Excel for Pivot Tables

Background Information
This workshop is designed to provide an overview on tables in Excel and how to convert data into a table or a pivot table, manipulate and format those tables.

Required Skills
- Beginners knowledge of Excel
- Basic Algebra
- Software Navigation Knowledge

Agenda
- Creating a copy of a worksheet
    - Renaming a worksheet
    - Hiding columns and rows
- Eliminating unwanted data
    - Eliminating columns and rows
    - Eliminating duplicated data
- Converting data into a table
- Pivot tables
    - Creating pivot tables
    - Modifying your pivot table
        - Modifying rows and columns
        - Changing the summary functions
        - Adding and removing fields
    - Formatting a pivot table
- Pivot charts
- Quick analysis for pivot tables
- Exporting pivot tables and charts
- Printing pivot tables and charts

Creating a Copy of Your Worksheet
Before analyzing or cleaning your data in Excel, you should always create a copy of your raw data worksheet before making any changes.
To create a copy of a worksheet:
1. Right click on your worksheet tab
2. Select *Move or Copy*
3. The *Move or Copy* dialogue box will appear
4. Select what workbook you want to move your worksheet to (Excel will list only workbooks that are currently open)
5. Select the location where you want your copy worksheet to appear
6. Make sure to click *Create a Copy*, otherwise it will just move the selected worksheet
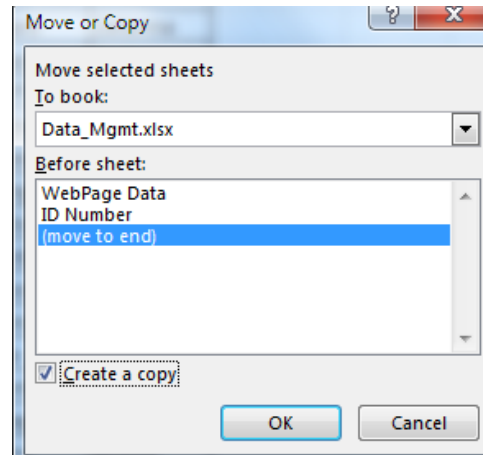7. Click *OK*

Figure 1 - Move or Copy box

Renaming a Worksheet

Renaming a worksheet helps make your data easier to navigate.
To do so:

1. Double click on the worksheet tab you wish to change
2. Type in the new name for your worksheet
3. Press the *Enter* key when finished

Hiding columns and rows

Hiding whole columns and/or rows can help make your data easier to comprehend by focusing your data in your worksheet.
To hide columns and rows

1. Right click the label of the row or column you wish to hide
2. A menu will appear, select *Hide*
3. The row or column is now hidden

To unhide columns and rows

1. Right click the hidden row/column indicator you wish to unhide
2. A menu will appear, select *Unhide*
3. The row or column is now visible

Figure 2 - A hidden column

Activity: Create a copy of the worksheet and rename it to: *Working Copy*

Eliminating Unwanted Data

After importing large amounts of data you may find that you don't need all of the information in your worksheet. There are several ways to eliminate unwanted data from Excel:

Eliminating Columns and Rows

To remove an entire column or row:

1. Right click on the column or row label
2. Select *Delete*
3. Your data will move over to replace the blank row or column

Eliminating Duplicated Data

In Excel 2013 you can simply highlight duplicated data or locate and remove it

1. Select the data that you want to remove duplicates from
2. Go to the DATA tab in the ribbon, locate the *Data tools* group and click on *remove duplicates*
   - If you do not select all of the data a warning box will appear asking if you want to expand your selection
3. The *Remove Duplicates* dialogue box will appear, here you can select which columns you want to delete duplicates from
4. Select *OK* when finished
5. A dialogue box will appear telling you how many duplicates were found and removed and how many unique entries remain
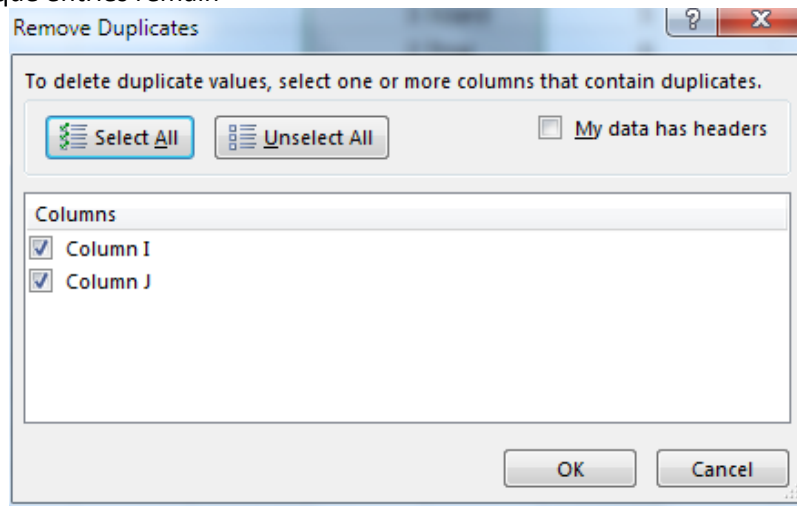

Figure 3 - Duplicate Removal box

Converting Data into a Table

Converting your data into a table enables data to be more usable. Using tables allows you to sort, filter, and easily convert your data into a pivot table.

To convert data into a table:

1. Select the cells that you want formatted into a table
2. Go to the HOME tab on the ribbon, in the *Styles* group select *Format as table*
3. A drop down menu of table styles will appear, select a style that you want to use
4. The *Create a table* dialogue box will appear, if you wish to change you cell selection you can do here

5. Check or uncheck *My table has headers* depending on your data
6. Select *Okay* when finished

ID	Course	Semester	Year	Enrollment
MGMT 102	Buisness C	Fall	2012	98
FIN 101	Buisness F	Fall	2012	64
FIN 134	Financial M	Fall	2012	58
ACCY 199	Special Pro	Fall	2012	33

Figure 4 - Data formatted as a table

Pivot Tables

A pivot table is a special type of data summary table that you can use to analyze and reveal relationships in the data without making you create and insert formulas. You can also adjust the arrangement of the summarized data after you generate the table.
There are some requirements needed to create a pivot table:

- You need at least three columns of data
- Data should be entered correctly
- No gaps or blank spaces
- A list of data (could be anything, names, years, etc.)

Creating Pivot Tables

The simplest way to create a pivot table in Excel 2013 is to use the *Recommended Pivot Tables* tool, to use this tool

1. Make sure there is a cell selected in your data sheet or the *Recommended Pivot Table* button will not be activated for use. This can be any cell, provided that you has a row of column headings with contiguous rows of data.

2. Click the INSERT tab on the navigation ribbon and select the *Recommended Pivot Table* command button.
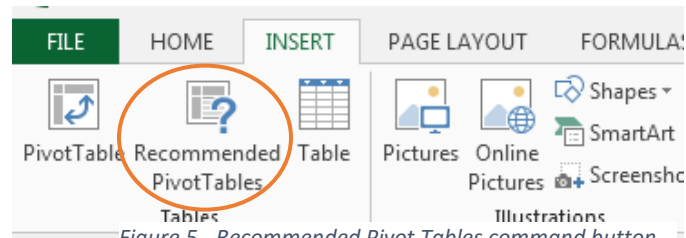
Figure 5 - Recommended Pivot Tables command button

3. The *Recommended Pivot Tables* dialogue box will appear, in the menu to the left you can select the basic design of you Pivot Table, and you can always add more fields later on.
4. Click *OK* to create a pivot table on a new worksheet

Activity: Make a Pivot Table comparing year and semester with the sum of enrollments
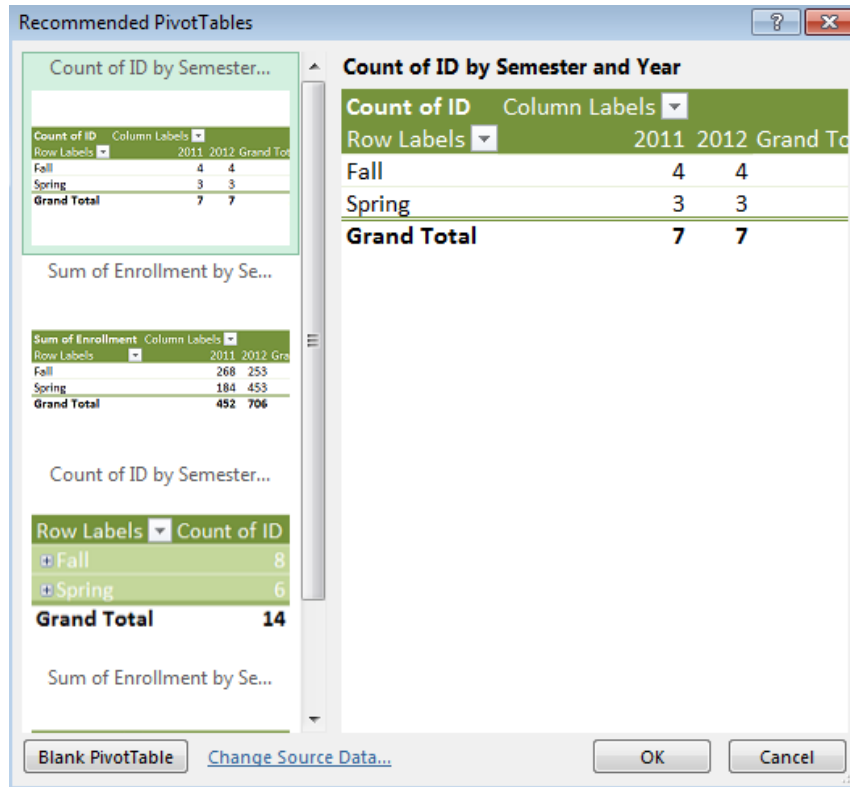
Figure 6 - Choosing a Pivot Table

Modifying your Pivot Table

There are many ways to format Pivot Tables and change it to meet your needs. As the name suggests you can rotate the data fields by using the rows and columns of the table, as well as to change what fields are used instantly.

Modifying rows and columns

In these drop down menus you can add or remove categories, sort your data or add filters

To open this dialogue box

1. Click on the dropdown menu from either the *Column Label* or *Row Label*
2. Here you can select which field you wish to modify by selecting it in the *Select Field* box
3. To sort your data alphabetically or numerically use the *Sort* tools
4. To remove or add categories you can uncheck or check them in the lower box
5. You can also add label and value filters here using the labeled tools
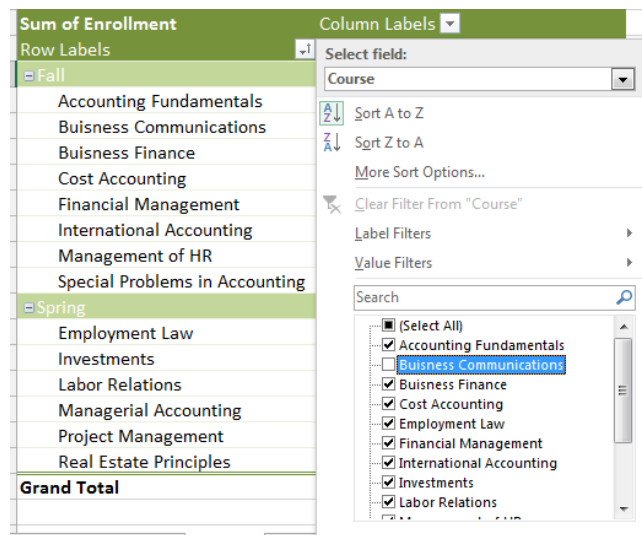6. When you are finished modifying click *OK*

Figure 7 - Using the dropdown menu to modify rows and columns

Changing the summary functions

By default Excel uses the SUM function when you create a pivot table, you can change this to a different descriptive statistic which your data may require.

To change the functions in your pivot table:

1. Make sure to select the cell that the SUM is displayed in, this can either be the SUM label (displayed as "Sum of....") or any cell that displays a sum function

Sum of Enrollment	Column Labels		
Row Labels	2011	2012	Grand Total
⊟ Fall	268.00	253.00	521.00
Accounting Fundamentals	110.00		110.00
Buisness Communications		98.00	98.00
Buisness Finance		64.00	64.00
Cost Accounting	47.00		47.00
Financial Management		58.00	58.00
International Accounting	39.00		39.00
Management of HR	72.00		72.00
Special Problems in Accounting		33.00	33.00
⊟ Spring	184.00	453.00	637.00
Employment Law	49.00		49.00
Investments		93.00	93.00
Labor Relations	75.00		75.00
Managerial Accounting		235.00	235.00
Project Management	60.00		60.00
Real Estate Principles		125.00	125.00
Grand Total	**452.00**	**706.00**	**1158.00**

Figure 8 - Sum functions in a pivot table

2. Click on the ANALYZE tab in the ribbon

3. In the *Active Field* group click 🗗 Field Settings

4. The *Value Field Settings* dialogue window will appear

5. Here you can either choose a new function to summarize yo

6.

7. ur data or select a percentage to display your data differently

   - To choose a new function select the *Summarize Values By* tab and select a new function from the box below
   - To choose a percentage select the *Show Value As* tab, select a percentage to use from the drop down menu and select the base and select the base field and base item if applicable

8. You can change the way your number is displayed by clicking on *Number Format*

9. The name of table will change automatically to reflect your new summaries but you can further change it in the *Custom Name* box
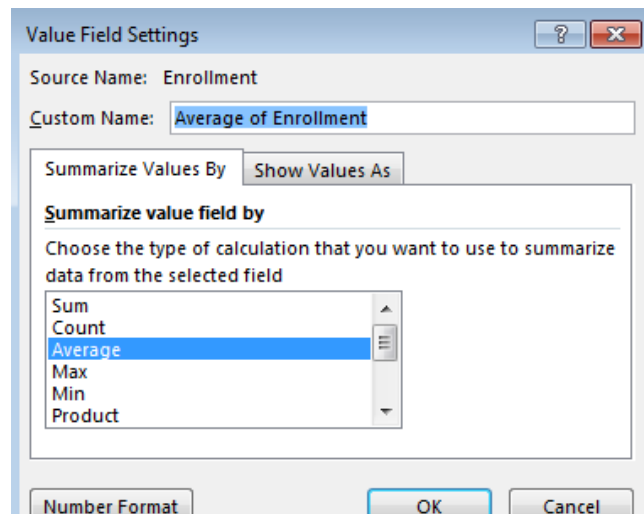
10. Click *OK* when finished

Figure 9 - Value Field Settings dialogue window

Adding and Removing Fields

When using the *Recommended Pivot Tables* tool you can sometimes miss data fields that you meant to have included, using the *Pivot Table Fields* pane on the right of Excel is an easy way to modify your pivot table (you can also change the summary functions, and filters here)

The four different fields are:

- **Report Filter:** Filter out data
- **Column Labels:** determine the arrangement of data shown in the columns of the pivot table.
- **Row Labels:** determine the arrangement of data shown in the rows of the pivot table.
- **Values:** data that will appear in cells. Values are summarized (summing, avg. etc.)

To add or remove data fields:

1. Make sure a cell in your pivot table is selected, otherwise the *Pivot Table Fields* pane will not appear
2. Select the fields you wish to appear in your pivot table in the *Choose fields to add to report* box
3. Your pivot table will change instantly
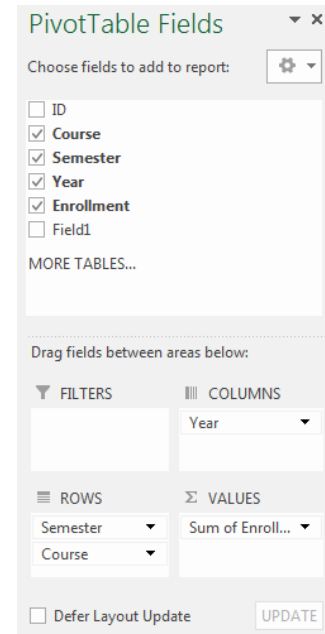
Formatting a pivot table

Formatting a pivot table is similar to formatting a chart, and is a relatively easy procedure.

To format a chart:

1. Make sure a cell in your pivot table is selected, otherwise the *Design* tab will not appear
2. Click the DESIGN tab in the ribbon
3. Here you can change the layout of your table, the style, and style options. Hovering over an option will give you more information.
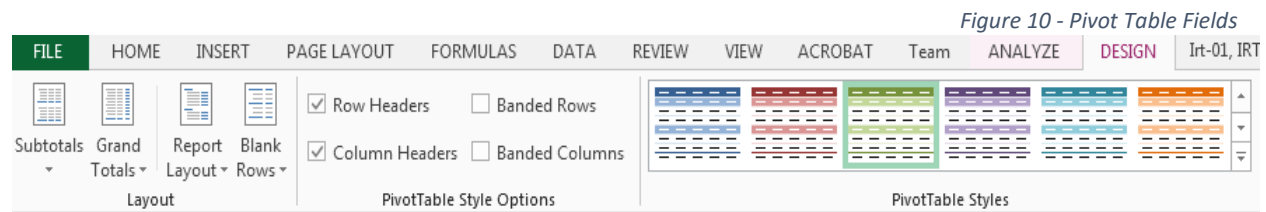
Figure 10 - Pivot Table Fields

Figure 11 - Design tab for pivot tables

Pivot Charts

Exporting Pivot Tables

Inserting a table into Word or PowerPoint is very simple, all you have to do is copy your chart and paste it into an open document. After your chart is included you will find that you can still edit your chart using the *Design* and *Format* tabs in the ribbon.

Printing Pivot Tables and Charts

In Excel 2013 you can print your table alone without setting a print area. To do so select your chart and go to *File > Print* and a preview will display your chart alone to be printed.