



Charts and Graphs in Excel 2007

(files and worksheets in red can be found on practice files from Total Training Excel DVD (Essentials and Advanced) from Library circulation desk or by contacting Kim Laursen)

Chart Basics – *chart refresher.xls* and *gradebook.xls*

1. Structure data correctly – “*contiguous data*” worksheet tab
 - in columns and rows – no blank rows or columns
 - Header rows and header column
 - Leave top left cell of chart range blank
2. Select range
 - Click Insert, select a Chart (select column- 2 D clustered)
 - OR use shortcut keys Alt-F1
 - Chart area includes: Series grids, lines, data points (data from your table), data series (groups of data points), axis (reference points for graphing – x and y axis), plot area, legend
 - Select range using non-contiguous data (use control key to select columns) “*non-contiguous*” tab
 - *Select Subassembly column and total cost data using ctrl key*
 - *Insert > Pie chart*
3. Modify chart with chart tools contextual tabs (appear when you click on the chart) – You may want to create a duplicate of the chart before making a lot of changes.
 - Design tab
 - Select data (allows you to edit or change your data range by clicking on the range icon (delete old range first). You can also drag the handles (dots) on the blue line surrounding your data.
 - Switch row/column – transposes data – “*transposing worksheet*” – 2D stacked
 - Tip - Create Dynamic Charts that update automatically as you add rows/columns– format range as table
 - Change chart type- (most common - column, line, pie) - - “*Changing Type*”
 - Use control and shift and arrow keys to select specific columns or many rows of data - “*adding data*” worksheet - change to line

- Chart layout options – “*chart layout*” from *formatting.xlsx*
 - Change to histogram layout – layout 8 column (new feature)
- Chart styles – “*chart style*”– try black and white, colored, monicolor, 3D glossy, dark backgrounds
- Move chart – to a new sheet or existing sheets
 - Can also click on border to move. Click on handles to resize
 - To copy a chart, click on border and drag but before releasing, press ctrl key (doesn’t work if you press ctrl key first)
- Layout
 - Current select (select from dropdown element to format OR click directly on the element you wish to format) - “*format series*”
 - Click format selection for formatting options for element selected
 - Right click on the series and select format data series
 - Press Ctrl 1
 - Insert objects (pictures, shapes, text box)
 - Label options - add chart title, legend, axis option – (vertical – in millions), gridline options. Add outside end data labels “*Data Labels*” and
 - Axes options (show axis or gridlines)
 - Background of chart
 - Analysis – trend lines, lines, up/down bars, error bars
 - Properties – you can name your chart
- Format
 - Format select area of chart
 - Shape styles (fills, outline, effects) (
 - try gradient fills
 - try line styles (line charts) “*image*”
 - Word art styles
 - Arrange (bring to front/back, selection pane, align, group, rotate)
 - Size
 - Other Formatting Tools
 - Use any option from the Home tab to reformat text in the graph
 - Right click on elements within the chart and select Format options

More about Charts – from Total Training Advanced Excel 2007 DVD (Chapter 3 - Charting) (available from Library 6th floor circulation desk)

Chart types (Ch 3, Lesson 6) (see separate Chart Types handout) – “*charttypes.xls*” – 73 types of charts in Excel 2007

- Column– data that is time based (8-12 max) – points along the bottom
- Line charts – time-based data - if you have many points

- Bar chart – comparison that is not time based – more space in landscape chart and if you have long titles (does not confuse people with time progression)
- Pie charts – overused – use only if only a component percentage of a whole
- 100% stacked chart - if you have several series requiring percentages, use (better than using several pie charts)
- Correlations – used scattered or X/Y chart
- Frequency distribution – many data points
- Radar chart – performance review
- Stock chart – securities or scientific data (fluctuating temps)
- Surface – 3D – typographic map
- Avoid using pyramid/cone charts, as they can misrepresent data

Chart guru – “Edward Tufte”

Time Series (Ch 3, lesson 7) – *timeseries.xls*

- “*Few data points*” – create column chart using Alt F1 – remove legend from Layout tab
- “*Many data points*” – Select all data (use combination of Shift and end (or ctrl) keys and down arrow and then the right arrow). Create chart using Insert – 2D line
 - Can delete the legend by selecting it and pressing delete key on keyboard
 - Change chart type to Area
- “*Missing data points*” in time – select X axis labels
 - right click and select Format Axis, and change the Axis type to date axis
 - Change to line with markers
- “*Change line*” – Move Forecast points to a different column and reselect all data for chart
 - Notice an empty plot – add the bottom data point to the forecast series
 - Change forecast series to red dashes
- “*Recolor one*” set – click and then click again (not a double click) to select a single data point, then change the shape fill color
- “*Trendline*” – Select actual line, and click Layout – Trendline – linear – format with red dashes
- “*Arrows*” – Replace columns with shapes – Insert > upward pointing block arrow and drag outside to the right of your chart in the worksheet, resizing it to about the width of your bars. Press Ctrl+ C to copy and then select your series of bars and press Ctrl +V to paste. Your columns are now block arrows.

Combination charts

- “*YTD*” – Working with different scales, plot one series with line and secondary axis
 - Right click on YTD column, select format data series and click secondary axis
 - Change the YTD series to a line chart

- Color code #s with plot color using format options
- **“vs Last Year”** – create chart
 - Select stacked column
 - Format with dashed line
 - Move legend to open area–by clicking on border and dragging
 - Resize chart to make columns larger
 - Add a long title from Layout tab and reformat using Home ribbon – This year’s sales outpaced last year’s sales primarily due to new store sales
- **Accessories** – Line chart accessories
 - Go to top of worksheet – from Layout tab select lines high/low
 - Scroll down and select Layout > Up/Down bars > up/down bars – thicker lines and positive and negative bars
 - Scroll down to the area chart - From layout tab select Lines - Drop lines – only valid on area charts
- **Stacked** column - From layout Add lines > Series Lines – should avoid

Using Bar charts to show comparisons (not pie charts) – *category.xls* – “whybar”

- **Bar chart** – Create bar chart and then click cell in value column and sort data in ascending order
- **Clustered** bar - select data and insert clustered bar (this is actually is a time comparison)
 - Change color to black for top series
 - Change color to white for lower series – add an outline
- **Stacked** Bar – see how it works well to show comparisons of two series

Component Charts - Ch 3 – Lesson 11

- **Pie charts** – **market share**
 - **Rotating** - select chart and right click - Format Data series – series options – rotation (useful for small pieces of the pie). Drag labels – click and click again to move labels
 - **Explode** pie slices – click pie and right click and select format data series – Pie Explosion
 - **Explode one** - just one pie slice by clicking and selecting just the one wedge and drag out
 - **Highlight** – entire pie is white fill but one slice is shaded – useful for emphasis
- Use 100% stacked column chart – easier to understand in many cases
- Doughnut chart (not used often) – two pie charts together – Insert > other charts > doughnut
 - Change doughnut hole size (bug in Excel) by right clicking on one series and select format data series and change doughnut hole size to about 15%

- Add data labels for each series – have to use the layout tab and then you can format the labels – change to series name rather than value for both series
- **Splitting** a pie when you have too many slices of a pie- make as large as possible
 - Change chart type to Pie of pie thumbnail – automatically creates a pie separated from the rest of the chart. Right click and select format data series.
 - You can split series by position, value, percentage value or custom
 - Change to Bar of Pie – looks better and easier to understand

Correlation XY charts (Ch 3 -Lesson 12) – **correlation.xls** – good for showing relationship between two different variables

- **Scattered** – select first choice – negative correlation in example – select quick layout from design tab and select one with the line (either with or without equation)
- **Bubble** chart – Insert > Other charts and select bubble - change scale size and size of bubbles for best effect
- **Frequency** – many categories and you want to see the frequency of each category
 - Select data (shift +Ctrl+down arrow and right arrow) – Insert 2D column a
 - From Chart layouts, select layout 8
- **Distribution** – often used in scientific trials – placing data into bins and using array formulas
 - Select a column to right of bins array and drag the length of the array plus one extra cell
 - Type Frequency formula : =frequency(data array, bins array enter to bring)
=frequency(\$B\$2:\$B\$3000,\$D\$2:\$D\$9)
 - Press F4 to make absolute reference
 - Press ctrl + shift + enter to duplicate down
 - Insert sheet column to provide more useful labels – '0-15, '15-30, '30-45, '45-60, '60-75, '75-90, '90-105
 - Create a chart based on data in E and F – Insert Column – 2d clustered

Other Charts.xlsx

- **Radar** chart – often used in Human Resources - rankings from 1-5 – Insert > Other Charts
- Stock charts - delete A1 contents (since dates are already displayed) and select Insert > Other charts -
 - -High-low-close – **OHLC** – format axis and change to fixed min of 300 and fix max of 500 – easier to read
 - **Stock** – (candlestick) Select Volume -open -high -low -close
 - Right click numbers on left axis and format – change max to 13.5E7
 - Remove y axis labels (format axis – labels –none)

Onsheet.xlsx

On sheet graphs (really are not charts) (lesson 3) – rept (repeat function) - =REPT("|",B4/10)

WHAT NOT TO DO! - Chartlies.xlsx - How to recognize if people are “spinning” information and data

- 3D pie charts
- 3D column charts vs 2D
- Cone chart – vs. column chart
- 3D line and changing scale
- Changing sort order of the years

Advanced types – how to from Bill Jelen’s book

Custom layout – From the Design tab – Save as template

Tips:

- **Add an average line to your charts** – **Excel 2007 Essentials, Lesson 8 -Tips and Tricks.xlsx**
 - Add another row to the data and in the first cell enter an average formula for the range above.
 - Copy this same value (not the formula) to the rest of the cells. (you can enter the expression - =C6 and then copy this formula – which will always copy the cell to the left).
 - Expand your graph data range to see the average line appear.
 - Right click on the new series and change series chart type to a line.
- **Chart with smooth line** – select a series – right click – format data series – line style – select smooth line – useful if you have a lot of data points.
- **Compare dynamically with a chart** – Create a chart and then Data > Filter feature
- **Link Excel file into to PowerPoint** by just copying and pasting. As data changes in Excel, the chart is updated in PowerPoint (formatting is not).

More Resources

<http://office.microsoft.com> – Help and How To Tab

-training – hands-on with practice exercises

-demos - short videos

-webcasts – hour -long presentations

Total Training DVD for checkout – Excel 2007 Essentials and Excel 2007 Advanced

<http://www.mrexcel.com/> - Bill Jelen