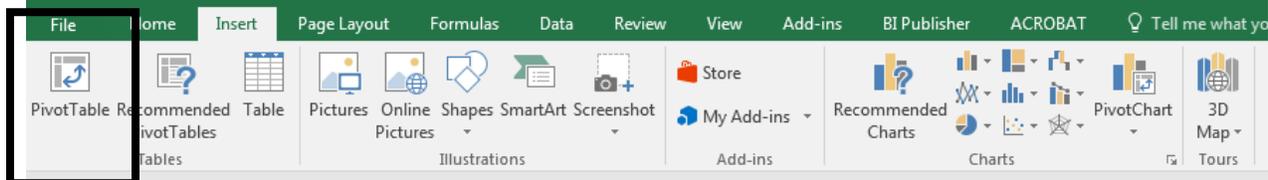


# **PIVOT TABLES IN MICROSOFT EXCEL 2016**

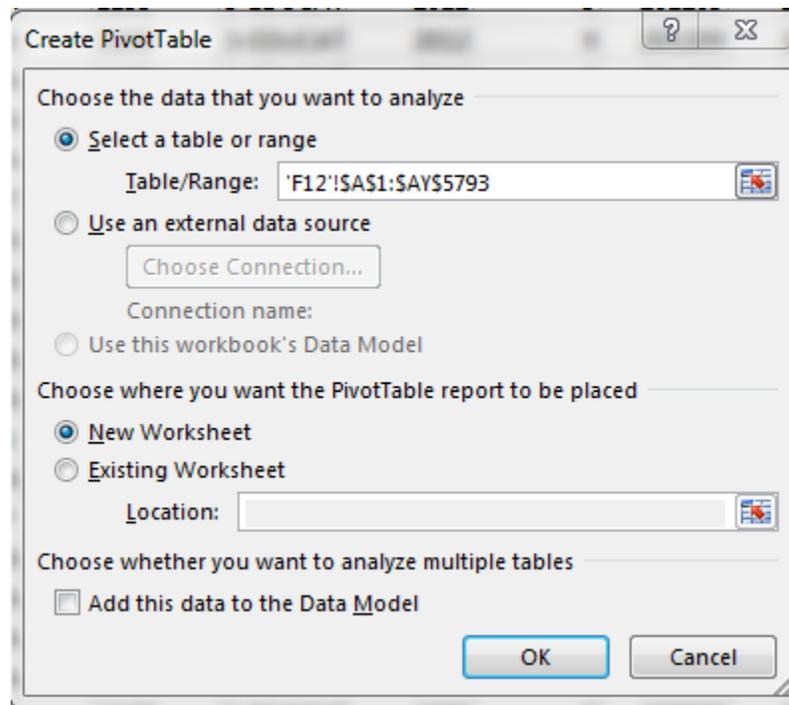
A pivot table is a powerful tool that allows you to take a long list of data and transform it into a more compact and readable table. In the process, the tool allows you to take any column of data within your spreadsheet and use it as a PivotTable row or a PivotTable column. The coolest thing about PivotTables is that you can easily "pivot" a column into a row and vice-versa. So from a single set of data, you can produce a wide variety of reports quickly and easily.

## **Creating a PivotTable**

To create a PivotTable, select PivotTable from the Insert menu.



Excel will try to guess where the data you want to place in the PivotTable resides. I strongly encourage you to verify that the range specified here is the intended range of data for your PivotTable. Note that I could have chosen a subset of the fields or rows of data if I needed to exclude some data, although that also can be accomplished easily within the PivotTable tool.



You can place a PivotTable in a new or existing sheet using settings on the bottom of this dialog box. In this example, I selected to put this PivotTable in its own sheet. When I click ok, Excel opens the PivotTable in that second sheet.

Next we need to tell the PivotTable what fields to add to create our report. We want to count people in this report, so I will add ID as the “Value” field in the PivotTable Field list on the right hand side of the screen.

Also note that when I clicked the ID checkbox, Excel assumed incorrectly that because the field is numeric that I wanted to sum the items in the ID field. Since I really wanted to count the number of students in each major and college, I needed to change the function. To do so, click on the header of the variable you want to change and select field settings on the Active Field: box on the menu.

The screenshot shows the 'PivotTable Fields' task pane overlaid on an Excel spreadsheet. The spreadsheet has a PivotTable with the following data:

1	
2	
3	Count of ID
4	5792
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The 'PivotTable Fields' task pane is open, showing the following configuration:

- Choose fields to add to report:** Search bar.
- Fields list:**  ID,  Career,  Career Nbr,  Descr,  Acad Prog,  ProgDescr,  Status,  Begin Date.
- Drag fields between areas below:**
  - FILTERS:** (Empty)
  - COLUMNS:** (Empty)
  - ROWS:** (Empty)
  - VALUES:** Count of ID
- Defer Layout Update:**
- UPDATE:** Button

## **Add Row and Column values**

When you click on the PivotTable, the PivotTable field dialog box will appear. If you check the fields you would like in the PivotTable, they will likely be added to row values. You can click and drag a row to a column and vice versa until you get the report values you would like.

Count of ID	Column Labels		Grand Total
Row Labels	F	M	Grand Total
MARCH	12	25	37
AUD	20	3	23
CAGS	25	8	33
DNP	133	13	146
EDD	204	88	292
MA	173	43	216
MAT	12	8	20
MBA	324	797	1121
MED	252	109	361
MFA	48	47	95
MLA	25	20	45
MM	35	43	78
MPH	215	78	293
MPP	4	2	6
MPPA	23	16	39
MRP	22	16	38
MS	246	258	504
MSACCTG	13	22	35
MSCE	13	37	50
MSCH		2	2
MSECE	39	138	177
MSENVENG	2	1	3
MSIEOR	1	7	8
MSME	6	39	45
PHD	1037	1088	2125
<b>Grand Total</b>	<b>2884</b>	<b>2908</b>	<b>5792</b>

Dragged Gender from here to Column section

So this report gives me a list of degrees by gender. In the PivotTable field list, I ended up dragging the Gender field from the Row section to the Column section

## **Suppressing subtotals**

When you select variables in your report, Excel has a tendency to want to include subtotals on every value. This can make your reports exceedingly wide and long as these take up rows and/or columns. You can change these settings for every variable in the field settings of each.

## **Filtering values of a field**

In some cases, you may only be interested in one subset of a variable or variables. For example, perhaps you have been asked to present a report on Females in Engineering.

To create a filter, scroll over the variable name (not the selection box) in the PivotTable field list. When you get to the variable you want to filter, click the little triangle on the right that appears as you scroll over. When you click the triangle, you will be able to select the values you wish to appear.

If you want the data to be filtered, but you do not want that filter to show in your report variables, you need to add that filter variable to the Report Filter section of the PivotTable field list. If you want it to be a row or column variable, select it and move it to the appropriate place in the field list (row/column).

Please note: A filter on a variable will remain even if you remove that variable. So look for the little filter icon next to the variable to determine if it is a subset of the entire population.

### **Grouping Data**

There are times when the detail of a field is too much for a report. For example, suppose we want to use the number of credits a student is enrolled as a column in our pivot table. If we just move credit to the Column in the pivot table, we end up with a very lengthy list with a great number of columns.

There may be many situations in which the data is overwhelming in its detail. In these cases, it would be advantageous to sort the data into groups. So if we can group the data into students who have 0-3 credits, 4-6 credits, 7-9 credits and greater than 9 credits, we have moved over 20 columns of data into four columns.

To define groups, we need to highlight the column headers that we want to group. To do so, click the "Group Selection" item in the Group menu. This will create a second variable that we can move around the pivot table at will.

After all credit values are grouped, you can go into the group titles and make them more descriptive (e.g. 0-3 credits instead of "Group1").

### **Cell Data**

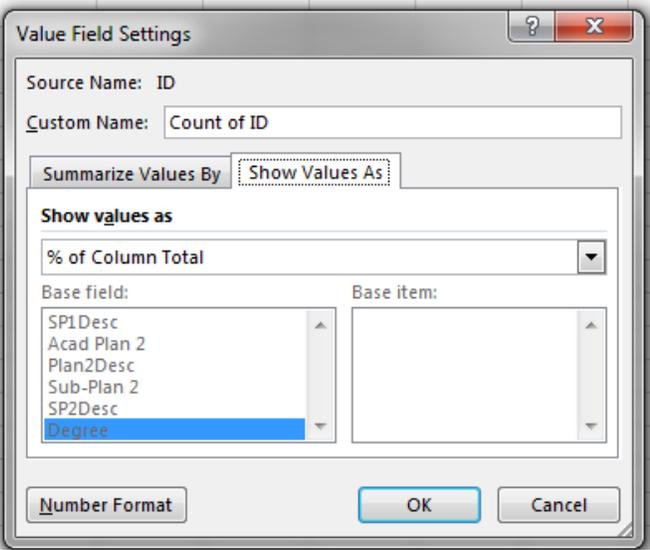
Often it is useful to understand which data value are aggregated into a particular cell. The easiest way to accomplish this in a pivot table is to double click the cell you are interested in. By double clicking the Group 3 cell for Females in AN SCI I get the following result in a new worksheet:

### Creating percentages

Many times, instead of offering aggregate data in terms of headcounts or similar integer values, we wish to present data in terms of percentages. A Pivot Table has this functionality as well.

The percentage function is part of the Pivot Tables “field settings”. It only relates to value variables, so I need to select the Field Settings for “Count of ID”.

Count of ID	Column Labels		Grand Total
Row Labels	F	M	
MARCH	0.42%	0.86%	0.64%
AUD	0.69%	0.10%	0.40%
CAGS	0.87%	0.28%	0.57%
DNP	4.61%	0.45%	2.52%
EDD	7.07%	3.03%	5.04%
MA	6.00%	1.48%	3.73%
MAT	0.42%	0.28%	0.35%
MBA	11.23%	27.41%	19.35%
MED	8.74%	3.75%	6.23%
MFA	1.66%	1.62%	1.64%
MLA	0.87%	0.69%	0.78%
MM	1.21%	1.48%	1.35%
MPH	7.45%	2.68%	5.06%
MPP	0.14%	0.07%	0.10%
MPPA	0.80%	0.55%	0.67%



### Creating Pivot Charts

Within Excel, you can also create a pivot chart. A pivot chart allows you to produce graphs from a pivot table, and, much like a pivot table, quickly rearrange your chart to provide graphical information in a different manner. For example, if you create a pivot table on our data by gender and ethnicity, you can then chart that data (with a variety of options I know little about) quickly and easily.

Pivot charts are created similarly to the way PivotTables are created. From the Insert menu on the toolbar, click the triangle under PivotTable and select PivotChart. Select the data and you will be in screens that mimics those of the PivotTable.