Department of Statistics
Institute of Social Sciences
Dr. Bhimrao Ambedkar University, Agra

Value Added Course: Advanced Data Analysis using SPSS

Course Duration: 30 hours **Maximum Marks: 100**

Course Objectives

Unit	Objectives	Mode of Teaching
I	Understanding of Factor Analysis, Discriminant Analysis and Cluster Analysis	Theory & Practical
II	Concept s and statistics associated with Factor Analysis, Discriminant Analysis and Cluster Analysis	Theory & Practical
III	Application of Factor Analysis, Discriminant Analysis and Cluster Analysis on data using SPSS	Theory & Practical

Course Content

Unit	Content	Time
I	**Factor Analysis and its application using SPSS :** • Uses of Factor Analysis • Conditions for Factor Analysis • Illustration of Factor Analysis: Strength of the factor analysis solution, Factor score coefficient matrix, Factor loading and computation of eigenvalues, Total variance accounted by the extracted factors, Communality, Statistical independence of extracted factors, Rotation of factors, Labelling and naming the factors • Application of Factor Analysis using SPSS codes	10 hours
II	**Discriminant Analysis and its application using SPSS:** • Objectives and uses of Discriminant Analysis • Discriminant analysis model • Illustration of Discriminant Analysis: Descriptive statistics, Tests for differences in group means, Correlation matrix, Unstandardized discriminant function, Classification of cases using discriminant function, • Application of Discriminant Analysis using SPSS codes	10 hours
III	**Cluster Analysis and its application using SPSS:** • Usage of Cluster Analysis • Statistics associated with Cluster Analysis • Key concepts and process of Cluster Analysis • Hierarchical methods, Non-hierarchical methods • Application of Cluster Analysis using SPSS codes	10 hours

Course Outcomes

- The students will be able to explore application of Factor Analysis, Discriminant Analysis and Cluster Analysis.
- Students will be able to apply Factor Analysis, Discriminant Analysis and Cluster Analysis.
- Students will be able to process and analyse the data to extract information with the help of these methods.
- From this course students will come to know how to apply Factor Analysis, Discriminant Analysis and Cluster Analysis using SPSS software.

References

- Argyrous, G.: Statistics for Research: With a Guide to SPSS, Sage South Asia; Third Edition.
- George Darren: SPSS for Window Step by Step.
- Griffith, A.: SPSS For Dummies, Published by Wiley Publishing, Inc.
- Knell, R.J.: Introductory R: A Beginner's Guide to Data Visualisation and Analysis using R.
- Chawala D. and Sondhi N.: Research Methodology Concepts and Cases
- Patric L. . A. K. and Feeney B. C.: A Simple Guide to SPSS.
- Sheridon J Coaks: SPSS.