**O’Reilly Live Online Training Course Proposal**

**Introduction to Power Query for Microsoft Excel**   
Extract, transform and load data into spreadsheets

**Contacts**

**Instructor:** George Mount

**Email:** george@georgejmount.com

**Phone:** 440-879-8399

**Editor:** Michelle Smith

**LX Team:** Scott Murray

**Timing and Scheduling**

**# of sessions:** 1

**Session duration:** 3 hours

**Initial cadence:** 2 months apart

**Instructor's general availability** in Pacific Time (mornings PT are optimal)

* Eastern time, generally available during the day.

**Initial dates** to be captured here by Production during scheduling

* TBD

**Course Info**

**Title:**   Introduction to Power Query for Microsoft Excel

**Subtitle:**   Extract, transform and load data into spreadsheets

**JupyterHub:** **No**

**Description**  1-2 paragraphs. What is this about, and why is it important and valuable?

Power Query is a Microsoft extract, transform and load (ETL) technology that enables users to access data from structured and unstructured sources, reshape it, and load it into Excel workbooks.

Analysts, researchers, and project managers want to build repeatable data cleaning processes on large datasets. Rather than write complex Excel formulas or programs in Visual Basic for Applications (VBA), these users can conduct their work in Power Query with no coding required.

The focus of this course will be using Power Query to transform tabular data sources into tables that are ready for data analysis. By the end of the course, users will be able to pivot, filter and merge data so that it’s ready for analysis.

**What you'll learn — and how you can apply it**

**By the end of this live, hands-on, online course, you’ll understand:**

* How Power Query serves as an ETL tool for Microsoft Excel
* What makes data “tidy,” and why this is desirable for data analysis
* The role of the M programming language in Power Query

**And you’ll be able to:**

* Load data from Excel worksheets, workbooks and csv files
* Perform common data wrangling tasks such as sorting, filtering, and aggregation
* Combine data from multiple sources using joins and appends

**This training is for you because...**

* You're an analyst responsible for collecting, analyzing, and interpreting data for business insights
* You frequently gather data from multiple sources to build reports in Excel
* You want to build repeatable data cleaning procedures with no code

**Prerequisites**  What prior knowledge or experience is necessary?

* You should be comfortable with basic tasks and functions in Excel, including sorting and filtering, and the use of IF statements. Ideally, you've also used conditional aggregates like SUMIF() and COUNTIF() as well as PivotTables and VLOOKUP().

**Recommended preparation**  Any setup instructions or links to Safari-based content? Any supplemental materials, like PDF worksheets or links to code repositories?

* Download Power Query for Excel: depending on your version of Excel, the steps will be different. See Microsoft’s [official compatibility guide](https://support.office.com/en-us/article/Where-is-Get-Transform-Power-Query-E9332067-8E49-46FC-97FF-F2E1BFA0CB16). Please note that for Mac, Power Query is only available on Office 365.
* Attend “[Foundations of Microsoft Excel](https://learning.oreilly.com/live-training/courses/foundations-of-microsoft-excel/0636920323501/)” (OLT course)
* Read Chapters 8 “[Introducing Power Query](https://learning.oreilly.com/library/view/excel-power-pivot/9781119210641/13_9781119210641-ch08.xhtml)” and 9 “[Power Query Connection Types](https://learning.oreilly.com/library/view/excel-power-pivot/9781119210641/14_9781119210641-ch09.xhtml)” in [*Excel Power Pivot and Power Query For Dummies*](https://learning.oreilly.com/library/view/excel-power-pivot/9781119210641/)(book)
* Watch the “Excel Tables” and “Pivot Tables” sections of [Big Data Analytics with Excel](https://learning.oreilly.com/videos/big-data-analytics/9781771375795) (video course)

**Recommended follow-up**  Links to Safari-based content for further learning

* Read [*Collect, Combine, and Transform Data Using Power Query in Excel and Power BI, First Edition*](https://learning.oreilly.com/library/view/collect-combine-and/9781509307982/)(book)

**Common misunderstandings**  What are the most common ideas, skills, or performance abilities that someone new to this content struggles with?

* Relationships between Power Query/M, Power Pivot/DAX, Excel and Power BI
* Manipulating directly on a table that has been produced in Power Query versus manipulating the query directly
* How nulls are used in Power Query — there is no such thing as a null data type in base Excel!
* How joins work and differ from VLOOKUP
* The difference between adding a column and transforming a column
* The difference between”close and load” versus “close and load to”

**Learning Plan**

**# of sessions:** 1

**Session duration:** 3 hours

**Course schedule**A high-level, bulleted list, alternating between presentations and interactive activities (discussions, exercises, pulse checks, or polls). Include an estimated duration for each section, and designated time for Q&A at the end of each section.  Include at least a 5-minute break every hour. For example:

**Power Query as Excel’s ETL tool** (25 minutes)

* Presentation: Why ETL for business analytics?
  + Overview of what is meant by “extract, transform and load” processes, with applications in business analytics and reporting
* Presentation: What would we do without Power Query?
  + Tour of the alternatives to Power Query: complex formulas, VBA, SQL, and more
* Presentation: Power Query and “Modern Excel”
  + Overview of Microsoft’s “Power Platform” as applied to Excel: Power Pivot, Power Query, M, DAX.
* Exercise: Assess how to clean a messy dataset using known tools. Explain what makes that dataset messy.
* Q&A

**What Makes Data “Tidy?” Why Does it Matter?** (25 minutes)

* Presentation: Spotting messy data in the wild
  + Using the principles of “tidy data,” explicitly state how to reshape a dataset for ease of analysis
* Exercise: Getting to tidy: what needs to change with these datasets?
* Presentation: First steps to tidy in Power Query
  + Load a first data source into Power Query, inspect it with data profiling, and begin the data cleaning process
* Q&A

Break (10 minutes)

**Transforming Rows in Power Query** (25 minutes)

* Presentation: Sorting, removing duplicates, filtering, filling and grouping a table
* Exercise: drills on transforming rows
* Q&A

**Transforming Columns in Power Query, Part I** (25 minutes)

* Presentation: Changing data types, splitting columns, and re-formatting text
* Exercise: drills
* Presentation: Managing & loading queries
  + Monitor and edit the steps of a query, load the results, and refresh the query
* Exercise: drills
* Q&A

Break (5 minutes)

**Transforming Columns in Power Query, Part II** (30 minutes)

* Presentation: Concatenating columns, creating calculated fields, and un-pivoting tables
* Exercise: Drills
* Presentation: Appending several tables
* Q&A

**VLOOKUP(), meet JOIN** (30 minutes)

* Presentation: Illustrate the differences between left and inner joins
* Presentation: Conducting joins in Power Query
* Exercise: Drills
* Q&A

**Instructor Info**

**Bio**

George builds data analytics training programs through his company, Stringfest Analytics. He serves as a technical expert and lead curriculum developer for Thinkful’s data analytics program and is the instructor of the DataCamp course “Survey and Measure Development in R.” George blogs about teaching data analytics at [georgejmount.com.](https://georgejmount.com) He holds a master’s degree in information systems with a certificate of achievement in quantitative methods from Case Western Reserve University.

**Company affiliation**

Stringfest Analytics

**Social media URLs**

|  |  |
| --- | --- |
| Primary website | [georgejmount.com](https://georgejmount.com) |
| Twitter | [@gjmount](https://twitter.com/gjmount) |
| LinkedIn | [linkedin.com/in/gjmount](https://www.linkedin.com/in/gjmount/) |
| GitHub | [@summerofgeorge](https://github.com/summerofgeorge/) |
| YouTube | [youtube.com/georgemountexcel](https://www.youtube.com/georgemountexcel) |
| Other |  |

**Video samples** of you engaged in teaching

* <https://youtu.be/G00fDMaHUWc>
* <https://youtu.be/MGHjnpj46IU>
* <https://youtu.be/YTX_eDBhzC0?t=1210>

**Testimonials** such as praise from previous clients or glowing tweets

* “…time and time again confirms his deep insight into Excel. It's the analyst thinking which makes George an outstanding asset to any data-driven organisation. Add the ease in personal relationships and good communication skills in the mix ... great performer.” –Erik Muylle, Cost Controller at Novasol NV
* “George is a great instructor who provided a hands-on introduction to data science with clear and concise instructions and explanations. He organized the course with a useful balance of practical information, hand holding, and helpful tips and tricks.” –Melissa Cooper, doctoral student, Department of Organizational Behavior at Case Western Reserve University
* “I've had the distinct pleasure to call George both a mentor and a friend throughout many advancements in my career. In my personal journey to conquer all things Excel and advanced analytics; George provided a wealth of knowledge and guidance not only in the application but across his industry experience. These teachings are immeasurable and for that I want to say thank you for all that you do for our community, George!” –Alex Powers, Premier Field Engineer, Data & AI at Microsoft
* “George has exceptional skills at teaching and mentoring coupled with a deep understanding of Excel, Python, Tableau, and SQL. George’s ability to explain the complexities of these programs has positioned me to be a successful student and ultimately a successful data analyst.” –Blake Bowling, project manager at Bowling Business Strategies

**Instructor photo**

* <https://drive.google.com/file/d/10D-F2aCTktyzEtL-yVzVM7NCtMkY1kd9/view?usp=sharing>

**Proposal Checklists**

Minimum requirements checklists. All O'Reilly courses must include the following.

**Course info**

* Instructor contact info captured
* Initial timing, duration, and cadence values captured
* All course info fields filled in
* Confirmed with instructor intent to use JupyterHub (or not) and reviewed restrictions
* Tested and verified links to all Safari-based content and other materials

**Instructor info**

* Bio and social media links captured
* New instructors only:
  + Video samples
  + Testimonials
  + Headshot received

**Learning plan**

* Description communicates the value of this learning (the "why")
* Learning promise elements are clearly articulated
* Prework well defined (if any) and all needed materials linked to
* Resources for further learning listed and linked to
* Any other supplemental materials (PDFs, worksheets) linked to
* Schedule alternates presentations and activities; no lectures
* Schedule accounts for short breaks every hour
* Schedule indicates durations for each section, and durations total sum as expected
* Each segment has time for Q&A
* Exercises provide opportunities for hands-on problem solving
* All exercises include an assessment component (via chat)
* Any external services used comply with our privacy policy