# Introduction to Data Analysis Training

Duration: **2 Day**

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## Overview

Organizations need to make business decisions more quickly and accurately than ever before. Basing these decisions on data and best practice analysis techniques and less on gut feel or "the way we have always done things" is how today's corporate management is demanding information. A solid foundation of data analysis for business decision making is a critical skill you should have regardless of whether your motive is to obtain or sustain a competitive advantage or simply better steward your resources to serve customers. In this course, you will learn to use data analytics to create actionable recommendations, as well as identify and manage opportunities where data-based decisions can be used to change the way you do business.

This course provides many of the common data analysis tools used to gather, analyze, and adapt your data to feed business decisions. You do not need heavy Excel or data analysis experience. This course includes introductory exercises on Excel add-ins, standard deviation, random sampling, and an introduction to pivot tables and charts. These exercises will show you how to effectively demonstrate basic data analysis functions and reporting in Excel or Google Spreadsheets. We will simplify math jargon and complex symbols and equations to concentrate on what your data can tell you and your organization. In addition, you will learn how to present to those executives, managers and subject matter experts who need to quickly make decisions that drive your organization.

## Prerequisites

There are no prerequisites for this course.

## Who Should Attend

Anyone involved in operations, project management, business analysis, or management, who needs an introduction to data analysis.

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## What You Will Learn

- Terms, jargon, and impact of business intelligence and data analytics
- Scope and application of data analysis
- Impact of analytics on gaining competitive advantage and decision support
- Measure the performance of and improvement opportunities for business processes
- Need for tracking and identifying the root causes of deviation or failure
- Basic principles, properties, and application of probability theory and the normal distribution
- Introduction to different methods for summarizing information and presenting results including charts
- Statistical inference and drawing conclusions about the population
- Sample sizes and confidence intervals, and how they influence the accuracy of your analysis
- Forecasting and an introduction to simple linear regression analysis
- Interpret your results and draw sound and relevant conclusions on business
- Methods and algorithms for forecasting future results and to reduce current and future risk
- Process improvement and analysis skills
- Where powerful reference material exists and how to leverage to enhance your decision-making

## Outline

**1. Introduction to Data Analysis and Analytics**

- Definition and history
- Current technology environment and the growing availability of data
- Role of the business analyst and data analyst
- Applications for gaining competitive advantages
- Fact-based decision making
- Process tracking and control

**2. Application of Probability and Probability Distributions**

- Key concepts and essentials
- Decision making under uncertainty
- Random variables
- Population and samples
- The normal distribution
- Many business distributions are nowhere near normal. constraints!
- Establishing confidence intervals

**3. Introduction to Data Mining and Data Warehousing**

- Data mining concepts and application
- Introduction to application benefits of data warehousing

**4. Describing Information Needs**

- Identify operational and executive information classes
- Modeling key decisions and the needs for information
- Describing key business transactions and documents
- Map information needs to underlying data
- Executive information needs and the balanced scorecard

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- Pivot tables in Excel
- Tracking and managing business process performance
- Selecting measures and targets
- Measuring performance and finding performance gaps
- Root cause analysis

**5. Data Exploration Concepts and Formulas**

- Basic concepts
- Types of variables
- Selecting dependent and independent variables
- Sample vs. population
- Descriptive measures of a sample
- Key sample parameters
- Variability
- Sampling distributions
- Sample size
- Histograms
- Establishing and analyzing correlation among different variables
- Explanation of variance

**6. Introduction to Risk Management**

- Uncertainty and risk analysis
- Assessing your organization risk culture and level of risk tolerance
- Identifying, describing, ranking, prioritizing, and controlling risks
- When to use quantitative risk analysis
- Important risk management best practices

**7. Forecasting**

- Forecasting methods and models
- History of forecasting
- Long and short term forecasts
- Heuristics
- Time series analysis
- Establishing trends and business cycles (i.e., seasonality) and confidence limits
- Selecting independent variables for predictive models including regression techniques

**8. Review**

- Data analysis and analytics
- Probability and distributions
- Data mining, data warehousing, and the need for information
- Statistic inference, forecasting, and decision support
- Next steps options

**9. Additional Resources and Exercises**