



Data Management and Statistical Analysis using SPSS

COURSE OUTLINE

INTRODUCTION

In the socio-economic and business context, conducting research, data management, and data analysis are imperative for informed decision making. IBM SPSS Statistics is a powerful statistical software platform. It delivers a robust set of features that lets your organization extract actionable insights from its data. The software is more popular in social sciences. Sound knowledge about the methodology of conducting research and the use of SPSS is very beneficial for to researchers. Upon completion of workshop, participants will develop competence in quantitative techniques in research design, data collection, and management, statistical data analysis, interpretation and reporting of results.

Duration

5 Days

Learning outcomes

By the end of this course participants will be able to:

- Easily collect high quality data using mobile devices such as tablets and phones.
- Clean their data for use in statistical analysis.
- Identify and fix errors in datasets.
- Analyze research data using advanced statistical procedures
- Gain high level skills on statistical results interpretation and report writing.

TOPICS TO BE COVERED

Module 1: Introduction

Mobile Data gathering

- Benefits of Mobile Applications
- Data and types of Data
- Introduction to common mobile based data collection platforms
- Types of questions

Designing forms and advanced survey authoring

- Introduction to XLS forms syntax
- New data types
- Conditional Survey Branching
 - Required questions



- Constraining responses
- Skip: Asking Relevant questions
- The specify other
- Grouping questions
- Repeating a set of questions
- Special formatting
- Making dynamic calculations
- Hosting survey data (Online)
- Downloading data

Module 2:

Statistical Concepts

- Statistical Concepts
- Types of data
- Data Structures and Types of Variables
- Overview of SPSS
- Working with the SPSS software (file management, editing functions, viewing options, etc)
- Output Management
- Basics programming of SPSS

Data Entry/Management

- Entering categorical and continuous data
- Defining and labeling variables
- Validation and Sorting variables
- Transforming, recording and computing variables
- Restructuring data
- Replacing missing values
- Merging files and restructuring
- Splitting files, Selecting cases and weighing cases
- Syntax and output

Module 3:

Statistical Inference and Descriptive Statistics

- Tests of Association
- Tests of Difference
- Hypothesis testing

Measures of Variability and Central Tendency

- Describing quantitative data
- Describing qualitative data



Graphics in Data Analysis

- Graphing quantitative data
- Graphing qualitative data
- Advanced graphics options

Correlation

- Correlation of bivariate data
- Subgroup Correlations
- Scatterplots of Data by Subgroups
- Overlay Scatterplots

Module 4:

Test statistics and tests of associations

Comparing Means

- One Sample t-tests
- Paired Sample t-tests
- Independent Samples t-tests
- Comparing Means Using One-Way ANOVA

Tests of associations

- Goodness of Fit Chi Square All Categories Equal
- Goodness of Fit Chi Square Categories Unequal
- Chi Square for Contingency Tables
- Pearson Correlation
- Spearman Correlation

Nonparametric Statistics

- Mann-Whitney Test
- Wilcoxon's Matched Pairs Signed-Ranks Test
- Kruskal-Wallis One-Way ANOVA
- Friedman's Rank Test for k Related Samples

Module 5:

Other topics

- Multiple Regression Analysis
- Logistic regression (Binary & Multinomial)
- Cluster Analysis
- Factor analysis