

Microsoft Excel: an introduction

Version 2003 for Windows

Prepared by Todd Vandenberg

Web Services Librarian

Spencer S. Eccles Health Sciences Library

University of Utah

todd.vandenberg@utah.edu or 801-581-5263



Table of Contents

Introduction	3
Definitions:.....	3
<i>Cell labeling</i>	3
Getting Started	4
Keyboard shortcuts.....	4
Toolbars and Menus.....	5
Formatting, Formulas and Functions.....	5
<i>Formatting cells</i>	5
<i>Formulas structure</i>	6
<i>Adding totals faster:</i>	6
<i>Handling large worksheets:</i>	6
Creating Charts.....	7
Printing.....	8
Importing data.....	7
<i>Importing exercise</i>	7
Helpful functions.....	8
<i>SUMIF(range,criteria,sum_range)</i>	9
<i>COUNTIF(range,criteria)</i>	9
Excel and Reporting	9
Pivot Tables	9
Q & A.....	10
Appendix.....	11

Introduction

Microsoft Excel is a spreadsheet application that features calculation, graphing tools and other features for manipulation of alphanumeric data. It displays a vast area of cells organized in rows and columns, and each cell contains data or a formula, with relative or absolute references to other cells. It can contain any combination of types of data, but is most commonly used for:

- **numerical data:** financial, statistical, date & time related
- **charts:** visual representation of data
- **lists:** helpful for tracking lists of information/data

Microsoft Excel files are easily recognized by the “.xls” file extension at the end of the name (version 2003 and earlier for Windows, 2004 and earlier for Mac). In the 2007 version (2008 for Mac) it saves files with a “.xlsx” extension. For purposes of this workshop we will only be working with the 2003 version.

Definitions:

- **worksheet:** single sheet of cells in 1,048,576 rows by 16,384 columns. Used interchangeably with spreadsheet. You will probably never fill one up or break it by putting too much into it.
- **workbook:** tabbed group of worksheets in a single file. The number of sheets is limited only by the computing power of your computer.
- **active cell:** the cell bordered in dark, thick lines with a white background
- **select a cell** (or cells): click on (or click and drag through) the cells you wish to work with.

Cell labeling

Each cell is uniquely labeled and referred to by a combination of 1-3 letters (from “A” to “XFD”) followed by a number from 1 to 1048576.

Getting Started

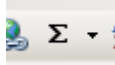
Keyboard shortcuts

To	Press
Move right one cell	Press the Tab key or the right arrow key
Move left one cell	Press shift+Tab or the left arrow key
Move down one cell	Press the Return key or the down arrow key
Move up one cell	Press shift+Return or the up arrow key.
Move down one full screen	Page Down
Move up one full screen	Page Up
Move right one full screen	Alt + Page Down (for Windows) Option + Page Down (for Mac)
Move left one full screen	Alt + Page Up (for Windows) Option + Page Up (for Mac)
Move to beginning of row	Home
Move to beginning of sheet	Control + Home
Move to end of data on sheet	Control + End
Move to end of current row	Control + right arrow key
Move to end of current column	Control + down arrow key

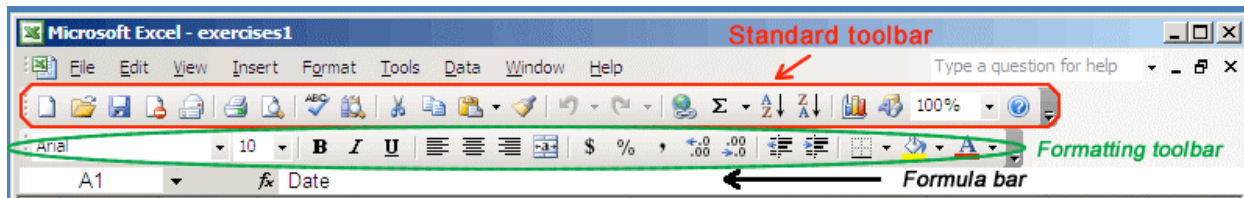
Open the file on your desktop labeled “exercises.xls”. Click on the “Allowance” worksheet tab.

Exercise: teaching youth to save. An older child wants an increase in allowance to buy a new video game. We are going to demonstrate that s/he already makes enough money to buy the game if they save for it.

1. In the “Other” row, enter any dollar amount under \$10 for each of the 4 weeks.
2. Type in the word “Total” just below the word “Other” in column A and press “Tab” or the right arrow key to move to the next cell.
3. To instantly total a column or row of numbers in the active cell just click


on the sigma symbol  in the standard toolbar. After viewing the formula to make sure it is correct press “Tab” or the right arrow key to move to the next cell.

Toolbars and Menus



- Standard: contains commands common to all Office programs plus the most frequently used commands for Excel.
- Formatting: contains text formatting options plus some numeric quick-format buttons
In Office 2007/2008: added option of Formatting Palette
- Formula bar: enter and edit the contents of a cell in detail and a in a larger view.
- To view the list of toolbars: View -> Toolbars

Back to the Allowance worksheet:

4. Finish creating totals for each column. Then add a column title after Week 4 labeled "Monthly Total". Sum up the row horizontally so the total is in that column.
5. To add the cents after the decimal and the dollar sign, click and drag through all the cells containing the totals we created, then click on the dollar sign  in the Formatting Toolbar.

Formatting, Formulas and Functions

The next exercises developed for this workshop are built around a fictitious medical consulting business with you as the owner. Click on the "Fees" worksheet tab in your open workbook.

Formatting cells

- Make text headings fit: double-click each column's right border beside the letter heading
- Decimals and commas
 - Select all cells with numbers
 - Format -> Cells...
 - Number tab -> Number
 - Decimal places: make sure it is set to 2
 - Check "Use 1000 Separator (,)"
 - Click the OK button.

- Creating column headings centered in bold
 - Select the cells with headings
 - Click on the bold capital “B” and then on the center-text button in the formatting bar. For more options use the “Format -> Cells...” menu.

Formulas structure

A formula or other calculation structure always begins with an equals sign (“=”). In the case of a function it is followed by the name of the function with left and right parentheses enclosing the cells being referred to. For example,

=SUM(B2:B10)

will add up the numeric contents of cells B2 through B10. And the function

=AVG(C2:C21)

will average the numeric contents of cells C2 through C21.

Adding totals faster:

- Add a “Q totals” row heading after “South” and use the sigma to total only the first column.
- Fill Right: Making sure cell B6 is still selected, place your cursor at the bottom-right corner of the cell. It will change to a dark plus sign. Click and drag over 3 more columns and release the mouse button.
- Click the check mark.
- Add a “Y totals” column heading after “Fourth Quarter” and use the sigma to total the first row of figures.
- Fill Down: Making sure cell F2 is still selected, place your cursor at the bottom-right corner of the cell. It will change to a dark plus sign like before. Click and drag down 3 more rows and release the mouse button.

Handling large worksheets:

Click on the “Sales report1” worksheet tab in your workbook. This is a spreadsheet listing sales orders for a company serving the US and the UK.

- Freeze panes
 - To keep the headings on the screen, click on cell C2
 - Window -> Freeze panes.
 - Now when you scroll up/down or right/left the column and row headings stay visible.
- Sorting data by column
 - Click on cell A1.
 - Hold down the Control+Shift keys and press the End key. All data is now selected.
 - Data -> Sort
 - In “Sort by” select “Order Amount” and “Descending” to see who had the largest orders.
 - Selecting additional columns in the “Then by” fields can refine sorting.

- Click the OK button to complete.
- Filtering data
 - Click and drag through columns A through E.
 - Data -> Filter -> AutoFilter
 - Each column heading is now a drop-down list of options. Click on each to view the options.
 - To view all orders over \$10,000
 - Order Amount -> (Custom Filter...)
 - Set Order Amount to “is greater than” and enter 10,000.
 - Click OK.
 - To turn off AutoFilter: Data -> Filter -> select AutoFilter to uncheck it.
- Hiding columns
 - Click on the “News” tab.
 - Click and drag across columns C – D
 - Right-click on the selected columns and select the “Hide” option.

Creating Charts

- Click on the Website hits tab
- Select cells A1 through E5 (entire table)
- Format the numbers with commas and no decimal places.
- With entire table still selected, Insert -> Chart...
 - Chart type: -> Column
 - Chart sub-type: -> Clustered column
 - Click “Press and Hold to View Sample” to preview your choice
 - Click “Next”.
 - Note the difference between selecting “Rows” and “Columns”. Leave it on “Rows” and click “Next”.
 - Title tab -> Chart title: -> type in “Website Hits”
 - Legend tab -> Placement -> select option that looks best to you.
 - Click “Next”.
 - Note option to have chart placed on same page as table or in new tab. Click Finish.
- If the default placement of the title and legend do not suit simply click and drag where you want them.

Importing data

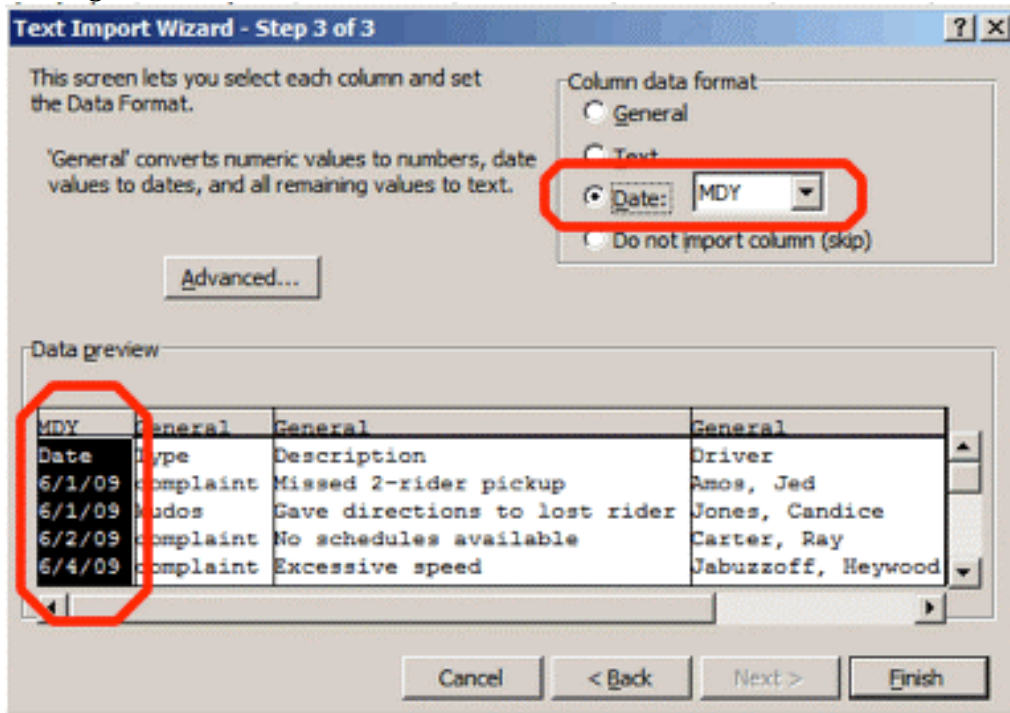
To import data into Excel each item needing its own cell needs to be delimited – separated by a specific character. The most common delimiters used include:

- comma (“,”)
- tab
- semicolon (“;”)
- pipe (“|”)

Importing exercise

1. In your current workbook, Data -> Import External Data -> Import Data

2. Select the import1.csv file which can be found on the desktop, and click “Open”.
3. In the Import Wizard leave the “Delimited” option selected and click “Next”.
4. In Step 2 check the “Comma” option and uncheck all others.
5. In Step 3 change the “Column data format” for the first column to “Date: MDY”, leaving all other columns as “General” data format.



6. Click Finish.
7. In “Import Data” select the “New worksheet” option, then click OK.
8. Right click on the tab for the worksheet you just created and select “Rename”. Type the word “Transit” and press Enter.

Printing

- Print area
 - Click on “Transit” worksheet tab.
 - Double-click between columns C & D, D & E, and E & F to AutoFit text.
 - To only print the first three columns select cells A1 through C8.
 - File -> Print Area -> Set Print Area
 - To preview, File -> Print Preview
- Print setup
 - File -> Page Setup -> Header/Footer tab
 - To add page numbering at the bottom of each page select “Page 1 of ?” from the “Footer:” drop-down menu
 - Add a page title
 - Click the “Custom Header” button
 - Center section: -> type “June Feedback”.
 - Click and drag over “June Feedback” and click the Font button (“A”). Select a font style and size to suit.
 - Click OK, then click OK again.

Helpful functions

SUMIF(range,criteria,sum_range)

This function evaluates contents of cells in the first **range** to see if they meet a certain **criteria**, which can be in the form of a number, expression, or text that defines which cells will be added. If the criteria are met then the function will add up the numeric contents of the corresponding cells in the **sum_range**.

For an explanatory example of this function click on the Bakery tab in your workbook. Click on cell J6 to see this function in action. The SUMIF function is checking all the cells from B2 to B25 to see if they contain the word “pastry” (not case-sensitive). If that value is found then it adds the corresponding value in cells E2 through E25 to the sum total.

To do the same for Buttercream:

- click on cell J7 to select it
- Insert -> Function...
- In the “Search for a function” box type “SUMIF” (no quotes)
- In the “Select a function:” box double-click on “SUMIF”.
- In the Function Arguments dialog box type the following values:
 - Range -> B2:B25
 - Criteria -> “buttercream” (*with quotes*)
 - Sum_range -> E2:E25
- Click OK

You can visually check to make sure the formula calculated correctly.

COUNTIF(range,criteria)

This function checks the contents of a **range** of cells against a given **criteria**. For every cell that meets this criteria it increases a running tally or total by one (1), and the result is the total number of cells meeting that criteria.

Excel and Reporting

Pivot Tables

Spreadsheets can contain large amounts of data which you might need to rearrange and analyze to find trends and patterns. Pivot table reports can help make sense of your data.

- In the Bakery tab select the entire table (A1 through F25).
- Data -> PivotTable and PivotChart Report...
- In the Wizard make sure “Microsoft Office Excel list or database” and “PivotTable” are selected.
- Click Next
- Range -> \$A\$1:\$F\$25
- Click Next

- In Step 3 click Finish.
- From the PivotTable Field List click & drag:
 - Item Category -> Drop Column Fields Here
 - Item Type -> Drop Row Fields Here
 - Inventory -> Drop Data Items Here

Now you have a report that provides an overview of what items you have in inventory by category and type. To change fields in the table you must first drag the existing field back to the table, and then drag the new one you want to the table.

Q & A

Notes:

Appendix

Keyboard shortcuts table

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Move down one full screen	Page Down
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Move right one full screen	Alt + Page Down (for Windows) Option + Page Down (for Mac)
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Move to beginning of row	Home
Move to beginning of sheet	Control + Home
Move to end of sheet	Control + End



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