

**Department of Commerce**  
**Aligarh Muslim University, Aligarh**  
**Course Work for Ph.D. Programme**  
**Paper – I**  
**Research Methodology**

(Revised as on 14<sup>th</sup> August 2018)

The main objective of this paper is to impart knowledge about the concepts and applications of statistics and its tools in writing the thesis.

- UNIT – I** An Introductory Approach, Concepts, Types and Nature of Research, Literature Review : Research Problems & objectives, Process of Research, Research an aid to Decision Making and Research in Functional Areas.
- UNIT – II** Research Design, Source of Information and Collection of Data, Preparation of Schedule and questionnaire, Data Processing and univariate analysis, Sampling and Sample Design, Scaling technique.
- UNIT – III** Concept, Nature and formulation of Hypothesis. Procedure for testing the hypothesis, Null hypothesis and alternate hypothesis. Limitation and uses of testing the Hypothesis.  
Correlation and Regression: Meaning and types of Correlation. Karl Pearson's Coefficient of Correlation. Simple Regression analysis.  
Parametric Test: t-test, Z-test, One way ANOVA, Two way ANOVA.  
Non Parametric Test: Chi square test, sign test, Run test, Spearman's Rank correlation test, Mann-Whitney U-test, Kruskal-Wallis H-test, Median test.
- UNIT – IV** Software for Data Analysis:  
i) **MS-Excell:** Spreadsheet preparation/maintenance, filtering, Administering formulae, Statistical results, Figure/graphs preparation, Multi-file administration etc.  
ii) **Introduction to latest software :**  
**SPSS 19.0:** Data Administration – Feeding, Import/Export, Data scaling, Statistical analysis, Handling of Query/output, Validity & reliability.  
iii) **Other software like** Zotero, Mendeley, LaTeX and plagiarism software.
- UNIT – V** Analysis and Interpretation of Data and Paper writing : Layout of a research paper, when and where to publish. Ethical issues related to publishing, plagiarism and self-plagiarism.  
Thesis Writing and Scientific editing tools. Referencing Styles.

**Suggested Readings:**

1. J.S. Chandan, Statistics of Business and Economics, Vikas Publishing House, New Delhi.
2. Research Methodology in Survey by Anil Kumar, Alfa Publication, New Delhi.
3. Alexibook of Research Methodology by P.C. Tripathi, Sultan Chand & Sons, New Delhi.
4. Research Methodology in Commerce by S. Mohan & Rl. Elangovan, Deep & Deep Publication, New Delhi.
5. Statistical Research Methodology by Anil Kumar, Alfa Publication, New Delhi.
6. Research Methodology in Management by Arvindrani Desai, Ashish Pub. House, New Delhi.