

## Introduction to Statistical Analysis Using IBM SPSS Statistics (V23) Information

**Length:** 2.0 Days  
**Ref:** 0G514G  
**Delivery method:** Classroom  
**Price:** EUR

### Overview

Introduction to Statistical Analysis Using IBM SPSS Statistics (V23) provides an application-oriented introduction to the statistical component of IBM® SPSS® Statistics. You 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. You 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.

### Public

This intermediate course is 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.

### Objective

Please refer to course overview for information.

### Topics

## **Introduction to Statistical Analysis**

- Explain the difference between a sample and a population
- Explain the difference between an experimental research design and a non-experimental research design
- Explain the difference between independent and dependent variables

## **Examine Individual Variables**

- Describe the levels of measurement used in IBM SPSS Statistics
- Use graphs to examine variables
- Use summary measures to examine variables
- Explain normal distributions
- Explain standardized scores and their use

## **Test Hypotheses-Theory**

- Explain the difference between a sample and a population
- Design a test of a hypothesis
- Explain the alpha level
- Explain the difference between statistical and practical significance
- Describe the two types of errors in testing a hypothesis

## **Test Hypotheses about Individual Variables**

- Explain the sampling distribution of a statistic
- Explain the difference between the standard deviation and the standard error
- Use the One-Sample T Test to test a hypothesis about a population mean
- Use the Paired-Samples T Test to test on an ""before-after treatment"" effect
- Use the Binomial Test to test a hypothesis about a population proportion

## **Test the Relationship between Categorical Variables**

- Use the Chart Builder to visualize the relationship between two categorical variables
- Use percentages in Crosstabs to describe the relationship between two categorical variables
- Use the Chi-Square test in Crosstabs to test the relationship between two categorical variables

## **Test the Difference between the Means of Two Groups**

- Use the Chart Builder to create an error bar and boxplot to visualize the difference between groups
- Use Explore and Means to describe the differences between groups
- Use the Independent-Samples T Test to test whether the difference between two group means is statistically significant

## **Test the Differences between More than Two Group Means**

- Use One-Way ANOVA to determine whether there are statistically significant differences between means of three or more groups
- Use post hoc tests to identify differences between group means

## **Test the Relationship between Scale Variables**

- Use the Chart Builder to create a scatterplot to assess the relationship between two scale variables
- Explain when the correlation can be used
- Perform a hypothesis test on the correlation

## **Predict a Scale Variable**

- Use Regression to predict a scale variable with one or more scale variables
- Use Automatic Linear Modeling to predict a scale variable with categorical and scale variables

## **Use Nonparametric Tests**

- Describe when Nonparametric Tests should and can be used
- Use Nonparametric Tests for two or more independent samples
- Use Nonparametric Tests for two dependent samples

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