Essential Statistics for Data Analysis using Excel

Modality: On Demand

Duration: 24 Hours

About this Course:

This intermediate-level training program is specifically designed for IT Professionals striving to pursue a professional career as a Data Analyst and Data Scientist. This course provides a comprehensive overview of Pareto Charts, Histograms, Bayes Theorem, and other key Excel Features & Functionalities. The primary objective of this course is to help professionals build familiarity with the key statistics concepts used in Microsoft Excel.

This course also overviews the fundamentals probability and statistics principles and sheds light on the key concepts of Sampling, Intervals, Random Variables, and Hypothesis Evaluation. Professionals will also learn how to integrate and implement these concepts in the Excel Environment. This course will nurture the analytical skills of professionals and will make the adopt proficiency in data analysis.

This course is the second course in a three-course training series that focuses on the data analytical capabilities & functionalities of Microsoft Excel.

Course Objectives:

The core objective of this course is to help professionals gain a better knowledge and understanding of the following key concepts:

- Fundamentals of Probability and Descriptive Statistics
- Skewness and Histograms Basics and Understanding Random Variables
- Hierarchical Data Summarization and PivotCharts, PivotTables, & Categorical Data
- Conditional Probability and Law of Complements
- Bayes Rule and Total Probability Law
- Random Variable Standard Deviation, Variance, and Mean
- Core Concepts of Binomial and Poisson Rule
- Central Limit Theorem and the Standard Normal
- Confidence and Sampling Intervals Fundamentals & Essentials
- Finite Correction Factor and Point Estimation
- Hypothesis Evaluation and Testing
- Two Population Means Difference and Population Proportion
- Type I and Type II Errors

Audience:

- Data Professionals and Analysts
- Data Scientists and IT Professionals

Prerequisites:

Professionals planning to enroll in the Essential Statistics for Data Analysis using Excel Course must comply with the following prerequisites:

- Fundamental Knowledge of High School Algebra Key Concepts
- Familiarity with Microsoft Excel Tables, Charts, and Formulas
- Know-how of Data Summarization and Management
- Familiarity with Excel Analytical Tools such as Pivot Tables & Charts

Course Outline:

Module 1 : Descriptive Statistics

- Defining Data
- Histograms and Skewness
- Descriptive Statistics with Analysis ToolPak
- Boxplots
- Categorical Data, PivotTables, and PivotCharts
- Summarizing Hierarchical Data
- 80-20 Rule and Pareto Charts
- Module 1 Discussion
- Module 1 Quiz

Module 2 : Basic Probability

- Introduction to Probability
- Law of Complements
- Mutually Exclusive and Independent Events
- Conditional Probability
- Law of Total Probability and Bayes Rule
- Additional Reading and Review
- Module 2 Discussion
- Module 2 Quiz

Module 3 : Random Variables

- Random Variable Definitions
- Mean, Variance, and Standard Deviation of a Random Variable
- Mean, Variance, and Standard Deviation for Sum of Random Variables
- Binomial Random Variable
- Poisson Random Variable
- Normal Random Variable
- Central Limit Theorem
- Z Scores
- Module 3 Discussion
- Module 3 Quiz

Module 4 : Sampling and Confidence Intervals

- Populations and Samples
- Point Estimation of a Population Mean and Proportion
- The Standard Normal
- Confidence Interval Estimation
- Sample Size Determination
- The Finite Correction Factor
- Additional Reading
- Module 4 Discussion
- Module 4 Quiz

Module 5 : Hypothesis Testing

- Defining Hypotheses
- Type I and Type II Error
- One Sample Z-Test
- One Sample T-Test
- Single Sample Test for Population Proportion
- Testing Equality of Variances
- Testing the Difference Between Two Population Means
- Chi-Squared Test for Independence
- Additional Reading
- Module 5 Discussion
- Module 5 Quiz

Final

- Final Exam?