

COMRM02 – Tools for Research

**Masters of Commerce
Semester III
Tools for Research**

Course Type/ Course Code	Course Title	Lectures	Tutorials	Practical	Credit	Pre-requisites
COMRM02	Tools for Research	0	0	2	2	NIL

Objective: This course aims to equip students with essential research tools, statistical techniques, and academic writing skills necessary for conducting rigorous and ethical research in social sciences and commerce.

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

- Utilize popular research software (Excel, SPSS, EViews) for data handling and analysis.
- Apply advanced inferential statistics techniques such as ANOVA, MANOVA, regression.

Practical Exercise:

(60 Hours)

Practical No.	Practical Exercise	Hours
1	Introduction to research software (MS Excel and JAMOVIR): interface, importing/exporting datasets, variable view and data view	3
2	Creating a dataset in Excel/JAMOVIR: variable coding, data entry, data validation and coding schemes	3
3	Data preparation: handling missing values, identifying and treating outliers, recoding variables, transforming variables, and preparing a clean dataset for analysis	5
4	Data visualization using Excel/JAMOVIR: frequency tables, charts, histograms, boxplots, scatter plots and descriptive summaries	3
5	Exploratory Data Analysis (EDA): descriptive statistics, checking normality, skewness, kurtosis and graphical interpretation	3
6	Exploratory Factor Analysis (EFA): assessing sampling adequacy (KMO & Bartlett's Test), factor extraction, rotation and interpretation	6
7	Multiple Linear Regression: model estimation, interpretation of coefficients, goodness of fit and prediction	6
8	Assumption testing for Multiple Linear Regression: linearity, multicollinearity, normality, homoscedasticity, independence of errors and residual diagnostics	5

Department of Commerce
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9	Logistic Regression: binary outcome modelling, estimation, model fit and interpretation of Odds Ratio	5
10	General Linear Model using software: One-way and Two-way MANOVA and interpretation of output	6
11	General Linear Model using software: MANCOVA and interpretation of adjusted effects	5
12	Time Series Analysis using software: trend analysis, forecasting and interpretation of output	5
13	Integrated case study: perform complete data analysis from data cleaning to model building, interpretation and preparation of a research report using an assigned dataset	5
	Total Hours	60

Suggested Readings:

- Field, A. (2018). *Discovering statistics using SPSS*. Sage Publications.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis*. Pearson.
- Roberts, A., & Roberts, J. M. (2020). *Multiple regression: A practical introduction*. SAGE Publications.
- Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics*. Pearson.
- Verma, J. (2012). *Data analysis in management with SPSS software*. Springer India.