

## MULTIVARIATE DATA ANALYSIS

<b>CREDITS:</b>	<b>3</b>
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### OBJECTIVE:

- To know various multivariate data analysis techniques for business research.

### UNIT I - INTRODUCTION

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Introduction – Basic concepts – Uni-variate, Bi-variate and Multi-variate techniques – Types of multivariate techniques – Classification of multivariate techniques – Guidelines for multivariate analysis and interpretation – Approaches to multivariate model building.

### UNIT II - PREPARING FOR MULTIVARIATE ANALYSIS

**9**

Introduction – Conceptualization of research problem – Identification of technique - Examination of variables and data – Measurement of variables and collection of data – Measurement of errors – Statistical significance of errors. Missing data – Approaches for dealing with missing data – Testing the assumptions of multivariate analysis – Incorporating non-metric data with dummy variables.

### UNIT III - MULTIPLE LINEAR REGRESSION ANALYSIS, FACTOR ANALYSIS

**9**

Multiple Linear Regression Analysis – Introduction – Basic concepts – Multiple linear regression model – Least square estimation – Inferences from the estimated regression function – Validation of the model. Factor Analysis: Definition – OBJECTIVE – Approaches to factor analysis – methods of estimation – Factor rotation – Factor scores - Sum of variance explained – interpretation of results.

### UNIT IV - LATENT VARIABLE TECHNIQUES

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Confirmatory Factor Analysis, Structural equation modeling, Mediation models, Moderation models, Conditional processes, longitudinal studies, latent growth model, Bayesian inference

### UNIT V - ADVANCED MULTIVARIATE TECHNIQUES

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Multiple Discriminant Analysis, Logistic Regression, Cluster Analysis, Conjoint Analysis, multidimensional scaling.

**TOTAL: 45 PERIODS**

### OUTCOME :

- Knowledge on the applications of multivariate data analysis.

### REFERENCES :

1. Joseph F Hair, Rolph E Anderson, Ronald L. Tatham & William C. Black, Multivariate Data Analysis, Pearson Education, New Delhi, 2005.
2. Barbara G. Tabachnick, Linda S.Fidell, Using Multivariate Statistics, 6th Edition, Pearson, 2012.

3. Richard A Johnson and Dean W. Wichern, Applied Multivariate Statistical Analysis, Prentice Hall, New Delhi, 2005.
4. David R Anderson, Dennis J Seveency, and Thomas A Williams, Statistics for Business and Economics, Thompson, Singapore, 2002