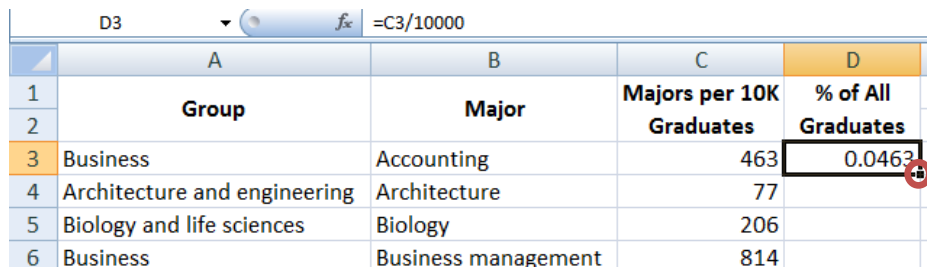


LECTURE 03: UNDERSTANDING EXCEL II

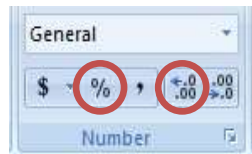
I. Excel Practice

- a. Open Data Set 0 on my website. This is national and Maryland salary data based on major, taken from Georgetown's Center on Education and the Workforce 2015 report. All reported values are for graduates with only a bachelor's degree.
 - i. Note the descriptions tab; it's good practice to make it easy for people to know where your data came from and what each variable means.
- b. You'll notice one column is missing. What's the percent of all graduates? But we can calculate that easily because we have the number of majors per 10,000. For example, for every 10,000 graduates, there are 463 graduates that majored in accounting.
- c. In D3, type `"=C3/10000"` and press ENTER. You should get 0.0463.
- d. Double-click the small black box in the bottom right-hand corner of D3 (so the cursor becomes a "+" sign) or drag to expand it.



	A	B	C	D
1				
2	Group	Major	Majors per 10K Graduates	% of All Graduates
3	Business	Accounting	463	0.0463
4	Architecture and engineering	Architecture	77	
5	Biology and life sciences	Biology	206	
6	Business	Business management	814	

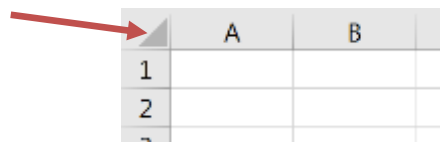
- i. Now we have the information for all 49 majors. We can highlight the column and press the % symbol at the top of the page in the Home tab under the Number group. Increase the decimal places shown, as well.



- e. Finally, type `SUM(D3:D51)`; you should get 83.2%. Why not 100%?

II. Printing/Highlighting

- a. When you print, it's useful to figure out what will actually print. By selecting View >>> Page Layout, you'll see how columns and rows fit on pages. You can also adjust column width and row height to allow more or fewer to fit.
- b. Once you know what can fit, you need to highlight. Think of what you want to print as a rectangle composed of cells. Click and hold the cell in the upper left-hand corner of that rectangle and drag down to the lower right-hand corner.
 - i. You can also select the whole worksheet by clicking the triangle button in the upper left-hand corner.



- ii. You can select an entire column or row by selecting the corresponding letter or number, as appropriate.
 - iii. You can of course use highlight for other things, such as bolding whole sections of cells or copying/pasting.
- c. By clicking Page Layout >>> Print Area >>> Set Print Area, you select the highlighted area for printing. If you print, you'll print only the cells you included in the highlight.
- d. Sometimes you use formulas to calculate something but you want to print the formulas, not the result. But it's the result that displays on the screen (and will thus be what you print).
 - i. To solve this, select Formulas >>> Show Formulas. This will render all your cells visible as what you wrote that began with an equal sign rather than the result (e.g. "=4+4" will display rather than "8").
 - ii. It will also, annoyingly, widen all your columns.

III. Absolute Cell References

- a. Sometimes when you copy/paste, you don't want Excel to change a reference. You want the references to be absolute, not relative.
- b. The dollar sign (\$) "locks" a cell reference by column, row, or both. Suppose in C1 you have "=A1". If you copy/paste C1 into D2, D2 will read "=B2". The copied cell when over one column and down one row so the reference does the same. But suppose:
 - i. It started with "=\$A1". When copied/pasted to D2, D2 will read "=\$A2". It registered the move to a different row (which was

relative) but didn't move to a different column (which was absolute).

- ii. It started with “=A\$1”. When copied/pasted to D2, D2 will read =B\$1”. It registered the move to a different column (which was relative) but didn't move to a different row (which was absolute).
- iii. It started with “=\$A\$1”. When copied/pasted, it'll read “=\$A\$1”. You continue to reference the same cell regardless where you copy and paste it to.

c. As we move forward with the semester, you'll sometimes see Excel automatically add these dollar signs when you select a cell for particular functions. This is totally normal and shouldn't make a difference in your analysis.

d. Example: Orson's Burgers

- i. Orson runs a burger stand. Each day, he needs to figure out how much he owes the government in sales tax. Consider the following day's business:

	A	B	C	D	E	F	G
1	Item	Price	Quantity	Sales Tax		Tax Rate	6.5%
2	Hamburger	\$ 3.99	22				
3	Cheeseburger	\$ 4.99	36				
4	Fries	\$ 2.99	43				
5	Hot Dogs	\$ 2.49	18				
6	Soda	\$ 1.19	66				
7							
8	Total						

- ii. In D2, type: =B2*C2*\$G\$1 and press ENTER. Select D2 as shown. Double-click the small black box in the bottom right-hand corner of D2 (so the cursor becomes a “+” sign) or drag to expand it.

	A	B	C	D	E	F	G
1	Item	Price	Quantity	Sales Tax		Tax Rate	6.5%
2	Hamburger	\$ 3.99	22	\$ 5.71			
3	Cheeseburger	\$ 4.99	36				
4	Fries	\$ 2.99	43				
5	Hot Dogs	\$ 2.49	18				
6	Soda	\$ 1.19	66				
7							
8	Total						

- iii. Note the rows references for B and C columns change, but G1 remains the same. We reference the same tax rate. That's because it's an absolute reference.

	A	B	C	D	E	F	G
1	Item	Price	Quantity	Sales Tax		Tax Rate	6.5%
2	Hamburger	\$ 3.99	22	\$ 5.71			
3	Cheeseburger	\$ 4.99	36	\$ 11.68			
4	Fries	\$ 2.99	43	\$ 8.36			
5	Hot Dogs	\$ 2.49	18	\$ 2.91			
6	Soda	\$ 1.19	66	=B6*C6*\$G\$1			
7							
8	Total						

- iv. We can now use the SUM function to see how much Orson owes in taxes:

	A	B	C	D	E	F	G
1	Item	Price	Quantity	Sales Tax		Tax Rate	6.5%
2	Hamburger	\$ 3.99	22	\$ 5.71			
3	Cheeseburger	\$ 4.99	36	\$ 11.68			
4	Fries	\$ 2.99	43	\$ 8.36			
5	Hot Dogs	\$ 2.49	18	\$ 2.91			
6	Soda	\$ 1.19	66	\$ 5.11			
7							
8	Total			=SUM(D2:D6)			

- v. You should get \$33.76.
vi. Why not just type “=B2*C2*0.065”? What's nice about using a cell reference is that if the tax rate changes, we'll only have to change one cell and everything will update.

IV. Hotkeys

- a. Hotkeys are a few keys pressed simultaneously to execute a command. This is often faster than opening a menu, searching for the right option, and clicking it. Especially since you're often typing on the keyboard as it is: switching to the mouse slows you down.
b. Here are some common hotkeys:

Type	Command
SHIFT + ARROWS	Highlight cells

CTRL + Z	Undo
CTRL + X	Cut highlighted section
CTRL + C	Copy highlighted section
CTRL + V	Paste cut/copied section
F4 (may press multiple times)	Makes cell reference absolute
CTRL + `	Show formulas