

## Introduction to Excel

Start Excel by clicking the START button in Windows, then PROGRAMS from the menu, and Microsoft Office from that, finally Excel 2000.

### Excel Spreadsheet

Grid – columns are letters, rows are numbers

Cell – identified by a letter and number. For example cell J31.

Active cell – click on any cell, and the borders are bold – that cell is active and ready for use. When you type something, or use an icon, it will apply to the active cell.

Select – click a cell to locate it as the active cell, then hold down the mouse button and move the mouse to another cell. The area highlighted in blue is the selection. To select non-contiguous ranges, hold down CONTROL and highlight another area.

Move – when a cell or range of cells is highlighted, move the cursor with the mouse to anywhere along any edge of the area. When the cursor is on the border, it will change to an arrow. Then hold the mouse button down and drag the cursor, and the area, to a new location. Let go of the mouse button and the area will be moved.

You can open an example data set by clicking the Open icon (a manilla folder) or click FILE and OPEN. The Data set for Disposable Personal Income and Personal Consumption Expenditure is available in Excel at:

P:\class\econ\keeler\econ 205\income.xls

Click the Look In box arrow to navigate to the file location.

### 1. Print

FILE, PRINT PREVIEW – will show what the printed page looks like. Check Page Break Preview to see if it includes the columns and rows that you want, and if not you may need to change the format of the page. The Setup button from this menu, or from FILE, will change the layout of the page. You can change the page from Portrait (8 1/2 X 11) to Landscape (11 x 8 1/2).

Print Area – you can select part of the worksheet and just print that. Select a range of cells and then click FILE, PRINT AREA.

### 2. Add-Ins

We will use the DATA ANALYSIS module, which is often not loaded on public computer labs at Kenyon. Click TOOLS, and check to see if DATA ANALYSIS is listed on the menu. If not, then from the drop down menu, click ADD-INS. Check the first box for ANALYSIS TOOLPAK, and OK. The next time you click TOOLS, DATA ANALYSIS will be listed.

### 3. SAVE

You can save your Excel file as you would any other file in Windows.

#### 4. Data Entry

Click a cell in the spreadsheet to make it the active cell. Type numbers or text to enter the data. When you have what you want in the first cell, click

TAB to move to the right one column

ENTER to move down one row

To correct an error in data entry

While you are still in the active cell, backspace and retype.

Return to a cell and type over it or use the Formula Bar at the top of the spreadsheet.

Autofill – you can use AutoFill to reduce typing. If you have a pattern of numbers or dates, type 2 or 3 to establish the pattern. Then select those cells. In the lower right corner of the selection area is a box called the “fill handle”. Put the cursor over that and it changes to a heavy +. Press the mouse button and hold it, then drag the mouse down the column (or across the row). A screen will display the new values. Let go of the mouse, and it will automatically enter the values for you to complete the pattern.

Insert – you can insert cells, rows or columns. Click a cell, column letter or row number, and then click INSERT and either cell, column or row. You can also delete a cell, range of cells, column or row. Highlight what you want to delete and click EDIT and DELETE.

UNDO – on the Toolbar, is a blue curved arrow. Click that and it cancels the last change you made. You can click it several times to remove more.

FORMAT – you can control the format of the cells, or ranges of cells. Table 2-3 in the Berk and Carey text shows you the buttons that are available – such as Bold, italics, center in the cell, color and number of decimals to display. Click Format, or right click and then Format Cells. The dialog box lets you choose several aspects of the format of the cell. For example, click Font and Color, and click one of the colors that is shown. It changes the color of the text or number in the selected cells to that color. When you copy and paste, the formatting will not transfer.

AUTOFORMAT – select the cell range that you want to format. Click on FORMAT and then AUTOFORMAT. Excel will show you several designs with color, borders, and different fonts to present the data in a Table.

FREEZE PANES – sometimes you are working with a wide or long table, and you always want to see the column titles or row identification. Click to select the active cell one row down, and one column to the right of the titles row and column. Then click WINDOW and FREEZE PANES. Now when you scroll through the spreadsheet, it will keep the titles visible. Click WINDOW and UNFREEZE PANES to remove it.

#### 5. Construct New Variables with formulas

Enter a formula directly. In the active cell, type the equals sign, =. Then type the formula you want using cell addresses. For example:

=A2+B2

What you are typing will appear in the Formula Box at the top. Berk and Carey show the standard Math operators on p. 47.

AutoFill – you can now grab the fill handle and drag the formula. Excel will “update” the formula to apply it to new rows or columns.

Copy and paste – you can copy the cell, along with its formula, and paste it to a new cell – again Excel updates the cell addresses to the new location.

Insert a formula. In the Toolbar at the top of the spreadsheet are two symbols for formulas that Excel provides. One is the Greek letter sigma,  $\Sigma$ . Locate the active cell at the bottom of a column, or to the right of several columns in a row. Click the  $\Sigma$  and it opens a dialog box that shows the formula =SUM(cell addresses). If that is the range of cells that you want. Click OK and Excel enters the result of the formula in the spreadsheet. Or, click the next icon, the Insert Formula button  $\Sigma$ . That opens a dialog box that lists types of formulas. Click on those and then scroll through the names listed at the right in the box for the formula you want, such as AVERAGE. Click on the formula name, and it opens that in a new dialog box. It enters cell addresses, and you can also change those. You can select the range of cells directly by clicking the spreadsheet box, going to the spreadsheet, selecting the cell, and clicking the spreadsheet box again. The dialog box will then display the calculated result of the formula, and you can click OK to put that into the spreadsheet.

Logicals – In the active cell, type the equals sign and the IF. In parentheses after IF, type a logical test, the value if the test is true, and the value if the test is false. For example:

=IF(A2=0, 1, 0)

tests whether the value in the cell A2 is zero. If it is, then it creates and value of 1 in the active cell. If it is not equal to 0, it enters 0 in the active cell.

Cell References – Cell addresses can be relative or absolute. A relative cell address has the form “letter number”, such as B13. When you use that in a formula, either the column letter or the row number can be changed or updated. If you drag the formula down one row, for example, Excel will automatically change B13 to B14, regardless of where you are in the spreadsheet. If you drag or cop across columns, it will change the B to another column letter. That’s great for using Autofill.

Sometimes you want to refer to one particular cell, or one row of one column and you don’t want that to change. You can anchor it with an absolute cell address, by putting the dollar sign, \$, in front of the column letter, the row number or both. For example, \$B\$13, \$B13 or B\$13. The first example will use only cell B13. The second will anchor column B but allow the row to change and the third will allow the column to change but anchor the row.

Range Names – instead of selecting a range of cells over and over again, you can name the selection and refer to that. Select the range of cells. Click INSERT, NAME and DEFINE. Leave the default or type a new name in the cell at the top. Click OK. Now you can just click the Name box, which is at the top of the spreadsheet on the left, just above Column A, and it has a drop down arrow. When you want to select that area, to use in a formula for example, click the drop down arrow in the Name Box, and click the range name. It will highlight the area. When you type a formula, instead of referring to a range of cells, type the range name.

## 6. Sort

A simple sort can be done with the icons on the toolbar, AZ with a down arrow and ZA with an up arrow. Click any cell in the column you want to sort. Then click the icon AZ to sort from small to large numerical values, or in alphabetical order. Or click

ZA to sort from large to small numerical values or in reverse alphabetical order. That will re-arrange the rows, according to the values in the column you chose. It will “carry along” all the other columns so that the information in any one row remains together.

A more detailed sort is done from DATA, then SORT. That opens a Dialog Box where you can choose 3 levels of sort – sort on one variable first, then another, then another. Click UNDO to cancel the sort.

#### 7. Importing data from a text file

When Excel is opened, there will be a blank spreadsheet grid. Click on the symbol for OPEN FILE from the Standard Toolbar (third row, the symbol of an open file folder). In the Dialog Box, click on the drive (Look In:) until you navigate to the file. Click on the data file name and then click Open (or double-click on the file name). That will open the Import Wizard, which will ask you to make some choices about how to import the data. Files may be “delimited” with some marker between columns of data series, or they may be “fixed width” where a certain column width is specified for each data series. Usually data files are “delimited” and that is the default, so leave that selected. The data are previewed in the window. Click NEXT. Step 2 is to tell Excel what delimiter is used. TAB is the default and you can leave that. Some files from government web sites will use commas. Many files use “spaces” as delimiters, so check that box. When you do, vertical lines will be inserted between the columns of data series. Click NEXT. Step 3 asks you about the format of the data. “General” is the default, and you can leave that and change it later to better options. It will also let you select columns to skip and not import. Click FINISH. The data should appear in the spreadsheet.

The data in this sample are for monthly totals of sales for Honda Accords. The column at the left identifies the observation by month, then qd is to total number sold in that month, P is the selling price of the car, ps is the price of a substitute car, the Maxima, pc is the price of a complement good, gasoline, and i is the buyer’s annual income in thousands of dollars.

B) Importing data from a web site is usually by copy and paste. For many sites the Import Wizard will be important, but Excel also “learns” from experience. Go to another sheet in the Excel file. Now open an internet browser and go to the Federal Reserve Bank of St. Louis data source, FREDII at:

<http://research.stlouisfed.org/fred2/>

Locate a data series that you are interested in such as the unemployment rate, an interest rate, real GDP growth rate or an exchange rate for example. Click on the series, and it will show a chart. Click on “View Data”, then select a range of values including the date. Click COPY. Return to the new sheet in Excel and click on a cell to make it the active cell. Click PASTE. The data should appear in the spreadsheet, but both the date and the data series are actually in one column – leave it highlighted that way. Now click DATA and Text-To-Columns and that opens the Import Wizard that will let you put in the delimiter and move the data series to a separate column. The next time you do this, Excel will automatically put the data and the data series in different columns.