearson
- Education. Latest edition
- Gujrati, D. Porter, D. (2009). Basic Econometrics, McGraw-Hill Company. 5th edition
- Jeffrey M. Wooldridge J. M., (2001). Econometric Analysis of Cross Section and Panel
- Data", The MIT Press, Latest edition.
- Johnston, J. & John D. (1997). Econometric Methods. The McGraw Hill Companies, Inc,
- Singapore. Latest edition/
- Greene W. H (latest edition), Econometrics Analysis, Pearson Education, Inc.