

# Data Analysis and Visualization with Microsoft® Excel®

## Course Specifications

### Course Number:

091157

### Course Length:

2 days

## Course Description

### Overview:

Technology and the data that it both collects and makes accessible is now interwoven with businesses and lives. The era of "big data" has exploded due to the rise of cloud computing, which provides an abundance of computational power and storage, allowing organizations of all sorts to capture and store data. Leveraging that data effectively can provide timely insights and competitive advantage.

Analyzing data to find issues, insights and opportunities, is now a critical part of many job roles. Beyond the analysis, data analysts in all job roles must be able to effectively present and communicate their findings in visually compelling ways.

Microsoft® Excel® is designed for this purpose. Excel can connect to a wide range of data sources, perform robust data analysis and create diverse and robust data-backed visualizations to show insights, trends, and create reports. These capabilities enable people who use Excel for data analysis to turn data into thoughtful action.

### Course Objectives:

In this course, you will analyze and visualize data using Microsoft Excel and associated tools. You will:

- Perform data analysis fundamentals.
- Visualize data with Excel.
- Analyze data with formulas and functions.
- Analyze data with PivotTables.
- Present visual insights with dashboards in Excel.
- Create geospatial visualization with Excel.

- Perform statistical analysis.
- Get and transform data.
- Model and analyze data with Power Pivot.
- Present insights with reports.

## **Target Student:**

This course is designed for students who already have foundational knowledge and skills in Excel and who wish to perform robust and advanced data and statistical analysis with Microsoft Excel using PivotTables, use tools such as Power Pivot and the Data Analysis ToolPak to analyze data, and visualize data and insights using advanced visualizations in charts and dashboards in Excel.

## **Prerequisites:**

To ensure success, you should have baseline skill using Microsoft Excel worksheets, particularly in creating workbooks with formulas and functions. You can obtain this level of knowledge and skill by taking the following or any similar equivalent Logical Operations course:

- *Microsoft® Excel® for Office 365™ (Desktop or Online): Part 1*

Additional workplace experience with Excel is highly recommended.

## **Course-specific Technical Requirements**

### **Hardware**

For this course, you will need one computer for each student and one for the instructor. Each computer will need the following minimum hardware configurations:

- 1 gigahertz (GHz) 64-bit (x64) processor.
- 4 gigabytes (GB) of Random Access Memory (RAM).
- 32 GB available storage space.
- Monitor capable of a screen resolution of at least 1,024 × 768 pixels, at least a 256-color display, and a video adapter with at least 4 MB of memory.
- Bootable DVD-ROM or USB drive.
- Keyboard and mouse or a compatible pointing device.
- Fast Ethernet (100 Mb/s) adapter or faster and cabling to connect to the classroom network.
- IP addresses that do not conflict with other portions of your network.
- Internet access (contact your local network administrator).
- (Instructor computer only) A display system to project the instructor's computer screen.

## Software

- Microsoft® Office Professional Plus 2019 or Office 365™
- Microsoft® Windows® 10 Professional or Enterprise
- If necessary, software for viewing the course slides. (Instructor machine only.)

## Course Content

### Lesson 1: Data Analysis Fundamentals

**Topic A:** Introduction to Data Science

**Topic B:** Create and Modify Tables

**Topic C:** Sort and Filter Data

### Lesson 2: Visualizing Data with Excel

**Topic A:** Visualize Data with Charts

**Topic B:** Modify and Format Charts

**Topic C:** Apply Best Practices in Chart Design

### Lesson 3: Analyzing Data with Formulas and Functions

**Topic A:** Analyze Data with Formulas and Named Ranges

**Topic B:** Analyze Data with Functions

**Topic C:** Implement Data Validation, Forms, and Controls

**Topic D:** Create Conditional Visualizations with Lookup Functions

### Lesson 4: Analyzing Data with PivotTables

**Topic A:** Create a PivotTable

**Topic B:** Analyze PivotTable Data

### Lesson 5: Presenting Visual Insights with Dashboards in Excel

**Topic A:** Visualize Data with PivotCharts

**Topic B:** Filter Data Using Slicers and Timelines

**Topic C:** Create a Dashboard in Excel

## **Lesson 6: Creating Geospatial Visualizations with Excel**

**Topic A:** Create Map Charts in Excel

**Topic B:** Customize Map Charts in Excel

## **Lesson 7: Performing Statistical Analysis**

**Topic A:** Visualize Trendlines and Sparklines with Excel

**Topic B:** Analyze Data with the Data Analysis ToolPak

## **Lesson 8: Getting and Transforming Data**

**Topic A:** Connect to Data with Queries

**Topic B:** Clean and Combine Data

**Topic C:** Shape and Transform Data

## **Lesson 9: Modeling and Analyzing Data with Power Pivot**

**Topic A:** Install Power Pivot in Excel

**Topic B:** Create Data Models with Power Pivot

**Topic C:** Create Power Pivots

**Topic D:** Perform Advanced Data Analysis and Visualization

## **Lesson 10: Presenting Insights with Reports (Optional)**

**Topic A:** Plan a Report

**Topic B:** Create a Report