

Creating Graphs Using Excel (Not including Excel 2007)

Graphs are a useful way to display and describe data. One very systematic and easily accessible software application that has the proper tools needed to analyze the data and to create graphs is Microsoft Excel. This document provides some information on how to design graphs using Excel.

The first step is to enter data. For example, you may wish to make a graph showing two variables: location and substance. Each box is called a cell. The cells shaded light orange make up a row; the cells shaded light blue make up a column. By right-clicking inside a cell, you can change the number into a percentage.

A	B	C	D	E	F	G
1		Alcohol	Tobacco	Marijuana		
2	Hennepin County	60%	56%	32%		
3	Ramsey County	50%	60%	37%		
4	Minnesota	52%	45%	30%		

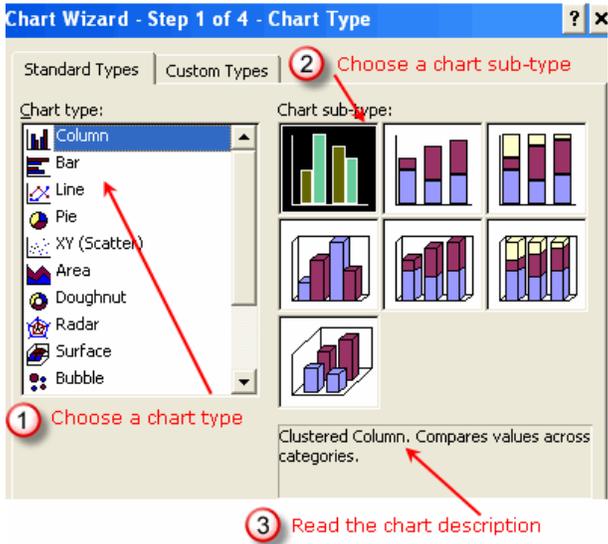
Chart Wizard

The Chart Wizard helps you turn your data into a graph. There are two ways to use the Chart Wizard to create a graph. The first way is to choose the "Insert" menu from the top of the screen and click on  Chart.

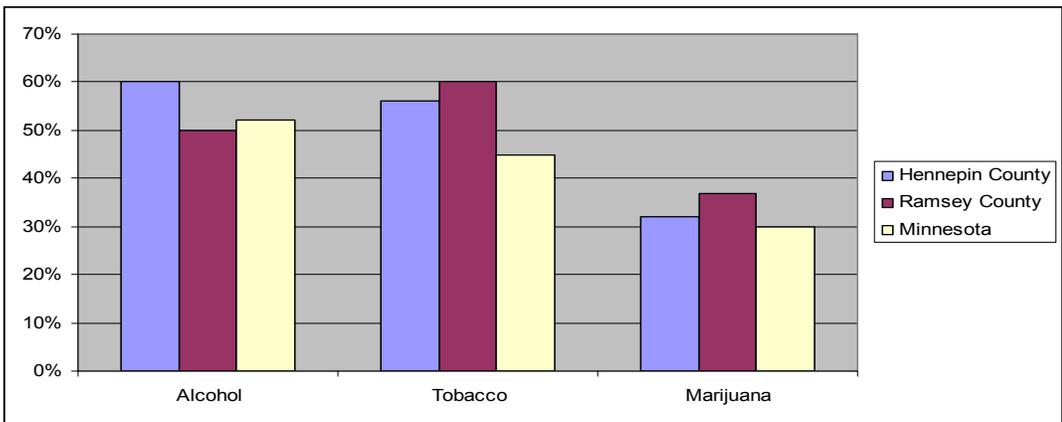
Secondly you could click on the Chart Wizard  from the Standard toolbar. The Chart Wizard dialogue box pops up and will direct you through the graph making process. You can also open the Chart toolbar and select the type of chart you would like from the drop down menu. A graph is automatically created. After that first step, there are many ways to customize the graph.

Step 1: Using your cursor, highlight the cells you wish to turn into a graph. In the example above, you would want to highlight B1-B4, C1-C4, D1-D4 and E1-E4.

Step 2: The Chart Wizard asks you to select the type of chart they would like to make. The most common types are the Column, Bar, Line and Pie graphs. If you would like see a sample of the graph before it is chosen, press and hold down the sub-type.



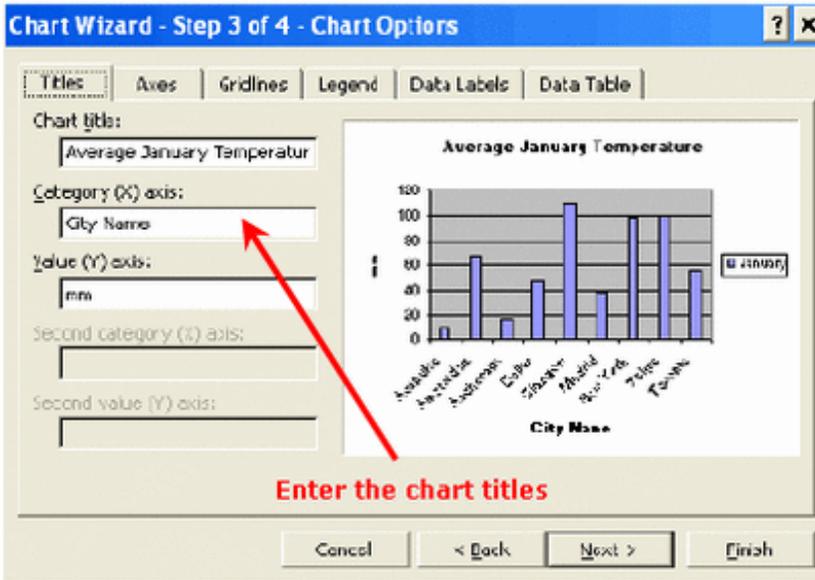
Using the example data set above and choosing a basic column chart, this is what would result without moving on to step three and making any further adjustments to the graph.



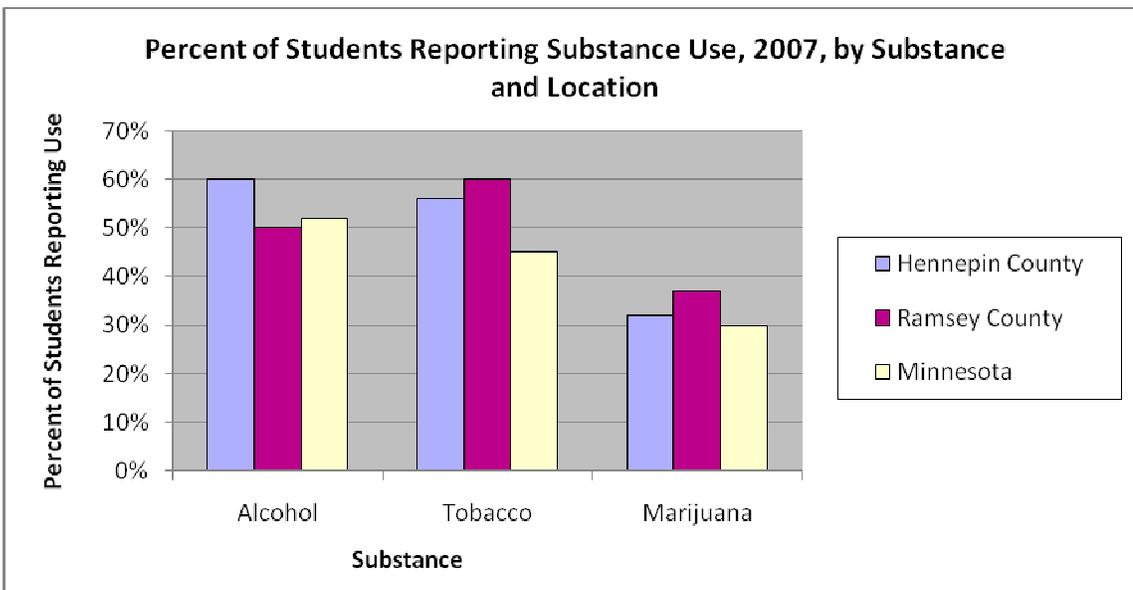
Step 3: The Wizard has a number of options. Here the user can label the title, axes, data points, decide if gridlines are helpful or not, change the location of the legend, and show the data table. After all of the characteristics are chosen, click next.

Under 'Chart Options,' select Titles to label the graph and each axis.

¹Excel 2003 Chart Wizard Tutorial, <http://spreadsheets.about.com/od/excelcharts/ss/>



Create detailed titles, so that the graph can stand along without addition explanation.

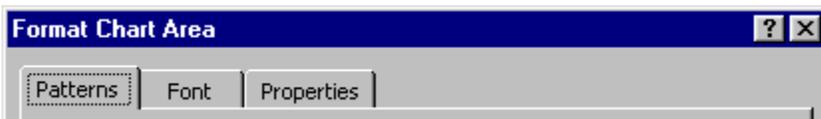


Formatting the Chart Once You've Created It

Now you can customize the chart font, size and color by right clicking on the specific areas of the graph: the chart area, plot area, legend, data series, or axis yields a general dialogue box. Each individual box has a few specific differences but over all they are all about the same, which makes them rather easy to follow once familiarity is gained.

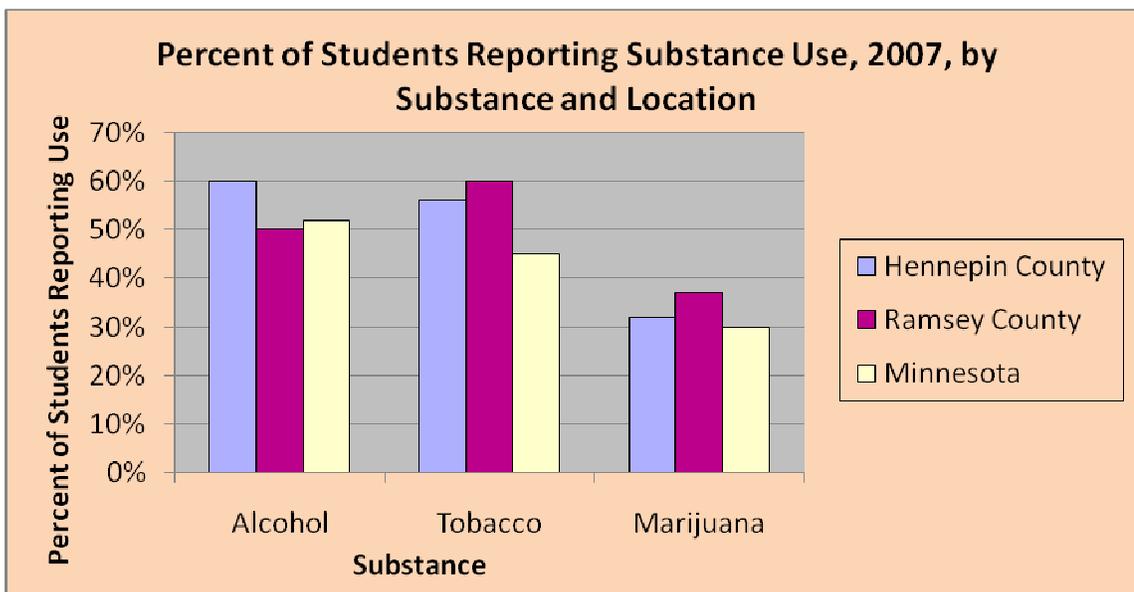
Format Chart Area:

To change to look of the outside of the plot area, right click on the white space of the example chart above. A drop down menu appears with the Format Chart Area option. Select this, and the following box pops up. You can also select the Chart objects down arrow from the Chart toolbar and select Chart Area.



- Patterns: Select the options you want to format the Border and Area of the chart.
- Font: Select the options you want to set the chart's default or base Font: size, color and style. (You can change the font for each different label as needed.)
- Properties: Choose the properties you want for the positioning, printing, and locking of the chart.²

For example, you may wish to change the color of the chart area so it stands out against a white background in a report. You may also wish to make the font bigger, so it's easier to read. In the example below, the font was changed from 10 to 12 for the axes and legend, and from 10 to 14 for the title. The background was filled in with light orange.



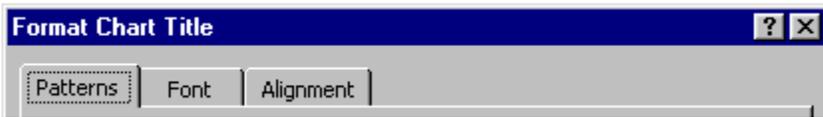
You can change the size of the chart area by clicking on a corner or edge of the chart area and dragging.

Format Chart Title:

To format the title you again can right click on the title or select the Chart title from the object menu of the chart toolbar and this menu is displayed. This allows you to reword the title or change the font.

² Formatting the Chart,

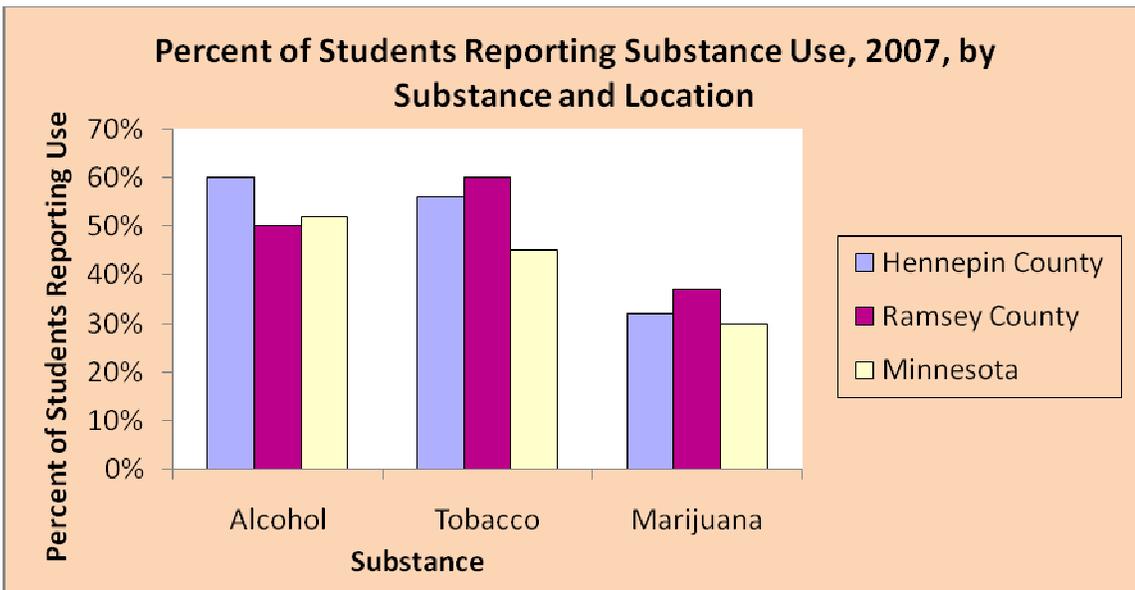
https://homepages.westminster.org.uk/it_new/cct/Library/excel_2002_intermediate/manual/web/excel_2002_intermediate_manual_educational_webp38.htm



These tabs in the box have the same control as the previous box.

Format the Plot Area:

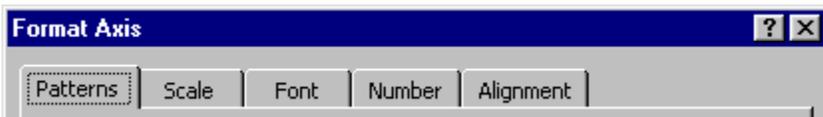
Right clicking on the plot area or by choosing plot area in the object menu on the toolbar will allow the user to choose any type of pattern they would like to go the inner portion of the chart (the area directly behind the columns). Right click on a gridline in the plot area to delete the gridlines, or change their color. In the example below, the plot area was changed to white, and the gridlines removed.



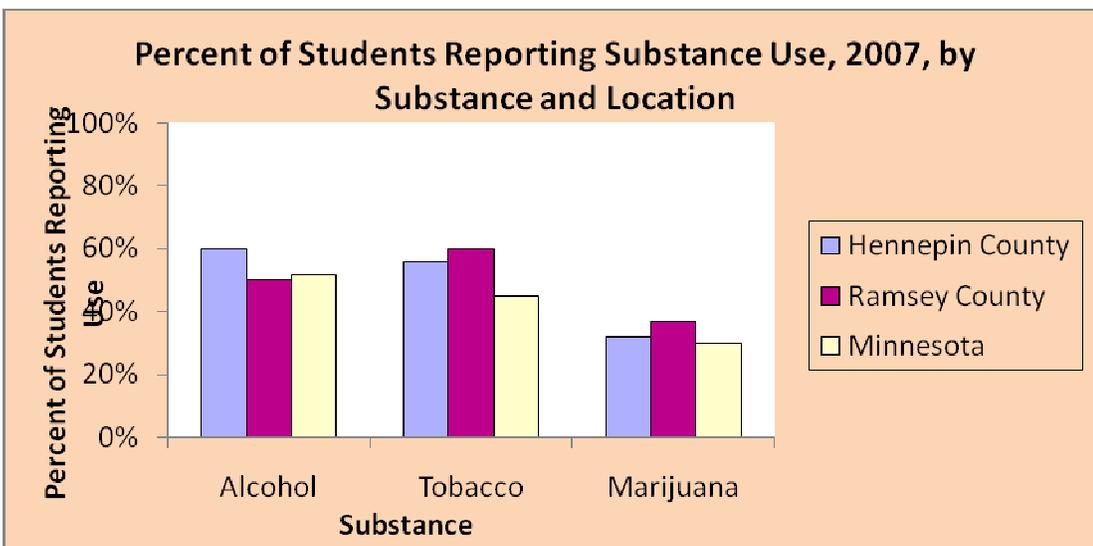
You can also change the size of the plot area by clicking on a corner or edge and dragging. You can move the plot area from side to side, or up or down, by placing your cursor in the plot area and dragging.

Format the Axis:

Just as you formatted the chart and plot areas, simply right click on an axis or select format axis from the dropdown menu on the toolbar to customize. The axis can be changed in many ways: from the scale and type of number to font and alignment. Choosing to format yields this box; you can also change the title through a dialogue box.

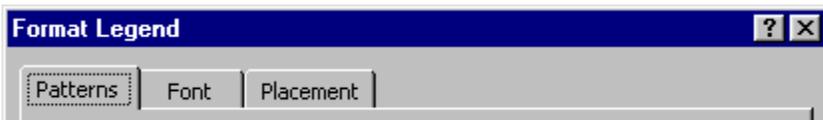


- **Patterns:** Select the options you want to format the Lines, Major tick mark, Minor tick mark, and Tick mark labels of the axis.
- **Scale:** Select the options you want to define the Scale of the axis. For example, you may wish to adjust the scale to increments of one, five, ten or any value. To show fine detail, you may wish to have the scale start at a number other than zero. In the example below, the scale now goes up to 100% instead of 70% and increases in increments of 20%.
- **Font:** Select the options you want to set the Font of the axis labels. You can change the font size, color or style.
- **Number:** Select the options you want to format the Number of the axis labels. For example, you can change from number to percent. You may also wish to carry the axis values out to the nearest decimal place.
- **Alignment:** Select the options you want to set the Alignment of the axis labels—text can run vertically, horizontally, or at an angle.

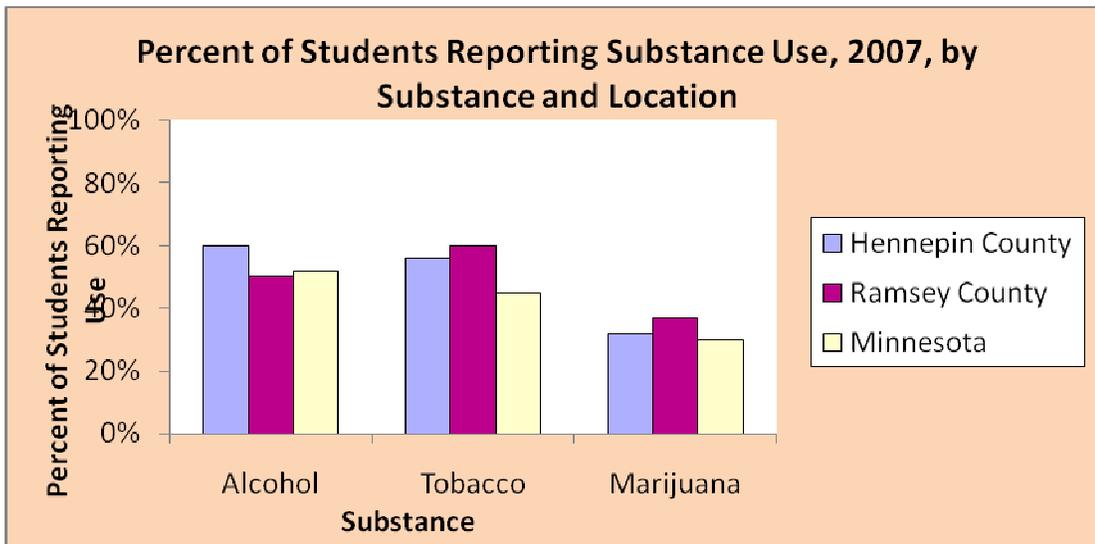


Format the Legend:

Formatting the legend can be implemented in those same two ways through the chart toolbar or by right clicking on the legend itself or anything in the legend. Within the dialogue box the user can change font, color, placement etc. Also one unique shortcut through the legend is that the user can change the individual data series that is related to each series in the legend. For example if you were to click once on Hennepin County either on the color or the name you could change the font, or the color it represents on the chart.

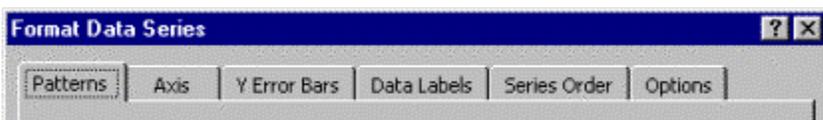


Here, the legend background is changed to white.

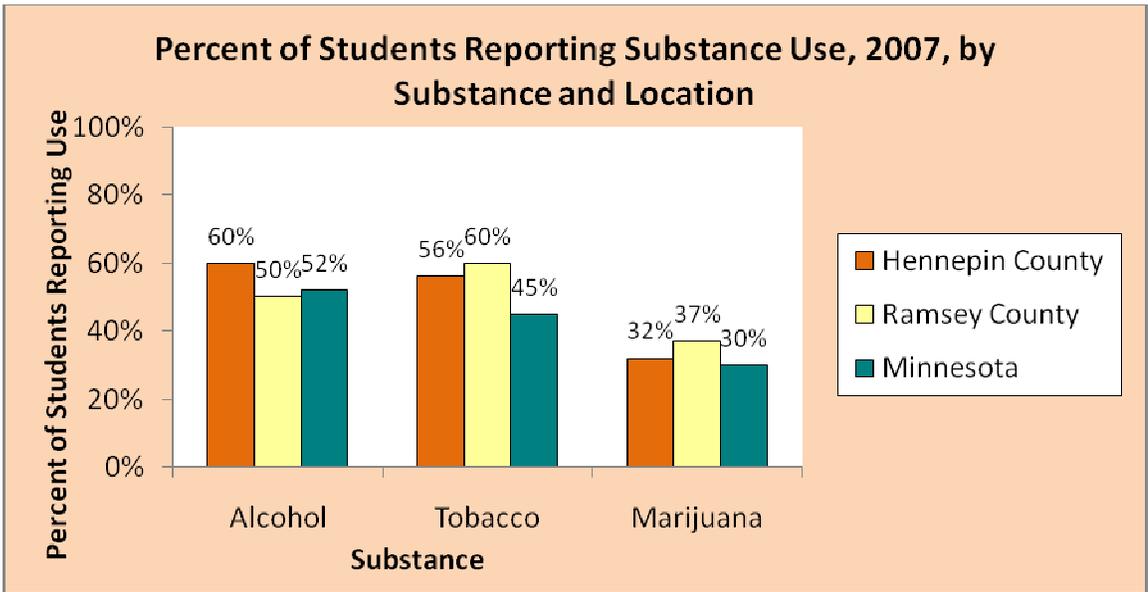


Format Data Series:

To format the data series' (the columns) the user can choose to right click on the column from the chart or choose the series they want to format from the object menu from the chart toolbar. This dialogue box shows the options that are available when choosing to format the data series. This is a description of what each of the tabs is used for and below is an update of the previous graph, using these tools to format the data series.



- **Patterns:** Select the options you want to format the Border and Area of the data series. In the example below, we changed Hennepin County to orange, Ramsey County to pale yellow and Minnesota to teal.
- **Data Labels:** Select the options you want to display and format the Data Labels. In this example, the data series were labeled with the value. They could also be labeled with the series name—in this case, the locations.
- **Series Order:** You can control the order in which the data series is displayed. Select the data series you want to change, and click the Move Up or Move Down button.
- **Options:** Allows you to control the Overlap between the data series and the Gap width between categories.



Other Resources:

- 'Getting Started in Excel Tip Sheet': <http://training.uit.tufts.edu/pdftips/gsexctips.pdf>
- 'Microsoft Excel 2007 Tip Sheet': [http://appl003.lsu.edu/acadaff/celtweb.nsf/\\$Content/Tip+Sheets+for+Microsoft/\\$File/MicrosoftExcel2007TipSheet.pdf](http://appl003.lsu.edu/acadaff/celtweb.nsf/$Content/Tip+Sheets+for+Microsoft/$File/MicrosoftExcel2007TipSheet.pdf)