

COMRM01 – Advanced Research Methodology
Master of Commerce
Semester III
Advanced Research Methodology

Course Type/ Course Code	Course Title	Lectures	Tutorials	Practical	Credit	Pre-requisites
COMRM01	Advanced Research Methodology	2	0	0	2	NIL

Objective: This course aims to equip students with advanced analytical and statistical research techniques necessary for empirical investigation in commerce and management. It emphasizes the application of multivariate methods, regression modeling, and time series analysis to enable students to handle complex datasets and derive meaningful insights for decision-making and policy formulation.

Learning Outcomes: On completion of this course, the student should be able to:

- Understand and apply multivariate analysis techniques to complex research problems.
- Distinguish between ANOVA, MANOVA, and MANCOVA and identify appropriate usage contexts.
- Apply dimension reduction techniques such as factor analysis and cluster analysis for data simplification and pattern identification.
- Employ multiple regression and logistic regression models for predictive and explanatory research. Also, conduct time series analysis for forecasting and trend analysis in business research.

Contents:

Unit I (15 Hours)

Introduction to Multivariate Analysis, General Linear Model, Multivariate Analysis of Variance (MANOVA): assumptions, interpretation, and application Multivariate Analysis of Covariance (MANCOVA); Concept and importance of dimension reduction techniques, Principal Component Analysis, Exploratory Factor Analysis: concept, extraction, rotation, and interpretation.

Unit II (15 Hours)

Part, partial and canonical correlation, Multiple linear regression: concepts, assumptions, model building, diagnostics and interpretation, Regression with dummy variables. Logistic Regression: binary and multinomial models, odds ratio, applications in classification problems, Time Series Analysis: components (trend, seasonality, cyclicity, irregular), smoothing techniques, ARIMA models.

Suggested Readings:

- Box, G. E. P., Jenkins, G. M., Reinsel, G. C., & Ljung, G. M. (2015). Time Series Analysis: Forecasting and Control. Wiley.
- Gujarati, D. N., & Porter, D. C. (2020). Basic Econometrics. McGraw-Hill.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate Data Analysis. Pearson.
- Montgomery, D. C., Jennings, C. L., & Kulahci, M. (2021). Introduction to Time Series Analysis and Forecasting. Wiley.
- Roberts, A., & Roberts, J. M. (2020). Multiple Regression: A Practical Introduction. SAGE Publications.
- Tabachnick, B. G., & Fidell, L. S. (2019). Using Multivariate Statistics. Pearson.