Beyond Basics: Intermediate Excel Skills Workshop for Seniors

Instructor: Alisa Rod, Associate Director of the Empirical Reasoning Center ([arod@barnard.edu](mailto:arod@barnard.edu))

**Excel Skills**

* Functions and formulas
* Charts and graphs
* VLOOKUP
* Pivot tables

**Getting Started**

* Go to the ERC website for this workshop: erl.barnard.edu/Beyond\_Basics
* Download the data from the link on the website, and enable editing.

**Formatting**

* On the Income and Expenses sheets, format the entries in the Amount column as currency instead of a plain number. We will use the red font option to indicate negative amounts.
* Throughout the whole budget spreadsheet, we will use currency for numbers. So if the default setting is “General”, we could simply select the whole range of numbers and change the form to currency.

**Functions and Formulas**

* In cell E2 of the income sheet, write the formula **=IF($C2=$E$1,$B2,””).**
  + The **logical\_test** is the condition you want to specify. For example, the condition for Column E would be if the entries have category as “salary”. So the condition for cell E2 would be: $C2=$E$1. Similarly, the condition for cell E3 would be $C3=$E$1. Note that the right hand side of the equation, we use absolute reference $E$1 for the entire Column E because we want to put any income that is categorized as “salary” in column C under Column E.
  + The next two arguments are **[value\_if\_true]** and **[value\_if\_false]**. You specify what value to put into this cell if the condition is true or if it is false. In this case, you put nothing ("") in the cell is the category is not salary and put the amount of income ($B2) into the cell if the category is salary. So the full function statement for cell E2 would be =IF($C2=$E$1,$B2,""). The rest of the Column E can be auto-filled by dragging down the formula in cell E2.
  + The same idea applies for the column “Other”. We have the statement: If the category of the transaction specified in Column C is “other”, then put the amount under this column. Otherwise put nothing under this column. Then we translate the statement into the IF function. For example, the function in cell F2 would be: =IF($C2=$F$1,$B2, "").
* In cell F2 of the Expense worksheet, write the formula **=IF($C2=$E$1,$B2,””)**
  + In the following columns, we put the amount of transactions into the corresponding categories. The idea is very similar with that in the “Income” sheet. Note that we use red color to indicate negative number instead of putting a negative sign before the number. In order to do this, first select columns we keep information of the amount of money.
  + In this chart they are column B and columns after E. Then click the icon in the “Number” section of the ribbon. In the pop-up window, select the second option, which is using red color to represent negative numbers.
* In addition to the date, amount, category, we also keep a record of whether this transaction is paid by cash. In Column D, we put “y” to indicate a cash transaction. We also have a column to count cash transaction and other columns to separate different categories of transactions. Again, we use IF function for this columns. In the “Cash Count” column, the if statement would be: if the corresponding record in column D for this transaction is “y”, then put the amount into column E, else put nothing. For example, the function in cell E2 would be: =IF(D2="y", B2, "").
* Click on the Statistics sheet. The middle columns summarize expenses (columns D through H). In column D, we put different categories of expenses. Column E to H each gives the actual expense, projected expense, deficits of this category of expense and finally the percentage of total expenses which is used for this category. The projected expense is our budget and should be entered manually. The actual expenses come from the sheet “Expense”. For example, the total actual expenses for “Rent” would be the sum of all rental expenses, which is equal to the sum of entries in Column F of the Expenses sheet. In order to get the sum, we use the function SUM and we need to refer to cells in the expense worksheet. In order to do this, we write the command as: = SUM(‘Expenses’!$F$2:$F$100). We actually only have four rows of transaction but we calculate the sum from row 2 to row 100 which also applies to larger data sets. For Groceries, similarly, we put =SUM(‘Expenses’!$G$2:$G$100). Notice that we have to use absolute reference to cells and we cannot use auto fill for the following rows.
  + Why is this the case? Because if we use relative reference: = SUM(‘Expenses’!G2:G100) and use auto fill for the following columns, the formula for the next row would be  = SUM(‘Expenses’!G3:G101), which is not what we want.
* After we calculated the actual expenses, we could calculate the deficit using actual – projected.  For example, G2=F2-E2, and we could auto fill the rest of the “Deficit” column. Having columns E, F and G filled out, we could calculate some numbers in Column A. Projected Budget is the sum of all numbers in Column E and Total Expenses are the sum of Column F. Then we could calculate Column H using the total expenses. Column H shows the percentage of each category of expenses to the total expenses. For example, cell H2 is calculated as: = F2/$A$6. Then we could auto fill the rest of the column. Monthly Income is calculated from the Income sheet using =SUM(‘Income’!$B$2:$B$100)
* The Cash Count would be the sum of amount of cash transactions, which is equal to: =SUM(‘Expenses’!$E$2:$E$100). Total Deficit/Surplus shows the sum of Column G.

**Charts and Graphs**

**2D Column Clustered Chart**

* Click on insert, select the bar graph, and click on the “clustered column” option and hit enter
* In the Chart Design ribbon, click on “Select Data”
* Click the plus sign (+) to add a data series to the Legend entries
* Choose cell A3 in the Name field
* Choose cell A4 in the Y values field
* Click the plus sign again to add a second data series to the Legend entries (Series): box
* Click cell A5 for the name and click cell A6 for the Y values field, then click OK
* Go to Quick Layout if there is a space between the columns and select the first auto layout (including a chart title and a legend). This should fix the space.
* Select the “1” between the columns and delete it
* Click on the vertical (Y) axis
* Click on the chart, then click on the Format ribbon, and click on Format Pane (all the way on the right)
* Under the bar graph options, select “currency” in the category drop-down list, using the same red formatting to display negative numbers
* Remove the grid lines (click on a grid line and hit Delete on your keyboard) and fill in the background as gray (via the paint can in the format pane – format chart area)
* Then we make a pie chart to show expenses by category. Select Column D and F to include all categories of expenses and create a pie chart.

**Vlookup**

* In cell K2 type the function =VLOOKUP(“Rent”D1:F10,2,FALSE)
* In cell K3 type the function =IF(VLOOKUP(“Rent”,D1:G10,3,FALSE)=-1500,”Budgeted accurately”,”Did not budget accurately”)

**Pivot Tables**

* Please refer to this guide: http://erl.barnard.edu/excel/pivottable-mac