



Code	Subject Title	Cr. Hrs	Semester
STAT-103	Statistics-II	3	II
Year	Discipline		
1	Statistics-I,II,III, Mathematics-II, Economics		

Code	Subject Title	Cr. Hrs	Semester
STAT-104	Statistics Lab-II	1	II
Year	Discipline		
1	Statistics-I,II,III, Mathematics-II, Economics		

Course Outline

Random experiments, sample space and events. Counting techniques. Definitions and axioms of probability. Basic laws of probability. Independence of events. Bayes Theorem (proof and required) and its application.

Discrete Random Variable and Discrete Probability Distributions

Random variable, distribution function, discrete random variable. Probability distribution of a discrete random variable. Joint distribution of two discrete random variables, marginal and conditional distributions, mathematical expectation and its properties, mean, variance and moments. Concept of m.g.f. and its properties. Uniform, Bernoulli, Binomial, Hypergeometric and Poisson distributions, mean, variance and shape of these distributions and their properties. Application of these distributions with examples from various fields. Multinomial distribution (only application).

Continuous Random Variables & Continuous Probability Distributions

Continuous random variables. Probability distribution of a single continuous random variable, probability density function and distribution function. Mean, variance and moments of continuous random variables. Uniform and Normal distribution. Mean, variance and shape of these distributions and their properties. Application of these distributions. Normal approximation to the Binomial and Poisson distribution (just application). Fitting of Normal distribution by area method.

Recommended Books

1. Chaudhry, S.M. & Kamal, S. (2010). Introduction to Statistical Theory Part I, Ilmi Kitab Khana, Urdu Bazar, Lahore.
2. Crawshaw, J and Chambers, J. (2001). A concise course in advanced level Statistics with worked examples, Nelson Thornes, 4th Edition.
3. Graybill, Iyer & Burdick (1998). Applied Statistics, A first course in inference. Prentice Hall, New Jersey.
4. Beg, M.A. and Mirza, M.D. (2006). Statistics, Theory and Methods, Volume I, Carven Book House, Kutechery Road, Lahore.
5. Chase W. & Bown F. (1997). General Statistics, 3rd Edition, John Willy & Sons, New York.
6. Macfie, B.P. and Nufrio, P.M. (2006). Applied Statistics for public policy, Prentice Hall of India.
7. Blumen (1997), Elementary Statistics, 3rd Edition, McGraw Hill, New York.



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8. Johnson, R.A. and Wichern, D.W. (2003). Business Statistics: Decision making with data, John Wiley & Sons Inc.
 9. Levine, D.M., Kschbiel, T.C. and Berenson, M.L. (2003). Business Statistics: A first course, 3rd edition, Pearson Education.
 10. Levin, J. and Fox, J.A. (2006). Elementary Statistics in Social Research, 10th edition, Pearson Education.
 11. Medhi, J. (1992). Statistical Methods: An Introductory text, New Age International Publishers.
 12. Chaudhry, R.M. (1998). Polymer Modern Statistics, Polymers.
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