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THE ULTIMATE GUIDE TO VLOOKUP

THE MOST IMPORTANT EXCEL
FUNCTION

BY JOHN MACDOUGALL



How To Excel

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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



Check out my website

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What It Does

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 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%



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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



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	A	B	C	D	E
1					
2		Lookup	Result	Formula Used	
3		Reed Gray	Computer Science	=VLOOKUP(B3,B10:E18,3,FALSE)	
4					
5					
6					
7					
8					
9		Student	University	Major	Average
10		Jack Kirby	Stanford	Mathematics	51%
11		Alden Dudley	Trinity	Biology	78%
12		Nicole Horne	Harvard	Economics	99%
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	Princeton	Computer Science	84%
18		Dorian Brock	Duke	Geology	66%
19					

Diagram illustrating the VLOOKUP function components:

- 1: Lookup value (Reed Gray) in cell B3.
- 2: Table array (B10:E18) containing student data.
- 3: Column index (3) indicating the Major column.
- 4: Match type (FALSE) indicating an exact match.

=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**.



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Duplicate Entries In Our Lookup Column

	A	B	C	D	E
1					
2		Lookup	Result	Formula Used	
3		Reed Gray	Computer Science	=VLOOKUP(B3 , B10:E18 , 3 , FALSE)	
4					
5					
6					
7					
8					
9		Student	University	Major	Average
10		Jack Kirby	Stanford	Mathematics	51%
11		Alden Dudley	Trinity	Biology	78%
12		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.



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Lookup From Right To Left

	A	B	C	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	55%	Ann Jackson
9		Berkeley	Economics	52%	Brennan Cote
10		Princeton	Computer Science	84%	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 student's major.

	A	B	C	D	E	F
1						
2		University	Major	Average	Student	Major
3		Stanford	Mathematics	51%	Jack Kirby	Mathematics
4		Trinity	Biology	78%	Alden Dudley	Biology
5		Harvard	Economics	99%	Nicole Horne	Economics
6		Yale	Engineering	45%	Gavin Chan	Engineering
7		Oxford	Chemistry	93%	Stacey Houston	Chemistry
8		Cambridge	Physics	55%	Ann Jackson	Physics
9		Berkeley	Economics	52%	Brennan Cote	Economics
10		Princeton	Computer Science	84%	Reed Gray	Computer Science
11		Duke	Geology	66%	Dorian Brock	Geology
12						
13						
14						
15						
16						
17						

Lookup	Result	Formula Used
Reed Gray	Computer Science	=VLOOKUP(D16, E3:F11, 2, FALSE)



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```
=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 [combine CHOOSE with VLOOKUP](#).

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 Grade	Letter Grade
0.0%	F
50.0%	D
60.0%	C
70.0%	B
80.0%	A
90.0%	A+

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**



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- **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 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**.

	A	B	C	D	E	F	G
1							
2		Percent Grade	Letter Grade		Grade	Result	Formula
3		0.0%	F		81.1%	A	=VLOOKUP(E3,B3:C8,2,TRUE)
4		50.0%	D				
5		60.0%	C				
6		70.0%	B				
7		80.0%	A				
8		90.0%	A+				
9							

80% is the closest value less than 81.1%

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

	A	B	C	D	E	F	G
1							
2		Product	Colour		Lookup	Result	Formula
3		Widgets	Red		Widgets	#REF!	=VLOOKUP(E3,B3:C6,3,FALSE)
4		Stuff	Blue		Blah	#N/A	=VLOOKUP(E4,B3:C6,2,FALSE)
5		Things	Yellow				
6		Junk	Green				
7							
8							
9							

1. Outside of range.
2. Item not found.

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



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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

	A	B	C	D
1				
2		Lookup	Result	Formula
3		THINGS	Yellow	=VLOOKUP(B3,B6:C9,2,FALSE)
4				
5		Product	Colour	
6		Widgets	Red	
7		Stuff	Blue	
8		Things	Yellow	
9		THINGS	Green	
10				

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.](#)



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Using Wildcards

	A	B	C	D	E	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**

	A	B	C	D	E	F
1						
2		Lookup	Result		Value	Result
3		Stuff?	Yellow		Stuff and Things	Purple
4		Stuff~?	Blue		Stuff	Red
5		Stuff*	Purple		Stuff!	Yellow
6		Stuff~*	Green		Stuff?	Blue
7		Stuff~	Red		Stuff*	Green
8		Stuff~~	Black		Stuff~	Black
9						

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~**