# THE ULTIMATE GUIDETO VLOOKUP

THE MOST IMPORTANT EXCEL FUNCTION

BYJOHN MACDOUGALL



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I hope you enjoy this ebook and that you learn some valuable shortcuts that help you on your way to mastering Excel!

Welcome to The Complete Guide To VLOOKUP free e-book!

If you're reading this, I'm guessing you're an Excel enthusiast like myself or you work with Excel a lot and want to save time and effort also like myself!

Either way, welcome and I hope you enjoy this book.

This book contains a complete guide to VLOOKUP, the most useful and must know function in Excel.

Cheers!

John MacDougall



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The VLOOKUP function allows you to search a value in the left most column of a range and return the corresponding value in a column to the right. The search is vertical from top to bottom and in fact, the "V" in VLOOKUP stands for vertical.

## How It Works

Student	University	Major	Average
Jack Kirby	Stanford	Mathematics	51%
Alden Dudley	Trinity	Biology	78%
Nicole Horne	Harvard	Economics	99%
Gavin Chan	Yale	Engineering	45%
Stacey Houston	Oxford	Chemistry	93%
Ann Jackson	Cambridge	Physics	55%
Brennan Cote	Berkeley	Economics	52%
Reed Gray	Princeton	Computer Science	84%
Dorian Brock	Duke	Geology	66%

We have a table of data containing a list of student names along with the university they attended, the subject they majored in and their grade average. If I asked you to tell me "what was the major of Reed Gray?" based on the above table of student data, you would likely tell me it was Computer Science. You would be correct, but how did you find this answer?

Student		University	Major	Average
Jack Kir	y	Stanford	Mathematics	51%
Alden D	udley	Trinity	Biology	78%
Nicole I	orne	Harvard	Economics	99%
Gavin C	nan	Yale	Engineering	45%
Stacey I	ouston	Oxford	Chemistry	93%
Ann Jac	'son	Cambridge	Physics	55%
Brennar	Cote	Berkeley	Fronomics	52%
Reed Gr	ay	Pinicecon	Computer Science	84%
Dorian E	Brock	Duke	Geology	66%



You likely scanned down the first column labeled **Student** until you found the name **Reed Gray**, then scanned across the row containing Reed Gray until you came to the **Major** column and saw that this contained **Computer Science**. This is exactly how the **VLOOKUP** function works!

# Syntax

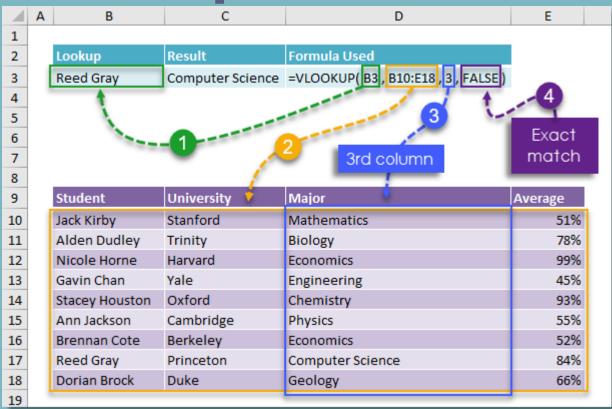
=VLOOKUP(Criteria,Range,Column,Type)

### =VLOOKUP(Criteria,Range,Column,Type)

- Criteria (required) This is the item you are looking up in the data.
- Range (required) This is the range of data which Excel will lookup and return results from.
- **Column** (required) This is a positive integer that tells Excel from which column of the Range to return results from.
- **Type** (optional) This is a system defined input that tells Excel to return an exact or approximate match. Excel will default to an approximate match if this input is not entered.
- TRUE or 1 Excel will return an approximate match.
- FALSE or 0 Excel will return an exact match.

# Example





#### =VLOOKUP(B3,B10:E18,3,FALSE)

Let's put VLOOKUP to work and use it to find Reed Gray's major!

- 1. **B3** We have entered **Reed Gray** into cell **B3** so this part of our VLOOKUP function will reference this cell.
- 2. B10:E18 This range contains our table of student data.
- 3. 3 We want to return data from the Major column and this is the third column to the right of the student column in which we are looking up Reed Gray.
- 4. **FALSE** We want to find an **exact** match so we will use **FALSE** here. This will return the result **Computer Science**.



# Duplicate Entries In Our Lookup Column

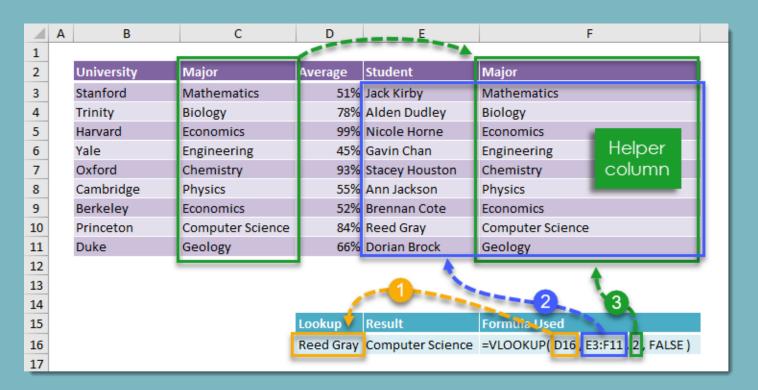
	Α	В	С	D	Е	
1						
2		Lookup	Result	Formula Used		
3	- 1	Reed Gray	Computer Science	=VLOOKUP( B3 , B10:E18 , 3 , FALSE )		
4		- 11				
5		1000				
6		1	-			
7			-			
8		1				
9		Student	University 🔪	Major	Average	
10		Jack Kirby	Stanford	Mathematics	51%	
11		Alden Dudley 🐛	Trinity	Biology	78%	_
12	- 1	Reed Gray	Princeton	Computer Science	84%	
13		Gavin Chan	Yale	Engineering	45%	
14		Stacey Houston	Oxford	Chemistry	93%	
15		Ann Jackson	Cambridge	Physics	55%	
16		Brennan Cote	Berkeley	Economics	52%	_
17		Reed Gray	Duke	Geology	66%	
18		Nicole Horne	Harvard	Economics	99%	
19						

VLOOKUP can only return one value from a set of data and it will return the **first match** it finds in a list going from **top to bottom**. If your data contains duplicate items in the column you're looking up data in, then VLOOKUP will only be able to return the first match. In the above example, we see Reed Gray is listed twice in the Student column. There is a Reed Gray from Princeton in computer science and a Reed Gray from Duke in Geology. Our VLOOKUP will only return the Reed Gray from Princeton in computer science since this student is listed first in our data.

$\square$	Α	В	С	D	E	
1						
2		University	Major	Average	Student	
3		Stanford	Mathematics	51%	Jack Kirby	
4		Trinity	Biology	78%	Alden Dudley	
5		Harvard	Economics	99%	Nicole Horne	
6		Yale	Engineering	45%	Gavin Chan	
7		Oxford	Chemistry	93%	Stacey Houston	
8		Cambridge	Physics	<b>5</b> %	Ann Jackson	
9		Berkeley	Economics	2%	Brennan Cote	
10		Princeton	Computer Science	<b>⋖</b> = •04%	Reed Gray	
11		Duke	Geology	66%	Dorian Brock	
12						

VLOOKUP **does not allow** you to lookup data from **right to left**. It will only allow you to lookup data from the **left most column** of a range and return data in a **column to the right**.

In the above example our **Student** column is to the right of our **Major** column so we will not be able to use VLOOKUP to return a students major.



## =VLOOKUP(D16,E3:F11,2,FALSE)

We can overcome this shortfall by using a **helper column** to the right of our data.

- 1. **D16** This references a cell which contains the item in our data which we want to lookup.
- 2. **E3:F11** This range contains a column from our data plus a helper column to the right which references the **Major** column.
- 3. **2** We want to return data from the helper column and this is now the second column from the student column.
- 4. **FALSE** We want to find an **exact** match so we will use **FALSE** here. Another option is to <u>combine CHOOSE</u> with <u>VLOOKUP</u>.

# Using Approximate Match

Most of the time you are going to want to use an exact match with VLOOKUP, but **approximate match** can be very useful when dealing with **numerical ranges**.

Percent	Letter
Grade	Grade
0.0%	F
50.0%	D
60.0%	С
70.0%	В
80.0%	Α
90.0%	Α+ _

Consider the above table which associates a range of percent grades with a letter grade. We can use this table to get a student's letter grade based on their percent grade by using a **VLOOKUP** with an **approximate match**.

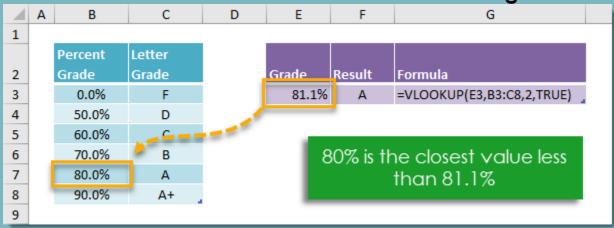
- Under 50% is a F
- 50% up to 60% is a D
- 60% up to 70% is a C
- 70% up to 80% is a B
- 80% up to 90% is an A



#### • 90% and above is an A+

If we try to use the above table with a **VLOOKUP** and **exact match**, any other number between these numbers would result would result in an **#N/A** error.

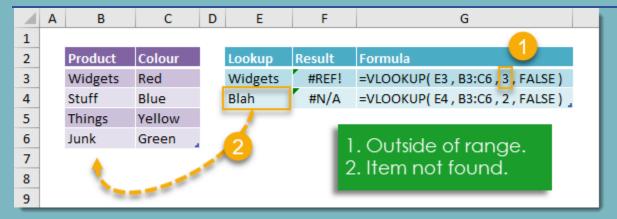
With an approximate match, VLOOKUP will find the closest value which is less than the value being looked up. Note that for this to work our table needs to be sorted in ascending order.



To use an approximate match in VLOOKUP we enter **TRUE** in the last argument of the function.

#### =VLOOKUP(E3,B3:C8,2,TRUE)

## **Errors From Your VLOOKUP**



There are two main reason why your VLOOKUP will return an error.

1. The column index you're using is outside of the range selected. This will **#REF!** error. You can fix this by extending the range to include

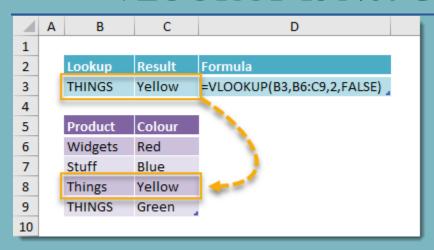


- the column or change the column index to something inside the range.
- 2. The item being looked up is not in your data. This will result in a **#N/A** error. You can fix this by adding the item to your data or changing what you're looking up.

# =IFERROR(VLOOKUP(Criteria,Range,Column,Type),"Not Found")

If you don't want to add data to your range but don't want to see #N/A errors when your VLOOKUP doesn't find a result then you can wrap your VLOOKUP with an IFERROR. This will return the result "Not Found" instead of #N/A.

#### **VLOOKUP** Is Not Case Sensitive



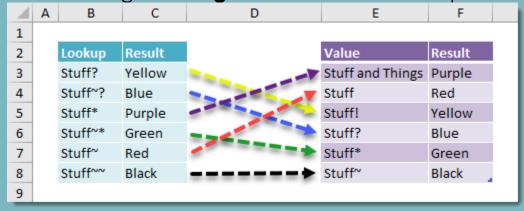
**VLOOKUP is not case sensitive**. Something like "**Things**" and "**THINGS**" are the same to VLOOKUP and the result that is returned will be the top most item in your data.

Use INDEX and MATCH to perform a case sensitive lookup.

$\square$	Α	В	С	D	Е	F
1						
2		Lookup	Result		Value	Result
3		Stuff*	Purple		Things	Yellow
4		*Junk	Red		Stuff and Things	Purple
5		Thing?	Yellow ]		Stuff and Junk	Red
6						

The VLOOKUP function also supports wildcard characters.

- Use \* as a wildcard for any number of characters
- Searching for Stuff\* will return the corresponding value for Stuff and Things
- Use ? as a wildcard for exactly one character
- Searching for Thing? will return the corresponding value for Things



It may be the case sometimes that your data contains the wildcard characters "?" or "\*" and we need to look up an item with these characters. In this case we need to use the "~" character in front either "?" or "\*" to tell Excel we are not using these as wildcards.

- ~? will search for ?
- Searching for Stuff~? will return the corresponding value for Stuff?
- ~\* will search for \*
- Searching for Stuff~\* will return the corresponding value for Stuff\*
- ~~ will search for ~
- Searching for Stuff~~ will return the corresponding value for Stuff~