



Code	Subject Title	Cr. Hrs	Semester
STAT-203	Statistics-IV	3	IV
Year	Discipline		
2	Statistics-I,II,III, Mathematics-II		

Code	Subject Title	Cr. Hrs	Semester
STAT-204	Statistics Lab-IV	1	IV
Year	Discipline		
2	Statistics-I,II,III, Mathematics-II		

### Course Outline

Chi-square test of Independence, Chi square test of goodness of fit, Chi-square test of homogeneity.

### Regression and Correlation Analysis

Multiple linear regression with two regressors, coefficient of multiple determination. Partial and multiple correlation up to three variables. Inference of simple correlation and regression, partial and multiple correlation. Interval estimates and tests of hypothesis about parameters, mean prediction and individual prediction. Inference about regression & correlation.

### Analysis of Variance and Basic Experimental Designs

Analysis of variance for one-way classification and two-way classification. Multiple comparison tests; least significant difference and Duncans multiple range test. Basic principles of experimental design. Completely randomized, Randomized Complete Block and Latin Square Designs. Descriptions, layout, statistical analysis, advantages and limitations of these designs. Application of these designs (Analysis of all these designs for single observation in each cell).

### Recommended Books

1. Chaudhry, S.M. & Kamal, S. (2010). Introduction to Statistical Theory Part II, Ilmi Kitab Khana, Urdu Bazar, Lahore.
2. Macfie, B.P. and Nufrio, P.M. (2006). Applied Statistics for public policy, Prentice Hall of India.
3. Medhi, J. (1992). Statistical Methods: An Introductory text, New Age International Publishers.
4. Beg, M.A. and Mirza, M.D. (2006). Statistics, Theory and Methods, Volume II, Carven Book House, Kutechery Road, Lahore.
5. Crawshaw, J and Chambers, J. (2001). A concise course in advanced level Statistics with worked examples, Nelson Thornes, 4<sup>th</sup> Edition.
6. Levin, J. and Fox, J.A. (2006). Elementary Statistics in Social Research, 10<sup>th</sup> edition, Pearson Education.
7. Graybill, Iyer & Burdick (1998). Applied Statistics, A first course in inference. Prentice Hall, New Jersey.
8. Moore D.S., McCabe G.R., (1997). Introduction to the Practice of Statistics, 3<sup>rd</sup> Edition, Will Freeman & Co., New York.
9. Blumen (1997), Elementary Statistics, 3<sup>rd</sup> Edition, McGraw Hill, New York.



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10. Chaudhry, R.M. (1998). Polymer Modern Statistics, Polymers.
  11. Johnson, R.A. and Wichern, D.W. (2003). Business Statistics: Decision making with data, John Wiley & Sons Inc.
  12. Levine, D.M., Kschbiel, T.C. and Berenson, M.L. (2003). Business Statistics: A first course, 3<sup>rd</sup> edition, Pearson Education.
  13. Wonnacott T.H. and Wonnacott R.J. (1981). Introductory Statistics, John Willy & Sons, New York.
  14. Clarke G. & Cooke D. (1998). A basic Course in Statistics, Arnold Publisher, London, 4<sup>th</sup> Edition.
  15. Moore D.S., McCabe G.R., (1997). Introduction to the Practice of Statistics, 3<sup>rd</sup> Edition, Will Freeman & Co., New York.
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