



**Bundle Course – Data Analysis
with MS Excel and Google Sheets**

Bundle Course – Data Analysis with MS Excel and Google Sheets – Course Syllabus

Microsoft Excel – Course Syllabus

Section 1: Foundation

Unit 1.1 – Excel Introduction

A description of the purpose and application of Excel – what it can do, why it's useful.

Unit 1.2 – The Excel Interface

Understanding and working with the Excel interface – getting to know your way around the application, how to access functionality and how to customize it. How to create, save and open Workbooks. Under Save As, a brief explanation of backwards compatibility and other formats (e.g. PDF) save options. Skydrive, alternative online storage, and 'local' saving. Basic printing.

Unit 1.3 – Basic Navigation & Editing

Selection and navigation. Moving around a spreadsheet efficiently. Entering information into cells, types of data (text, numbers, dates). Basic formatting. Working with multiple Worksheets.

Unit 1.4 – Getting going

Takes a quick look at a first 'real' spreadsheet, in order to introduce the concept of functions and formulas, and give a feel for how Excel can be useful.

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Section 2: Orientation and efficiency

Unit 2.1 – Editing

Copying, pasting, inserting and deleting cells, ranges of cells, rows, columns and Worksheets. 'Special' pasting – for example to copy just formulas, or just values. Common problems with pasting. The differences between copying and 'cutting'. Excel aids to copying – Fill Handle and Flash Fill.

Unit 2.2 – Viewing

The various 'Views' or modes of spreadsheet display available in Excel, and how to choose the right View for the task in hand. Techniques for making working with a spreadsheet easier – Freezing Panes, splitting windows, and using multiple windows.

Unit 2.3 – Spreadsheet structure

Changing the structure of your spreadsheet to make it clearer. Grouping rows and columns; changing cells size and shape.

Unit 2.4 – Cell references

How (and why) to connect (or link) cells and ranges, and how connected cells behave. Fixed or absolute references (dollar signs) for cells; partially fixed references. The "F4" shortcut.

Unit 2.5 – Named Ranges

Making formulas clearer and more easily understood by replacing cell references with meaningful names.

Unit 2.6 – Basic Macros

Using Macros to automate repetitive tasks in Excel. (This Unit covers recorded Macros – the later unit 5.8 covers writing and editing Macros using VBA in detail.)

Unit 2.7 – Design

Why spreadsheet design important in increasing efficiency, reducing errors and aiding transparency. Principles of good spreadsheet design.

Section 3: Administration

Unit 3.1 – Customising Excel

Changing Excel settings to suit the way you use Excel. Includes: font face, number of worksheets, frequency of autorecovery, default view, Autocorrect and Ribbon alterations. Excel Add-Ins – Solver, Analysis ToolPak. PowerPivot and Inquire.

Unit 3.2 – Housekeeping

Naming and storing Excel files. Version control. Making backups.

Unit 3.3 – Connecting Workbooks

- Setting up links between Workbooks. The dangers and pitfalls of doing so.
- Managing links between Workbooks and updating external references.
- Troubleshooting – finding 'missing links' and using auditing tools.

Unit 3.4 – Documentation

What to document, and how, in order to produce clear and robust spreadsheets.

Unit 3.5 – Protecting and Sharing

Protecting Workbooks and when it's useful or necessary locking cells, Worksheet protection, Workbook protections, allowing users to edit ranges.

Permissions and granting access to folders & files, how to work with others on the same files and different files (both in process terms and using Excel functionality; when not to use it, avoiding conflicts). Sharing via the Cloud.

Unit 3.6 – Googledocs

What is Googledocs, and why use Google Spreadsheets for spreadsheeting?

Unit 3.7 – Excel troubleshooting

Common problems and how to avoid or overcome them. For example building in checks into spreadsheets, techniques for finding errors. Advanced techniques for diagnosing more complex problems.

Section 4: Data handling

Unit 4.1 – Sorting & Filtering

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Techniques for sorting and filtering data, including controlling the order of precedence in a sort, advanced filters, and an introduction to PivotTables. Using sorting and filtering to check and 'clean' data.

Unit 4.2 – Controlling user input

Controlling the way users can enter data into a spreadsheet to reduce risk of error and increase efficiency. Covers Data Validation and using IS- functions to trap errors.

Unit 4.3 – Working with Dates and Times

Date and time formatting, performing basic maths with dates and times, and date and time functions.

Unit 4.4 – Working with Text

Entering and formatting text, extracting or combining parts of text. 'Cleaning' data for typos and bugs.

Unit 4.5 – Lookup & Reference

Looking up information in a basic table, and more flexibly. VLOOKUP() and the more flexible INDEX()/MATCH() combination. Advanced lookups.

Unit 4.6 – Logical Functions

Automatic decision making and error handling. Advanced logical tests. Matrix user of IF as an array function.

Section 5: Data analysis

Unit 5.1 – Working with Numbers

Maths: basic addition, subtraction, multiplication and division. How to use brackets to get the correct result. Powers. Rounding.

Unit 5.2 – Summarising data

Understanding a data set by summarizing it. Totals and counts – SUM(), COUNT() and COUNTA(). Other statistics. Conditional totals and counts. Advanced conditional sums, SUMPRODUCT and array formulas.

Unit 5.3 – PivotTables 1 – Simple Summaries

Uses of PivotTables. Summarising data (presenting database in terms of different subcategories). Understanding data (understanding categories, spotting typos, understanding range of values). Interpreting data (analysing to work out trends, areas of growth / profit / loss etc). Filtering. Sorting and grouping

Unit 5.4 – PivotTables 2 – Manipulating Data

Changing the layout and format of data in a PivotTable. Changing Value Field Settings to show counted rather than 'summed' data. Setting up references to a PivotTable.

Unit 5.5 – PivotTables 3 – Interpreting Data

Using PivotTables to understand and interpret data. Includes Slicers and Timelines, PivotCharts and Conditional Formatting of PivotTables.

Unit 5.6 – PowerPivot – Handling Big Data

Why PowerPivot is different to a normal PivotTable: size, data model (inclusion in 2013 standard Excel), DAX, KPIs. PowerPivot data tools. Connecting to data, managing multiple tables and connections, including data from within the Excel spreadsheet

Unit 5.7 – Formula Auditing

Understanding and debugging spreadsheets. Tracing calculations and monitoring the effect of changes. Formula evaluator, Watch window and the INQUIRE Add-In.

Unit 5.8 – Advanced Macros and VBA

Troubleshooting macros. Writing code directly. User defined functions. Program structures. Using Macros to interact with users.

Unit 5.9 – Modelling

Principles. What modelling is; modelling broken down into distinct stages; important principles - simplification, built-in checks; including a presentation-ready sheet

Techniques. Calculating growth with data points over several years; extrapolating that into the future; scenario modelling and optimisation; prioritisation (RANK); build process.

Section 6: Presentation

Unit 6.1 – Cell Formatting

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Basic font formatting, alignment – Including horizontal and vertical alignment, wrapping, merging, orientation, Alt-Return; consistent, sensible row heights & column

Styles – to make spreadsheets more and consistent. Formatting tools

Unit 6.2 – Number Formatting

Types of number (E.g., currency, %, decimal, negative numbers) – and Excel formats best employed. Custom number formats and how to maximise impact and clarity.

Unit 6.3 – Conditional Formatting

Changing the format of cells depending on their value. Graphical conditional formats. Writing conditional format formulas.

Unit 6.4 – Graphs and Charts

Creating simple charts and editing them to control and improve formatting. Choosing the right chart Principles and guidelines for communicating well with charts. Sparklines and Maps (when and how to use).

Unit 6.5 – Page & Print Setup

Displaying spreadsheets as pages. Page layout view, page breaks, print area,. Printing from multiple Worksheets (and that default will be to print only from active Worksheet). Headers and footers. Adjusting page setup. Printing very large sheets of data

GOOGLE Sheets - Course Curriculum

Course Topics at high-level

An Introduction to Google Sheets

- Create a new Google Sheet
- Name a Spreadsheet
- Upload an Existing Excel Spreadsheet
- Edit Cells
- Use Auto-fill
- Format Cells
- Format Text and Numbers
- Basic Formulas and Functions
- Use the Sum function
- Create and Copy Formula using Auto-fill
- Sort and Filter data
- Finding your way around Google Sheets
- Opening Files
- Move data from Excel Files to Google Sheets and vice-versa

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- What about saving files?
- File Management
- Adding/Deleting Worksheets
- Renaming Worksheets
- Basic Formatting
- Formatting Numbers
- Dealing with Dates
- Changing the Typeface
- Adding more fonts
- Adding Colors
- Format Painter
- Formulas in Google Sheets
- Basic Arithmetic
- Operator Preference
- Absolute References
- Using Functions
- Calculating between Worksheets
- Printing Google Sheets
- Selecting a print area
- Fitting everything onto a page
- Creating a PDF
- Printing all sheets Sharing a Google Sheet
- Choosing people to share with
- Restricting Editing
- Preventing others from downloaded and printing

Google Sheets Content

- Introduction
- Menu Options - File
- Menu Options - Edit
- Menu Options - View
- Menu Options - Insert
- Menu Options - Format
- Menu Options - Data and more
- Entering Data and Filtering
- Functions - Numeric Function
- Functions - Text Function
- Functions - Data Functions
- Charts and Conditional Formatting
- Pivot Tables
- Saving, Sharing, Collaboration