



Symbiosis College of Arts and Commerce
(An Autonomous College Affiliated to SPPU)

Subject code	Semester	I	II	III	IV	V	VI	M.A.	I	II	III	IV
Title of Subject For Approval of BOS	Econometrics and Computer Application in Economics											
Objectives	<ol style="list-style-type: none"> 1. This course aims to provide students with a thorough background in the fundamentals of econometrics. 2. After the course, students should be able to understand the basic concepts and methods of econometrics; 3. Students should be able to read and interpret research and should master the basic steps for conducting statistical/econometric analyses in own research projects. 4. This course furthermore serves as a basis for subsequent master courses in which statistical methods will be learned or applied. 											
Detailed syllabus												
Unit	Contents of the syllabus											Number of Hours
1	1. <u>Simple Linear Regression Model with short review of Elementary Matrix Algebra</u> Contents : 1.1 Specifications of the Model – Assumptions – Deriving the Ordinary Least Squares 1.2 (OLS) Estimates – Gauss Markov Theorem – Estimation of the Error Variance – 1.3 Reverse Regression - Statistical Inference in the Linear Regression Model – 1.4 Confidence Intervals for the Estimated Parameters and the Testing of Hypotheses – 1.5 Coefficient of Determination – Prediction with the Simple Regression model. 1.6 Computer Application : Gretl, R, E-views, RATS											20
2	2. <u>Problems in OLS Methods</u> Contents : 2.1 Analysis of Residuals – Heteroschedasticity and Autocorrelation Problems – First 2.2 Order Autoregressive Process – Consequences of applying OLS under Heteroschedasticity and Autocorrelation – 2.3 Durbin-Watson Test, Glesjer Test, Goldfeld-Quandt Test. 2.4 Computer Application : Gretl, R, E-views, RATS											20
3	3. <u>Introduction to Multiple regression and problem of Multicollinearity</u> Contents : 3.1 Regression, causality, and control; anatomy of multivariate regression coefficients 3.2 Omitted variables formula, short vs. long regressions- Dummy variables and interactions; 3.3 Testing linear restrictions using F-tests - Regression analysis of natural experiments, Differences-in-differences 3.4 Computer Application : Gretl, R, E-views, RATS											10
4	4. <u>Time-Series Analysis</u>											10

	<p>Contents :</p> <p>4.1 Models of Time Series: Purely Random Process, Random Walk, Moving Average,</p> <p>4.2 Auto Regressive Process, Auto Regressive Moving Average Process.</p> <p>4.3 Different components of time series and their measurements.</p> <p>4.4 Computer Application : Gretl, R, E-views, RATS</p>	
	Total Number of Hours	60
<p>Suggested Reference Books</p> <ol style="list-style-type: none"> 1. D. N. Gujarati and D.C. Porter, Essentials of Econometrics, McGraw Hill, 4th edition, International Edition, 2009. 2. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian Edition, 2007. 3. Jan Kmenta, Elements of Econometrics, Indian Reprint, Khosla Publishing House, 2nd edition, 2008. 4. Maddala, G. S.: Introduction to Econometrics, Wiley 5. Ramanathan, R.: Introductory Econometrics with Applications, Harcourt Publishers. 6. Wooldrige J. M. Econometric Analysis of Cross Section and Panel Data. The MIT Press, 2002. 7. Johnstone & Dinardo, Econometric methods, McGraw Hill 8. Nachane, D. M.: Econometrics: Theoretical foundations and empirical perspectives, 9. OUP Ramanathan, R.: Introductory Econometrics with Applications, Harcourt Publishers. 10. Principles of Econometrics: An Introduction (Using R), Neeraj Hatekar, SAGE Publication 		
<p>Suggested Journals</p> <ol style="list-style-type: none"> 1. Journal of Econometrics 2. Econometrica 3. Journal of Applied Econometrics 		