

Stat-211 Probability Distribution

100 Marks: 03 Credits

Number of Class: 35-40

Introduction: Concept of Probability Distribution, Distribution Function, Mass Function, Density Function, Moments, Moment Generating Function, Cumulant Generating Function, Probability Generating Functions and Characteristics Function.

Univariate Discrete Distribution: Bernoulli, Binomial, Poisson, Hyper Geometric, Geometric, Negative Binomial, Uniform or Rectangular, Multinomial, Logarithmic Series, Power Series, Truncated Binomial, Truncated Poisson, Beta Binomial.

Univariate Continuous Distribution: Uniform, Exponential, Beta, Gamma, Normal, Log Normal, Pareto, Laplace Double Exponential, Cauchy, Triangular, Maxwell, Weibull, Gumbel, Erlang, and other Exponential Family of Distributions, Pearson System Curve, Inverse Gaussian Distribution, Gram Charlier Series.

Bivariate Distributions: Concept of Bivariate Probability Distribution, Marginal Distribution and Conditional Distribution. Mean and Variances, Moments, Cumulants. Moment Generating Functions and Cumulant Generating Functions, Derivation of Bivariate Normal Distribution and Study of its Properties.

Text

1. Mood, A. M. and Graybill, F. A. and Boes, D.C. (1974): *Introduction to the Theory of Statistics*, 3rd edition, McGraw-Hill, New York.
2. Kendall, M. and Stuart, A. (1979): *The Advanced Theory of Statistics*, Volume 2, 4th edition, Macmillan Publishing Inc., New York.

References

1. Feller, W. (1985): *Introduction to Probability Theory and Its Applications*, Vol.1, 3rd edition, John Wiley & Sons, New York.
2. Hogg, R.V. and Craig, A. T (2009): *Introduction to Mathematical Statistics*, 6th edition, Pearson Education, Singapore.
3. Lindley, D.V. (1965): *Introduction to Probability and Statistics*, Part-I, C.U.P., London.
4. Meyer, P. L. (1970): *Introductory Probability and Statistical Applications*, 2nd edition, Addison Wesley, New York.
5. Mosteller, F., Rourke and Thomas (1970): *Probability with Statistical Applications*, 2nd edition, Addison-Wesley, New York.
6. Rohatgi, V.K. and Saleh, A.K. Md. E. (2001): *An Introduction to Probability and Statistics*, John Wiley and Sons, New York.
7. Roy, M.K. (2008): *Fundamentals of Probability and Probability Distributions*, 8th edition.