Microsoft Excel Hints

Note

- The following information pertains to Excel 98 for the Macintosh. Most of this information should be valid in different versions of Excel although there may be slight differences in the details.
- Excel allows multiple ways of applying many operations. Most of the following "hints" only give information about one particular method.

Writing Formulas

- Start with =.
- Specific locations within a spreadsheet are called cells. Cell locations are designated by a column reference (a letter) and a row reference (a number).
- References to cells can be absolute (refers to the same location regardless of your current position in the spreadsheet) or relative (refers to a location in relation to your current position in the spreadsheet).
    - ♦ Absolute references are designated with "$", while relative references have no symbol. Column and row references are independently designated as absolute or relative references.
    - ♦ Absolute references are useful to refer to locations that contain constants, while relative references are useful for referring to nonconstant values.
    - ♦ Newer versions of Excel use the idea of a workbook. A workbook is a synonym for a file and is analogous to an electronic notebook which can contain a number of pages (Excel calls them sheets). Formulas can be written using values that are found on different sheets. The reference to a sheet location is given by the <sheet name>!. This is placed before the cell reference.
- Many built-in functions are available (e.g. to calculate mean: AVERAGE(); to calculate standard deviation: STDEV(); to calculate a sum of numbers: SUM()). A list of available functions can be found by looking in the manual, using the on-line help, or clicking on the f_x button to the left of where you enter values or formulas above the sheet.
    - ♦ Within the () you provide cell location(s). If you are operating on a range of cells, first list the cell location in the upper left-hand corner of the range, use a colon (:) to represent the cells within the limits, and last list the cell location in the lower right-hand corner of the range. Nonconsecutive ranges of data can be selected; use a comma to separate each range.

Copying and Pasting

- You can copy formulas or values.
- Use regular to copy to maintain the formatting of cells.
- If you only want to copy a value from a cell where the value was calculated from a formula, use PASTE SPECIAL under the EDIT menu. Pick VALUE under the PASTE column. PASTE SPECIAL can also be used to manipulate a copied value in many other ways.

Formatting

- If you want to see some parts of the spreadsheet where ever you scroll, select a cell and the FREEZE PANES command under the WINDOW menu. The rows above this cell and the columns to the left will be frozen. If you want to unfreeze these areas, select UNFREEZE PANES under the WINDOW menu.
- If you want to read all the text in a cell when the text is bigger than the cell, select COLUMN or (ROW) under the FORMAT menu and select AUTOFIT SELECTION. You should do this after you have the largest text item in that column or row entered.

- You can format cells in terms of font, centering, etc. by selecting the cells and using the correct buttons on the top of the screen.
- You can format numbers in terms of decimal places, etc. by selecting CELLS under the FORMAT menu. You can enter a custom format or use one of the default formats.
- You can insert a row or column by selecting ROW or COLUMN under the INSERT menu. Columns will be inserted to the left of and rows will be added above the selected cell.
- In text cells you can format individual characters (subscripting or superscripting, for example). First enter the complete label, then select the individual character(s) that need to be formatted, and select FORMAT/CELL.

Statistical Analysis

- Go to DATA ANALYSIS under the TOOLS menu. Pick the type of statistical analysis that you would like to perform (ANOVA, REGRESSION, etc.)
- Under REGRESSION, you can enter the y-data (usually a column(s) or row(s)), the x-data (usually a column or row), a confidence level at the level that you select (usually 95%). You can also select a number of other options. One option that you may want to select is LINE FIT PLOT. This option will make a graph that plots the y-data used in regression and the points that make the regression line.
- You can obtain the slope and intercept values in two other ways. You can obtain the value for the slope and intercept (assuming a linear relationship) with no information on the error by using the SLOPE() and INTERCEPT() functions, respectively. You can also obtain values for the slope and intercept along with the R^2 value by using the TRENDLINE command on a chart <graph> (see formatting graphs section).

Using Solver to Iteratively Find Variable Values

- Solver is an add-in to Excel that can be used to iteratively find variable values (roots of equations, slope and intercepts, solve nonlinear equations, etc.). Solver can be found under the TOOLS menu when your cursor is on a sheet of data.
- To use Solver you must select a target value (SET TARGET VALUE) which is either maximized, minimized, or set equal to a particular value and also must select some values that will be changed (BY CHANGING CELLS). The cells that are changed must affect the target value.
- Under SOLVER OPTIONS you can change the method or time of the Solver calculation.

Formatting Graphs

- You can resize a graph by putting an arrow on the small, square boxes that surround the graph, clicking and holding the mouse button, and dragging outward or inward.
- For the title of the graph and titles of the axes, you can change the title by single-clicking near the title and typing the name on the line where you enter formulas.
- To format any item on the graph, double-click on the area that you wish to format and a menu will come up with a number of options.
- To change the legend names, go to the CHART menu and select SOURCE DATA. Click on the SERIES tab, select the set of y-data for which you want to make a legend by selecting the correct set of y-data in the box in the lower left-hand corner of the window, and write the wanted legend in the Name box.
- If you want to draw a "best-fit line", go to the CHART menu and select ADD TRENDLINE. Pick the type of trend and the set of y-data to fit in the first window. Click on the OPTIONS tab to have the equation for the fit and the R^2 to be written.

Printing

- To print a chart (graph), select the graph before going into print. The graph can be a different size than the graph size on the spreadsheet.
- To print a spreadsheet, select a cell in the spreadsheet. If you want to not see some data in the spreadsheet that is surrounded by data that you would like to see, first select the rows or columns

that you would not like to see and select ROW or COLUMN under the FORMAT menu and select HIDE. To later see this data, select UNHIDE.
- For both types of printing, it is a good idea to go to PRINT SETUP and PRINT PREVIEW before printing.

Workbooks and Pages

- You can write on a new sheet by specifying that something should go on a new sheet during certain operations (creating charts or doing statistical analysis) or by clicking on one of the tabs at the bottom of a workbook.
- Sheets can be hidden, unhidden, or renamed by selecting Format/Sheet.
- Sheets can also be renamed by double-clicking on the tab.

Useful References in Our Collection

Billo, E. Joseph. *Excel® for Chemists: A Comprehensive Guide*; Wiley-VCH: New York, 1997 (ISBN: 0-471-18896-4).

Diamond, Dermot; Hanratty, Venita C.A. *Spreadsheet Applications in Chemistry Using Microsoft® Excel®;* Wiley-Interscience: New York, 1997 (ISBN: 0-471-14987-2).

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