

Course title: Quantitative Methods in Management-I				
Course code: PPM 173		No. of credits: 3	L-T-P: 32-10-0	Learning hours: 42
Pre-requisite course code and title (if any): None				
Faculty: Faculty of Policy and Planning			Department: Department of Business Sustainability	
Course coordinator: Dr. Vinod Kumar			Course instructor: Dr. Vinod Kumar	
Contact details:				
Course type: Core			Course offered in:	
Course description: This course gives students an exhaustive introduction to statistical methods important in business and essential for introductory and advanced econometrics. The topics included are probability distributions, confidence intervals, hypothesis testing, analysis of variance and regression analysis. After this course, students should be able to understand and use basic statistical methods ranging from pictorial representation of data to descriptive statistical presentation of data in empirical studies. The students will be exposed to relevant examples in economics and business applications.				
Course objectives: The main objective of these examples is to motivate the use of statistical analysis and at the same time encourage students to go beyond the mechanical application of techniques and to develop critical judgment.				
Course contents				
Module	Topic	L	T	P
1	Introduction: Data and Statistics. • Data • Data sources	2	4	0
2	Descriptive Statistics. • Summarizing data • Exploratory Data Analysis • Cross tabulations and Scatter Diagrams • Measures of Location • Measures of Variability Measures of Distribution and Location • Measures of Association Not included: Dot Plot, Ogive, Stem and Leaf, Simpson's Paradox, Chebychev's Theorem.	4	0	0
3	Probability Distributions: Discrete and Continuous Distributions • Random Variables • Discrete Probability Distributions • Expected Value and Variance • Binomial Distribution • Poisson Distribution • Uniform Probability Distribution • Continuous Probability Distributions • Normal Probability Distribution • Exponential Probability Distribution and Hypogeometric Distribution.	6	0	0
4	Sampling and Sampling Distributions. • Statistical Inference • Simple Random Sampling • Point Estimation	3	0	0

	<ul style="list-style-type: none"> • Sampling Distribution of mean • Sampling Distribution of p • Properties of Point Estimators 			
5	Interval Estimation. <ul style="list-style-type: none"> • Population Mean • Population Proportion • Determining the Sample Size 	3	4	0
6	Hypothesis Testing. <ul style="list-style-type: none"> • Null and Alternative Hypothesis • Confidence Interval • Test of Significance • Type I and Type II errors • Practical Issues 	3	0	0
7	Analysis of Variance. <ul style="list-style-type: none"> • Analysis of Variance. • Comparison of equality of k-population means. • Multiple Comparisons 	3	0	0
8	Index Numbers <ul style="list-style-type: none"> • Method of Construction of Index numbers • Consumer Price Index and Wholesale price Index • Time Series of Index Numbers • Deflation of Index numbers and other issues 	3	0	0
9	Simple Linear Regression - Introduction. <ul style="list-style-type: none"> • Simple Regression Model. • Least Squares Method. • Coefficient of Determination. • Model Assumptions • Testing for Significance. • Prediction. • Residual Analysis. 	5	2	0
		32	10	0
<p>Evaluation criteria: The evaluation policy is designed to verify the knowledge acquired by students during the course. For this purpose, assignments will be graded in addition to a written exam at the end of the course. Some assignments will need to be submitted individually by all students while group submissions will be allowed for select assignments.</p> <p>The final grade is obtained by averaging all the tests and assignments, the break up is as follows:</p> <ul style="list-style-type: none"> • Minor I and Minor II Exams (20% each): 40% • Project Work: 20% • Major Exam: 40% 				
<p>Learning outcomes: At the end of the course, it is expected that students are able to successfully carry out simple linear regression estimations and interpret the results. This course is the pre-requisite for the Semester 2 course PPM 172a.</p>				
<p>Materials:</p> <ul style="list-style-type: none"> • Statistics for Business and Economics, 10th Edition. David R. Anderson, Dennis J. Sweeney and Thomas A. Williams. Cengage Learning, India 2002 • Statistics for Management, 7th Edition. Richard I. Levin and David S. Rubin. Pearson 2011 				
<p>Additional information (if any):</p>				
<p>Student responsibilities:</p>				

Course reviewers:

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Dr. Amalendu Jyotishi, ABS Bangalore