UNIVERSITY OF MADRAS
U.G. DEGREE COURSE
SYLLABUS WITH EFFECT FROM 2020-2021

BST-CSA02

ALLIED STATISTICS-II

Credits: 5 **Year: I/II, Sem:II/IV**

Learning Outcomes: Upon finishing point of this course, students will be able to

1. understand the basic concept of Probability
2. identify the characteristics of different discrete and continuous distributions.
3. identify the type of statistical situation to which different distributions can be applied. comprehend the Sampling distributions.
4. to understand how to apply statistical tests to get information from data

Course Content:

UNIT- I: Basic concepts of Probability: Random Experiments, Sample space, Trial, Events, - Classical and empirical approach to probability and their limitations –Types of events: Exhaustive, mutually exclusive, equally likely and Independent events - Axiomatic approach to probability - Basic theorems on probability using axiomatic approach. Bayes Theorem (statement only)

UNIT- II: Discrete probability mass function, cumulative distribution function- Theory and problems based on it. Bernoulli distribution, Binomial Distribution and Poisson Distribution

UNIT- III: Continuous probability density function, cumulative distribution function - Theory and problems based on it. Normal Distribution and its properties, Standard Normal distribution, Problems based on it. Exponential Distribution

UNIT- IV: Estimating parameters of discrete and continuous distributions, Introduction of Sampling distributions- student's t and chi-square distributions, distribution of sample mean from normal distribution. Density function and Properties only.

UNIT- IV: Testing of Hypothesis, Single mean test and double means test based on normal distribution and students t-distribution. Proportion test, Chi-square test, ANOVA test.

Suggested Readings:

Books for Study:

1. Gupta, S. C and Kapoor, V. K (2002), *Fundamentals of Mathematical Statistics*, Sultan Chand and Sons, New Delhi.
2. Saxena H.C.: *Elementary Statistics*. S. Chand & Co., 2009.