## School of Liberal Studies

## Ambedkar University Delhi

#### **Course Outline**

#### Time Slot: Monday 11-1, Thursday 9-11

Course Code: SLS2EC211

Title: Econometrics and Data Analysis

Type of Course: Discipline (Economics)

Cohort for which it is compulsory:MA Economics

Cohort for which it is elective:

No of Credits: 4

Semester and Year Offered: 2<sup>nd</sup> Semester (Winter Semester 2018)

Course Coordinator and Team: Ms. Saranika Sarkar

**Email of course coordinator:** *saranika@aud.ac.in* 

**Pre-requisites**: Students are expected to know the basics of probability and statistical inference including the linear regression model. For M.A. Economics students these prerequisites will be met by the first-semester core course "Statistics and Data Exploration".

**Aim**:. This course aims to acquaint students with the econometric properties of the univariate and multivariate cross-section and time series models that are commonly used in economics. This course will make students equipped to carry out empirical projects independently for further research using softwares like STATA. Equal emphasis would be given on the underlying theory and on the application of the tools taking real life data on Indian economy so that students can apply their theoretical knowledge of econometric techniques in various practical fields including policy research, simple econometric modelling etc.

#### **Brief description of modules/ Main modules:**

- Review of probability and Statistics: random variables; Jointly distributed random variables; conditional expectation; Matrix Algebra.
- Multivariate Regression Analysis with cross-section data: Matrix Formulation, "Partialling out" interpretation, Goodness of Fit, OLS as BLUE; Hypothesis testing: Linear combination of parameters, Multiple Linear restrictions;

Asymptotic properties of the OLS estimator; Specification issues: Omitted Variable Bias, Measurement Error.

- Multiple regression analysis using dummy variables.
- Heteroscedasticity: consequences, tests for heteroscedasticity, weighted least square estimation.
- Endogeneity and Instrumental Variables: Motivation. Two stage least square estimation.
- Binary dependent variable models: logit and probit models
- Time series data analysis: Finite sample properties of OLS under classical assumption, Trends and seasonality; Stationarity- Stationary processes (AR, MA and ARIMA); Autocorrelation function (ACF), Partial autocorrelation function (PACF), Correlogram.

## Assessment Details with weights:

- **1.** Written test (30%)
- **2.** Term paper (40%)
- **3.** End semester (30%)

# **Reading List**:

- Wooldridge, Jeffrey M., Introductory Econometrics. Cengage Learning, 2010.
- Wooldridge, J. Econometric Analysis of Cross Section and Panel Data, 2<sup>nd</sup> ed., MIT Press, 2010. (CSPD)
- Maddala , G.S., Introduction to Econometrics (2001) , Wiley
- Cameron, A.C. and Trivedi, P.K. Microeconometrics using Stata, 2<sup>nd</sup> ed., Stata Press, 2010
- Hamilton, James D. 1994. Time Series Analysis. Princeton University Press.