

DataQuest Solutions

Data Analysis With SPSS

Lesson 1. Introduction to SPSS

- Understanding SPSS interface (Data View vs Variable view)
- Creating, importing and Exporting Datasets
- Understanding data types (string, numeric) and variable properties(scale, ordinal, nominal)

Lesson 2. Data Management and Preparation

- Data Entry (manual or from Excel, CSV, databases)
- Data Cleaning
 - Handling missing values
 - Identifying and treating outliers
 - Data recording
 - Computing new variables
 - Sorting, selecting and splitting data
- Variable Labelling and Value labelling (for categorical data)

Lesson 3. Descriptive Statistics

- Frequencies and percentages
- Measures of central tendency (mean, median, mode)
- Measures of Variability (Standard deviation, range, variance, maximum, minimum)
- Cross Tabulations (with chi-square test)
- Data Visualization (bar charts, histograms, pie charts, boxplots)

Lesson 4. Exploratory Data Analysis

- Checking Distributions (normality plots, histograms, Q-Q Plots)
- Descriptive summaries
- Detecting skewness and kurtosis

- Exploring relationship between variables (correlation matrices)

Lesson 5. Inferential Statistics

- T-tests
 - One-sample t-test
 - Independent sample t-test
 - Paired samples t-test
- ANOVA
 - One-way ANOVA
 - Post-hoc comparisons (Turkey Bonferroni)
- Chi-square test
- Correlation Analysis
 - Pearson Correlation
 - Spearman's rank correlation
 - Kendall's correlation
- Non parametric tests
 - Mann-Whitney U test
 - Wilcoxon signed-rank test
 - Kruskal-Wallis test

Lesson 6. Regression Analysis

- Linear Regression
- Logistic Regression
- Checking assumptions: multicollinearity, normality of residuals & homoscedasticity
- Interpreting coefficients (B, Exp(B), p-values, confidence intervals)