UNIVERSITY OF MADRAS

M.A. DEGREE PROGRAMME IN ECONOMICS

SYLLABUS WITH EFFECT FROM 2023-2024

401C1C

SEMESTER – 1 - CORE – III

STATISTICS FOR ECONOMISTS

Course Objective:

1. To provide a strong foundation in statistical concepts and develop skills in data handling and research.
2. The course facilitates in inferring the intensity of relationship between multiple variables and building appropriate statistical models. The models thus formulated can be tested for their significance and can be used for forecasting

Unit I: Probability

Probability - Addition and Multiplication Theorems - Conditional Probability - Discrete and Continuous - Random Variables - Mathematical Expectations – Bayes Theorem - Theoretical Distributions - Binomial, Poisson and Normal.

Unit II: Sampling and Hypothesis Testing

Sampling Theory - Types of Sampling - Sampling Distributions - Parameter and Statistic - Testing of Hypothesis - Level of Significance - Type I and Type II Errors - Standard Error - Properties of Estimator.

Unit III: Test of Significance Large and Small Sample

Difference between Large and Small Samples - Test of Significance for Large Samples - Test for Two Means and Standard Deviations - Proportion and Confidence Interval - Small Sample Test – t-test - Paired t- test - Chi-square Test- Test of Goodness of Fit.

Unit IV: Analysis of Variance

F test: Assumptions in F test - Analysis of Variance: Assumptions – One-Way and Two-Way Classifications.

UnitV: Statistical Decision Theory

Definitions – Concepts – Maximin - Minimax - Bayes Criterion - Expected Monetary Value - Decision Tree Analysis: Symbols - Steps - Advantages and Limitations.

Text Books

1.Gupta S.P., Statistical Methods, Sultan Chand and Sons, New Delhi, 2017.

2. Anderson, Sweeney and Williams, "Statistics for Business and Economics",Cengage, 2014.

References:

1. Aggarwal. Y.P (2002), "Statistics Methods – Concepts Application and Computation", Sterling Publishers Private Ltd., New Delhi.

2.Vittal P.R.,Mathematical Statistics, Margham Publications

3. Pillai R.S.N. andBagavathi V (2010), Statistics, Sultan & amp; Chand Sons, NewDelhi.

Web Resources

1. https://www.statista.com.
2. https://techjury.net
3. https://dss.princeton.edu/online_help/analysis/interpreting_regression.htm

Course Outcomes:

Upon Completion of this course, the Students will be able to

No.	Course Outcomes	K-Levels
CO1	Summarize the basic Probability rules and understand theoretical distributions.	K1 & K2
CO2	Acquire knowledge on the various sampling methods and testing of Hypotheses	K2 & K3
CO3	Use t test and chi square for analysis	K4
CO4	Understand the importance of one and two way ANOVA	K5
CO5	Know the various Decision making tools available	K6

K1 – Knowledge, K2 - Understand, K3 – Apply, K4 – Analyse, K5 – Evaluate, K6 – Create.

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CO-PO Mapping (Course Articulation Matrix)

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	2
CO2	3	2	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	2	3	3	2	3
Weightage	14	13	15	13	14
Weighted percentage of Course Contribution to Pos	2.8	2.6	3	2.6	2.8

Level of Correlation between PSO's and CO's

(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)

Assign the value

1 – Low

2 – Medium

3 – High

0 – No Correlation