Course Title: Econometrics 1			
Course Code: UEO 303	**No. of credits:** 4	**L-T-P:** 44-16-0	**Learning Hours:** 60
Pre-requisite course code and title: UEO 204 Intermediate Statistical Methods for Economics; UDS 101 Statistics for Data Science			
Department: Department of Policy and Management Studies			
Course Coordinator: Dr. Priyanka Arora	**Course Instructor:** Dr. Priyanka Arora		
Contact Details: priyanka.arora@terisas.ac.in			
Course Type: Core	**Course offered in:** Semester 5		
Course Description: The course is a first introduction to concepts in Econometrics. It assumes knowledge of distributions, statistical inference, estimation and hypothesis testing. It starts from simple linear regression model (CLRM) and extends it to multiple linear regression. Dummy variable regression is further discussed in this course along with the violations of the CLRM.			

Course Objective:

1. To get started with the fundamental concepts in econometrics.
2. To understand how simple econometric concepts can be applied and studied in the context of economic analysis.

Course Contents:

Module	Topics	L	T	P
1	**Introduction to Econometrics** Types of Data, Observational versus experimental data, Structure of economic data	2	0	
2	**Simple Linear Regression** Ordinary least squares, properties of OLS estimators, goodness of fit, scaling and units of measurement, functional forms, confidence intervals, the Gauss-Markov theorem testing of hypotheses (T and F tests)	10	4	
3	**Multiple Linear Regression** Extending the Simple Linear regression to one with many variables, OLS and it's properties, FWL Theorem, Gauss Markov Theorem	12	5	
4	**Dummy Variable Regression** Categorical variables, two categories and multiple categories, dummy variable trap, policy analysis. Introduction to linear probability models, logic and probit regressions.	10	4	
5	**Violations of classical assumptions** Heteroskedasticity, Normailty Tests , Multicollinearity and autocorrelation	7	2	
6	**Endogeniety** Omitted variable bias, module misspecification	3	1	

	Total	**44**	**16**	

Evaluation Criteria:
Minor 1: Written Examination - 25% [Syllabus: 1-2, Learning outcomes: 1-3]
Minor 2: Written Examination - 25% [Syllabus : 3-4 , Learning outcomes: 1-3]
Major: Written Examination - 50% [Syllabus: Complete course, Learning outcomes: 1-3]

Learning Outcomes:
At the end of the course, the students will be able to:
1. Understand the core concepts of econometrics [Modules 1-6]
2. Understand economic applications of econometric methods [Modules 1-6]
3. Formulate econometric models, interpret them and use them for economic analysis [Modules 2-6]

Core Reading:
1. Wooldridge, J. (2023). Introductory Econometrics : A modern approach, 7th *ed*. Cengage Learning. [JW]

Additional Readings:
1. Dougherty, C. (2011). Introduction to econometrics, 4th ed. Oxford University Press. [CD]
2. D. N. Gujarati and D.C.Porter, Essentials of Econometrics, 4th Edition, McGraw Hill, International Edition, 2010. [GP]

Module-wise chapters from the core readings:
1. Module 1: JW, Chapter 1
2. Module 2 : JW, Chapter 2
3. Module 3: JW, Chapters 3, 4 and 6
4. Module 4: JW, Chapter 7
5. Module 5: JW, Chapter 8 and 12

Pedagogical Approach:
Classroom teaching and problem-solving sessions.

Course prepared by: Priyanka Arora

Student responsibilities: Attendance, feedback, discipline: as per university rules.

Course reviewers:
1. Dr. Divya Gupta, Associate Professor of Economics, Jindal Global Law School, Jindal Global University.
2. Dr. Anshika Sagar, Assistant Professor, Department of Economics, Hindu College, University of Delhi.