Power Query Course

Course Syllabus

Course Description

This Power Query course is for Excel users who spend too much time copying, pasting, and cleaning data by hand. Learn to use Power Query to connect to workbooks, CSV files, folders, web pages, and other sources, then clean, reshape, and combine that data into analysis-ready tables without formulas or manual rework. Build queries that handle messy, report-style data, merge and append tables from multiple systems, and automatically pick up new files each time you refresh. Learn to organize, troubleshoot, and parameterize queries so they keep working as data changes, and get an introduction to the M language behind every step. Use Copilot in Excel to explore the cleaned data for trends and insights, then load your queries into PivotTables and reports that update with a single click.

Who Should Attend

- Analysts and finance professionals who build recurring reports from multiple files or systems
- Operations professionals who combine data across departments, locations, or time periods
- Excel users who spend hours each week cleaning, reformatting, or copying and pasting data
- Anyone who receives the same messy exports or reports on a regular schedule
- Managers who want reporting that refreshes reliably without manual rework
- Anyone planning to move into Power BI, since Power Query works the same way there

Prerequisites

- Working knowledge of Excel, including formulas, tables, and basic PivotTables
- Excel for Microsoft 365 on Windows (Excel for Mac has fewer Power Query features and does not include Power Pivot)
- Access to Copilot in Excel through a Microsoft 365 plan that includes it, for the Copilot lesson

Learning Objectives

By the end of this course, participants will be able to:

- Connect to data in workbooks, CSV files, folders, web pages, and other sources
- Clean data and fix errors, duplicates, and inconsistent formats without formulas
- Reshape report-style data with unpivot, pivot, transpose, and Group By
- Combine data with merge and append queries, including every file in a folder
- Build reliable, reusable queries with parameters, staging queries, and error handling
- Read and make simple edits to the M code behind each query
- Use Copilot in Excel to explore cleaned data for trends and insights
- Load queries into PivotTables and reports that refresh with one click

Course Materials

Participants receive AGI curriculum materials and practice files used throughout the hands-on exercises.

Course Outline

Lesson 1: Getting Started with Power Query

Understand where Power Query fits in Excel and how it replaces manual, repetitive data preparation.

- Limits of copy-and-paste and formula-based data preparation
- What Power Query is and where to find it in Excel (Get & Transform)
- Structuring source data as Excel tables
- Navigating the Power Query Editor
- How Applied Steps record and replay your work
- Load options: table, PivotTable, connection only, and data model
- Refreshing queries

Lesson 2: Connecting to Data Sources

Bring data into Excel from the files and systems you already use, and keep the connection live for future refreshes.

- Importing from Excel workbooks and worksheets
- Importing CSV and text files
- Importing from a folder of files
- Importing tables from web pages
- Importing tables from PDF files
- Connecting to files stored in SharePoint and OneDrive
- Editing data source settings and changing file locations

Lesson 3: Cleaning and Transforming Data

Fix the common problems in raw data so it is accurate and consistent before analysis.

- Setting and correcting data types
- Removing blank rows, errors, and duplicates
- Filtering and sorting rows
- Trimming, cleaning, and changing the case of text
- Splitting and merging columns
- Replacing values and filling down blank cells
- Extracting text, dates, and parts of dates
- Adding conditional and custom columns
- Creating columns from examples

Lesson 4: Reshaping Report-Style Data

Turn presentation-friendly reports into analysis-ready tables.

- Recognizing analysis-ready data versus report layouts
- Promoting and fixing column headers
- Removing subtotal and total rows
- Unpivoting columns into rows
- Pivoting rows into columns
- Transposing tables
- Summarizing data with Group By

Lesson 5: Combining Data from Multiple Sources

Bring related data together from multiple tables, files, and systems into a single, consistent table.

- Appending queries to stack similar tables
- Combining all files in a folder into one query
- Combining multiple sheets from a workbook
- Handling new or renamed columns in incoming files
- Merging queries to look up and join data
- Choosing join types: left outer, inner, full outer, and anti joins
- Using fuzzy matching to merge inconsistent values

Lesson 6: Building Reliable, Reusable Queries

Organize and troubleshoot queries so they keep working as data changes and can be maintained by others.

- Referencing vs. duplicating queries
- Staging queries and connection-only loads
- Viewing query dependencies
- Using data profiling to check column quality and distribution
- Finding and fixing errors that break a refresh
- Creating parameters for file paths and filter values
- Reading and editing M code in the formula bar and Advanced Editor
- Creating a date table with Power Query
- Setting refresh options

Lesson 7: Analyzing Query Results with Copilot in Excel

Use Copilot in Excel to explore clean data, and check AI-generated results before relying on them.

- Using Copilot with tables created by Power Query
- Asking Copilot to identify trends, outliers, and key insights
- Generating formulas with Copilot
- Forecasting trends with Forecast Sheet and Copilot
- Reviewing and validating AI-generated results

Lesson 8: From Queries to Refreshable Reports

Put cleaned data to work in reports that update with a single click.

- Loading queries to PivotTables and PivotCharts
- Loading related queries to the data model
- Adding slicers and timelines
- Building a one-click refreshable report
- Sharing workbooks that contain queries