Introduction to Statistical Analysis Using IBM SPSS Statistics (V21)

Overview

Recommended duration: 7 Days

Skill level: Basic

Introduction to Statistical Analysis Using IBM SPSS Statistics is a seven day instructor-led classroom course that provides an application-oriented introduction to the statistical component of IBM® SPSS® Statistics. Students will review several statistical techniques and discuss situations in which they would use each technique, the assumptions made by each method, how to set up the analysis, as well as how to interpret the results. This includes a broad range of techniques for exploring and summarizing data, as well as investigating and testing underlying relationships. Students will gain an understanding of when and why to use these various techniques as well as how to apply them with confidence, interpret their output, and graphically display the results.

Audience

This basic course is intended for:

- Anyone who has worked with IBM SPSS Statistics and wants to become better versed in the basic statistical capabilities of IBM SPSS Statistics Base
- Anyone with limited or no statistical background
- Anyone who wants to refresh their knowledge and statistical experience that were gained many years ago

Prerequisites

You should have:

- General computer literacy

Completion of the ""Introduction to IBM SPSS Statistics"" **and/or** ""Data Management and Manipulation with IBM SPSS Statistics"" courses **or** experience with IBM SPSS Statistics (Version 15 **or** later) including familiarity with opening, defining, **and** saving data files **and** manipulating **and** saving output

Key topics

Introduction to Statistical Analysis

- Explain the basic steps of the research process

- Explain differences between populations and samples
- Explain differences between experimental and non-experimental research designs
- Explain differences between independent and dependent variables

Understanding Data Distributions - Theory

- Describe the levels of measurement used in IBM SPSS Statistics
- Use measures of central tendency and dispersion
- Use normal distributions and z-scores

Data Distributions for Categorical Variables

- Use the options in the Frequencies procedure
- Interpret the results of the Frequencies procedure

Data Distributions for Scale Variables

- Use the options in the Frequencies, Descriptives, and Explore procedures
- Interpret the results of the Frequencies, Descriptives, and Explore procedures

Making Inferences about Populations from Samples

- Explain the influence of sample size
- Explain the nature of probability
- Explain hypothesis testing
- Explain different types of statistical errors and power
- Explain differences between statistical and practical importance

Relationships Between Categorical Variables

- Use the options in the Crosstabs procedure
- Request appropriate statistics for a crosstabulation
- Interpret cell counts and percents in a crosstabulation
- Use the Chi-Square test, interpret its results, and check its assumptions
- Use the Chart Builder to visualize a crosstabulation
- Use additional syntax-only Crosstabs features

The Independent- Samples T Test

- Check the assumptions of the Independent-Samples T Test
- Use the Independent-Samples T Test to test the difference in means
- Know how to interpret the results of a Independent-Samples T Test
- Use the Chart Builder to create an error bar graph to display mean differences

The Paired-Samples T Test

- Use the Paired-Samples T Test procedure
- Interpret the results of a Paired-Samples T Test

One-Way ANOVA

- Use the options in the One-Way ANOVA procedure
- Check the assumptions for One-Way ANOVA
- Interpret the results of a One-Way ANOVA analysis
- Use the Chart Builder to create an error bar to graph mean differences

Bivariate Plots and Correlations for Scale Variables

- Visually assess the relationship between two scale variables with scatterplots, using the Chart Builder procedure
- Explain the Pearson correlation coefficient and its assumptions
- Interpret a Pearson correlation coefficient
- Explain the options of the Bivariate Correlations procedure

Regression Analysis

- Explain linear regression and its assumptions
- Explain the options of the Linear Regression procedure
- Interpret the results of the Linear Regression procedure
- Use Automatic Linear Models to perform regression

Nonparametric Tests

- Describe when non-parametric tests should and can be used
- Describe the options in the Nonparametric Tests procedure dialog box and tabs
- Interpret the results of several types of nonparametric tests