

MA-406: MATHEMATICAL STATISTICS-I

Interpretations of Probability. Experiments and events. Definition of probability. Finite sample spaces. Counting methods. The probability of a union of events. Independent events. Definition of conditional probability. Baye's' theorem. Random variables and discrete distributions. Continuous distributions. Probability function and probability density function. The distribution function. Bivariate distributions. Marginal distributions. Conditional distributions. Multivariate distributions. Functions of random variables. The expectation of a random variable. Properties of expectations. Variance. Moments. The mean and the median. Covariance and correlation. Conditional expectation. The sample mean and associated inequalities. The multivariate normal distribution.

RECOMMENDED BOOKS:

1. Mood, A.M. Graybill, F.A., and Boes, D.C., Introduction to the Theory of Statistics, 3rd Edition, McGraw-Hill Book Company New York, 1974.
2. Degroot, M. H., Probability and Statistics, 2nd Edition, Addison-Wesley Publishing Company, USA, 1986.
3. Mardia, K.V., Kent, J.T., and Bibby, J.M., Multivariate Analysis, Academic Press, New York, 1979.