

UNIVERSITY OF MADRAS
B.Sc. DEGREE COURSE IN MATHEMATICS
SYLLABUS WITH EFFECT FROM 2020-2021

BMA-CSA04

ALLIED: MATHEMATICAL STATISTICS-I
(Common to B.Sc. Maths with Computer Applications)

Learning outcomes:

Students will acquire knowledge of

- The laws of Probability and Baye's theorem.
- Measures of Location, Dispersion, Correlation and Regression
- The Discrete and Continuous Probability Distributions.

UNIT I

Concept of sample space- Events- Definition of Probability (Classical,Statstical& Axiomatic)- Addition and Multiplication laws of Probability- Independence- Conditional Probability- Baye's theorem – Simple Problems.

UNIT II

Random Variables (Discrete and Continuous) Distribution function- Expected values and Moments- Moment generating function – Probability generating function- Examples.

UNIT III

Characteristic function- Uniqueness and Inversion theorems (Statements and applications only)- Cumulants - Chebychev's Inequality – Simple Problems.

UNIT IV

Concepts of bivariate distributions- Correlation and Regression- Linear Prediction- Rank Correlation coefficient-Concepts of partial and multiple correlation coefficients- Simple problems.

UNIT V

Standard Distributions – Binomial- Poisson- Normal- Uniform distributions- Geometric- Exponential-Gamma -Beta distributions- Inter relationship between distributions.

Reference:

- S.C.Gupta&V.K.Kapoor : Elements of Mathematical Statistics, Sultan Chand & Sons, NewDelhi.
- Hogg R.V. & Craig A.T. (1988) : Introduction to Mathematical Statistics, McMillan.
- Mood A.M. &Graybill F.A. &Boes D.G. (1974): Introduction to theory of Statistics, McGraw Hill.
- Snedecor G.W. & Cochran W.G(1967) : Statistical Methods, Oxford and IBH.

e-Resources:

1. <https://nptel.ac.in>
2. <https://www.wikipedia.org>.
3. <http://ebooks.lpude.in.statistics>.