



SYMBIOSIS COLLEGE OF ARTS & COMMERCE
 An Autonomous College | Under Savitribai Phule Pune University
 Reaccredited 'A+' with 3.51 CGPA For Third Cycle By NAAC | College with Potential for Excellence

COURSE TITLE	Introduction to Econometrics
Paper Number (In case of Specialization)	HONOURS - CORE PAPER 2

Course Learning Outcomes:

On successful completion of the module students will be able to:

1. To provide a wider and deeper exposure to the econometric techniques and their application to the discipline of Economics.
2. To help students gain an understanding of how to solve problems using econometrics that are common to economic modeling.
3. To facilitate students to demonstrate the economic applications of discrete and continuous distribution and use of sampling techniques.
4. To help in developing the ability to accurately translate complex economic problems into models and so as to solve them by applying econometric techniques.

Gist of this course in maximum 3 to 4 lines	The course is based on the use and application of econometric techniques to economics. The introductory course enables students to comprehend the basic econometric concepts in details.
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Unit	CONTENTS OF THE COURSE	No. of Lectures
1.	1. <u>Random variable and Probability Distributions:</u> 1.1 Concept of a random variable: Discrete and continuous 1.2 Expected Value and Variance of a random variable 1.3 Conditional probability, Addition and Multiplication Theorem of Probability 1.4 Discrete random variables: Binomial and Poisson distribution 1.5 Continuous random variables: The normal distribution 1.6 Central limit theorem	10
2.	2. <u>Statistical Inference</u> 2.1 Basic Concepts: Population, sample, estimator and estimate. 2.2 Properties of a Good Estimator 2.3 Hypothesis Testing: Level of significance, critical region, Type 1 and Type 2 error 2.4 Point and interval estimation 2.5 Large and small sample tests 2.6 Small sample distributions: χ^2 , t and F	10
3.	3. <u>Sampling Techniques:</u> 3.1 Need for Data Collection 3.2 Requirements of a good sampling design 3.3 Methods of Sample Selection	8

	3.4 Estimation of population values from the samples	
4.	4. <u>Econometric Methods and Models:</u> 4.1 Definition and scope 4.2 Nature of Econometric Approach 4.3 Method of Econometric Research 4.4 Econometric Models: Desirable Properties of Econometric Models, Types and Forms of models 4.5. Single Equation Models: The Least Squares Method, Assumptions of Linear Regression Model, Gauss-Markov Theorem, Properties of OLS Estimators and Coefficient of Determination	9
5.	5. <u>Problems and Applications of Single Equation Models:</u> 5.1 Heteroscedasticity 5.2 Multicollinearity 5.3 Autocorrelation 5.4 Applications: Demand Function, Production Function, Cobb-Douglas Production Function	8
	Total Number of Lectures	45
Self-learning Component (15 Hours / 1 Credit)		
1.	Case Study Analysis	5
2.	Review of Research Paper	5
3.	Applications of Econometric techniques	5
	Total Number of Lectures	15
Teaching Methodology:	1. Technology Enabled Learning 2. Class Discussions 3. Analytical Thinking 4. Case Study	
Recommended Readings:		
1. Mittelhammer, R. C., Judge, G. G., & Miller, D. J. (2000). <i>Econometric foundations pack with CD-ROM</i> . Cambridge University Press. 2. Stock, J. H., & Watson, M. W. (2015). <i>Introduction to Econometrics</i> , Pearson, Education Asia, 2015. 3. Wooldridge, J. M. (2016). <i>Introductory econometrics: A modern approach</i> . Nelson Education. 4. Madnani, G. M. K. (2015). <i>Introduction to Econometrics: Principles and applications</i> . Oxford and IBH Publishing.		
Suggested Readings:		
1. Gujarati, D. N. (2009). <i>Basic econometrics</i> . Tata McGraw-Hill Education, 2009. 2. Green, W. H. 2007. <i>Econometric analysis.</i> , Prentice-Hall, 1971.		