Stat-122 Elementary Probability-II

50 Marks: 02 Credits
Number of Class: 20-26

Expectation: Meaning of Expectation, Mean, Variance, Moments, Expectation of Sums and Products Random Variables, Chebyshev's Inequality, Markov Inequality, Central Limit Theorem.

Joint and Conditional Distributions, Stochastic Independence: Joint Distribution Functions, Marginal Distribution and Conditional Distributions, Independence of Random Variables, Conditional Mean and Conditional Variance, Covariance and Correlation Coefficient, Cauchy-Schwarz Inequality.

Generating Function: Moment Generating Function, Factorial Function, Characteristic Function, Probability Generating Function, Cumulant Generating Function and Their Properties, Inversion Theorem.

Application of Generating Function in Basic Distribution: Bernoulli, Binomial, Poisson, Geometric and Normal Distribution.

Text

1. Hogg, R.V. and Craig, A. T (2009): *Introduction to Mathematical Statistics*, 6th edition, Pearson Education, Singapore.
2. Meyer, P. L. (1970): *Introductory Probability and Statistical Applications*, 2nd edition, Addison Wesley, New York.
3. Mood, A. M. and Graybill, F. A. and Boes, D.C. (1974): *Introduction to the Theory of Statistics*, 3rd edition, McGraw-Hill, New York.

References

1. Feller, W. (1985): *Introduction to Probability Theory and Its Applications*, Vol.1, 3rd edition, John Wiley & Sons, New York.
2. Mosteller, F., Rourke and Thomas (1970): *Probability with Statistical Applications*, 2nd edition, Addison-Wesley, New York.
3. Rohatgi, V.K. and Saleh, A.K. Md. E. (2001): *An Introduction to Probability and Statistics*, John Wiley and Sons, New York.
4. Ross, S. M. (2008): *A First Course in Probability*, 8th edition, Prentice Hall.
5. Roy, M.K. (2008): *Fundamentals of Probability and Probability Distributions*, 8th edition.
6. Staurt, A. and Ord, J., K. (1994): *Kendall's Advance Theory of Statistics*, Vol I, 6th edition, Weily, New York.