

Approval: 9th Senate Meeting

Course Number: HS-235

Course Name: Introductory Econometrics

Credits: 3-0-0-3

Prerequisites: None

Intended for: UG

Distribution: HS Course

Semester: Even or Odd

Course Preamble: The aim of this course is to give students an introduction to the basic econometric methods. While Econometrics is a quantitative method primarily used in the discipline of Economics, it enables one to critically evaluate the relationships and associations of variables within a stochastic framework. The methods are also widely used in diverse contexts including engineering science, environmental science, agricultural science, management and policy research etc. Following a review of relevant statistical methods, we will primarily deal with facets of regression analysis which is considered to be the entry point of Econometrics.

Course Module:

Section I: Introduction (1 lecture)

What is econometrics?

Section II: A Review of some useful statistical tools (10 lectures)

Random variables; populations and sample, techniques of sampling and distribution; statistical estimation- estimators and their properties; testing of hypothesis

Section III: Introduction to regression analysis (10 lectures)

Assumptions of Classical Linear Regression Models; Ordinary Linear Least Square regression; Gauss Markov theorem; Multiple Regression Analysis- introduction to matrix formulation; interpreting regression coefficients, concepts of residual, fitted value and goodness of fit;

Beware of the issues of model misspecifications! Understanding errors in measurement of variables, model selection and non-linear functional forms;

Use of Dummy variables

Section IV: Violation of assumptions in our model (12 lectures)

Multicollinearity, Autocorrelation, Heteroskedasticity: Who are they? How to identify them? What are the causes, effects, and remedies?

Section V: Instrumental variables (4 lectures)

Instrumental Variables- their use in solving the problem of omitted variables in regression analysis.

Section VI: How econometrics is applied to a real world problem? (5 lecture)

Reading and understanding application of econometrics in 1-2 relevant research papers; some basic problem solving- hands-on exercises (preferably in groups).

Reading Suggestions:

1. Casell, G and Berger, R.L., Statistical Inference. 2nd Edition. Duxbury Advanced Series. 2002. (Chapter 2 in particular for statistical distribution)
2. Johnston, J and Dinardo, J: Econometric Methods, 4th Edition, McGraw Hill: International Editions, 1997.
3. Wooldridge, Jeffrey M.: Introductory Econometrics, 1st Edition, Thompson: South-Western, 2003.
4. 1-2 relevant research papers.