



Higham and Rushden

Registered Charity Number 1164952

Excel formulae

In this presentation, we plan to introduce you to the wonderful world of formulae (more commonly called formulas and also known as functions) which allow Excel to perform extremely powerful calculations in seconds.

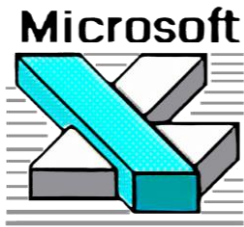
In the earlier Excel basics presentation we saw a slide showing how Excel could convert 3 columns of title, name and surname into a single column containing all 3 elements of the name. The process of joining text is called concatenation, and Excel has a handy CONCAT formula (short for concatenate). (All Excel formulas are expressed in block capitals.)

	A	B	C
1	Title	GivenName	Surname
2	Ms.	Summer	Brown
3	Mrs.	Erin	Hamilton
4	Ms.	Jennifer	Hobbs
5	Mr.	Edward	Carter
6	Mr.	Edward	Murphy
7	Mr.	Kian	Lowe
8	Mr.	Aaron	Richardson
9	Mr.	Samuel	Short

Title	GivenName	Surname	
Ms.	Summer	Brown	Ms. Summer Brown
Mrs.	Erin	Hamilton	
Ms.	Jennifer	Hobbs	
Mr.	Edward	Carter	
Mr.	Edward	Murphy	
Mr.	Kian	Lowe	
Mr.	Aaron	Richardson	
Mr.	Samuel	Short	

	A	B	C	D
1	Title	GivenName	Surname	
2	Ms.	Summer	Brown	Ms. Summer Brown
3	Mrs.	Erin	Hamilton	Mrs. Erin Hamilton
4	Ms.	Jennifer	Hobbs	Ms. Jennifer Hobbs
5	Mr.	Edward	Carter	Mr. Edward Carter
6	Mr.	Edward	Murphy	Mr. Edward Murphy
7	Mr.	Kian	Lowe	Mr. Kian Lowe
8	Mr.	Aaron	Richardson	Mr. Aaron Richardson
9	Mr.	Samuel	Short	Mr. Samuel Short

We want to concatenate the contents of cells A2,B2 and C2, so we could use the formula =CONCAT (A2,B2,C2). That looks as if it would do the trick, but in fact we have forgotten the space between words and the result would be “Ms.SummerBrown”. We therefore need to tell Excel to leave a space between elements 1 and 2, and another space between elements 2 and 3. We do this by using the formula =CONCAT (A2,” “,B2,” “,C2), where the pair of quotation marks with a space between tells Excel we want a space. This formula gives the result in the second image above, and if we grab the fill handle in the bottom right corner of cell D2 and drag it down, the other cells are also filled. (See the third image above.)



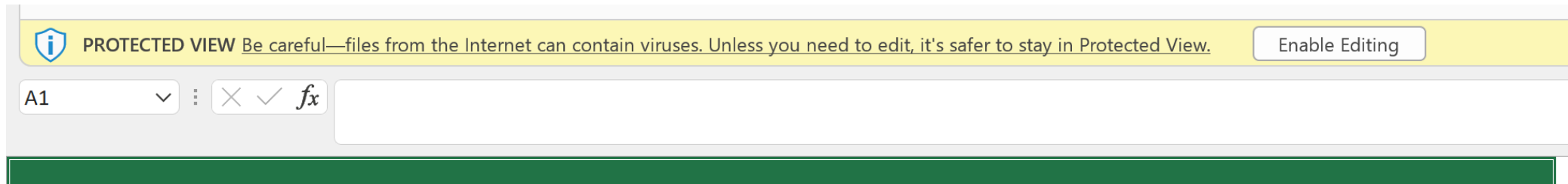
Before we get started, please open your web browser and go to:

<https://www.highamandrushdenu3a.org.uk/tutorials/Excel.xltx>

You will probably get an error message because browsers do not normally display spreadsheet data, but the Excel file will probably be in your “downloads” folder.

Open the Excel file.

You will probably see this message near the top:



Please click on “Enable Editing” so that we can work through the spreadsheet.

I hope you found this interesting (or at least not too boring 😊). There are a couple of points I need to make before concluding the presentation, as follows:

We have in the past mentioned that more recent versions of Office applications are often more advanced than older versions and some of the newer features are not backwards-compatible. This is particularly true of Excel, where new formulas are introduced with most new versions.

I have personal experience of this, as when I created a formula in Excel 2019 for the spreadsheet recording members swiping in to the monthly meetings, it was not recognised in Excel 2016 on the u3a laptop.

The final point also harks back to the same formula which shows how different functions can be combined in one formula to perform, in some cases, remarkably complex calculations. The formula was:

`=IFERROR(IFS($A2=" ","",$B2="NO",VLOOKUP($A2,Members!$B:$S,4,0),$B2="YES",VLOOKUP($C2,Members!$A:$S,5,0))," ")`
merging **IFERROR**, **IFS** (the function which was new in Excel 2019) and **VLOOKUP** functions into one calculation.

Additional recommended resources:

- The file you downloaded will be useful for future reference.
- For a much more comprehensive guide to Excel functions, with examples and explanations of every function in Excel 2013, download the **Excel Functions Bible** from www.rondebruin.nl/efb/efb.htm (a Dutch site, but it is in English).
- Whatever your Excel problem the chances are that you will be able to find at least help, if not the answer, at www.mrexcel.com.

Postscript

If your formula includes several different mathematical operations you have to remember the order in which these are calculated. The acronym is BODMAS, standing for:

B	Brackets: anything in brackets needs to be calculated first
O	Order: ² squared, ³ cubed etc. comes next
D	Division follows
M	Multiplication
A	Addition
S	Subtraction is the last operation

THE END