

# Microsoft® Excel 2007 Intermediate I

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*A Workshop for San Diego State University Faculty and Staff*



**NOTE:**

This handout was not designed to be a standalone tool to teach the reader to do the task. It was designed as a review for the individual that has previously taken the applicable BATS workshop.

## Where to Find Help When You Need It

### *Help from your Division/College's Computer Consultant*

Some divisions and colleges have computer consultants assigned to them. You can contact these consultants when you need help. To determine if you have a consultant assigned to your division or college, look to: <http://rohan.sdsu.edu/~facstaff>

### *Help from the BATS Web Page*

BATS (Baseline Access, Training and Support) is a California State University initiative to provide all students, faculty, and staff with "baseline" access to information resources via networks, training in the uses of baseline hardware and software systems, and ongoing professional and technical support for utilization of computer resources at San Diego State University. You can access the BATS Web Page by pointing your browser to: <http://its.sdsu.edu/~bats/>

### *Help in the San Diego State University, Faculty Room*

The Faculty Room is staffed Monday through Friday with computing consultants who will try to answer your questions.

**Location:** Adams Humanities, 1109  
**Phone Number:** x45727  
**Semester Hours:** 7:30am – 6:00pm Monday -Thursday  
7:30am – 4:30pm Friday  
**Semester Intersession:** 7:30am – 4:30pm Monday – Friday

### *Help from the Faculty Computing Help Line*

**Phone Number:** x41348      **E-mail:** [helpline@mail.sdsu.edu](mailto:helpline@mail.sdsu.edu)  
**Semester Hours:** 7:30am – 6:00pm Monday – Thursday  
7:30am – 4:30pm Friday  
**Semester Intersession:** 7:30am – 4:30pm Monday – Friday

### *Help from the Staff Computing Help Line*

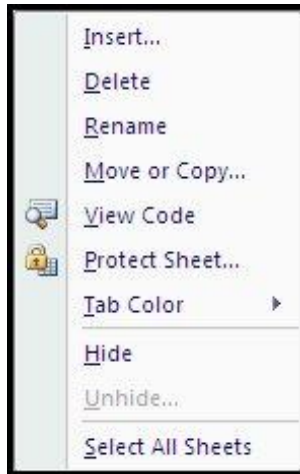
**Phone Number:** x40824      **E-mail:** [staffhelp@sdsu.edu](mailto:staffhelp@sdsu.edu)  
**Semester Hours:** 7:30am – 6:00pm Monday – Thursday  
7:30am – 4:30pm Friday  
**Semester Intersession:** 7:30am – 4:30pm Monday – Friday

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## WORKSHEET TABS



By default, when you open Excel you are presented with three worksheet tabs at the bottom of the window. Each workbook contains 255 worksheets, and you can manipulate the worksheet tabs by right clicking on any tab.

### **Insert...**

You can insert a new worksheet tab in your workbook.

### **Delete**

If you choose delete, you will delete the active worksheet tab and all its contents.

### **Rename**

Name or rename the worksheet tab.

### **Move or Copy...**

This allows you to move the active worksheet to another workbook or to a different location in this workbook.

### **View Code**

Takes you to the Visual Basic Editor.

### **Protect Sheet...**

Allows you to apply protection to the worksheet.

### **Tab Color**

Opens a pallet of colors from which you can select a color for the active tab.

### **Hide**

Allows you to hide the current worksheet.

### **Unhide**

Displays a window showing all hidden worksheets. Chose the worksheet you want to unhide.

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## Select All Sheets

Selects all the worksheets in the workbook.

## FORMULAS

In Excel, a formula always starts with the equal (=) sign.

### The Formula Bar

When the formula bar is active, you can create a formula by typing, inserting functions, or selecting cells. Simply click in the data entry area and begin typing.



Formula entry area

### Types of Operators

You use operators to specify the kind of mathematical operation to perform on the elements of a formula. The common types of operators used in formulas are arithmetic operators and comparison operators.

#### Arithmetic Operators

These operators perform basic mathematical operations, combine numeric values and produce results.

+	Addition
-	Subtraction
/	Division
*	Multiplication
%	Percent
^	Exponentiation

#### Comparison Operators

Compare two values and produce logical values of TRUE or FALSE with these operators.

=	Equal
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

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**Order of Operations** When Excel solves an expression it follows the rules of algebra. An expression will be solved in the following order:

Parenthesis	[()]
Exponential	[x <sup>2</sup> ]
Multiplication	[*]
Division	[/]
Addition	[+]
Subtraction	[-]

Two helpful tools that will help you to remember the order of operations are:

- **PEMDAS** (The first letter of each operation)
- **Please Excuse My Dear Aunt Sally**

**What Formula Error Values Mean** Microsoft Excel displays an error value in a cell when it cannot calculate the formula properly. Error values always begin with a number sign (#).

<u>Error value</u>	<u>Meaning</u>
#DIV/0!	Is trying to divide by zero.
#N/A	Refers to a value that is not available.
#NAME?	Uses a name that Excel does not recognize.
#NULL!	Specifies an invalid intersection of two areas.
#NUM!	Uses a number incorrectly.
#REF!	Refers to a cell that is not valid.
#VALUE!	Uses an incorrect argument or operand.
#####	Produces a result that is too long to fit in the cell. This is not actually an error value, but an indicator that the column needs to be wider.

**Copying Formulas** Many times, you may want to copy the same formula across a number of columns or down a number of rows.

To copy a formula to other columns:

1. Select the cell of the formula you want to copy.
2. Drag the fill handle (bottom right corner of the cell) across the cells in which you want to copy the formula.

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Excel copies the formula to the other cells and, in each column adjusts the formula's references so that the formula refers to the numbers in that column.

	Freshman	Sophomore	Junior	Senior
Fall	7435	7903	6537	5783
Spring	7036	7903	6421	5598
Total	<b>14471</b>	<b>15806</b>	<b>12958</b>	<b>11381</b>

To copy a formula to other rows:

1. Select the cell of the formula you want to copy.
2. Drag the fill handle (bottom right corner of the cell) down through the cells in which you want to copy the formula.

## RELATIVE CELL ADDRESSES

When a cell address is used in a formula, it is generally input as a relative cell address.

For instance, if the formula  $=A3*B3$  was input into cell A1, the addresses of the cells referenced in the formula would be looked at as residing in locations relative to cell A1.

Excel would read the formula as follows:

Find a value in a cell that is located in the same column three rows down, (this would be A3) and multiply that value by a value that is located one column to the right and three rows down (this would be B3).

## ABSOLUTE CELL ADDRESSES

Sometimes it's helpful to use an absolute cell address instead of a relative cell address in a formula.

When you use an absolute cell address in a formula, you are pointing Excel to a specific cell as opposed to pointing to a cell that is in a location relative to the cell in which the formula resides.

A cell address of A1 is relative. A cell address of \$A\$1 is absolute.

You can use the F4 key to toggle through the naming convention options. You can reference a cell as having a relative address (A1), an absolute address (\$A\$1) or a mixed address (\$A1 or A\$1).

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## DISPLAY FORMULAS

When you create a formula in a cell and press ENTER, the results of the formula displays in the cell and the formula displays in the Formula Bar.

To display the formula in the cell, hold down the Ctrl key and press the tilde key. This is a toggle that switches the way Excel displays formulas in cells.

## # N/A TOOL

To avoid the problem of unintentionally including empty cells in your calculations use #N/A to mark empty cells.

Simply enter #N/A in an empty cell in the worksheet where the data is to go, and every cell that relies on that data will reflect the #N/A message.

Formulas will not be over written, and you will know that some data is missing in your worksheet.

## COMMENTS

To make a comment in a cell:

1. Select the cell to contain the comment.
2. Click on the **Review** tab, and in the **Comments** group click on **New Comment**.
3. Type the text of your comment on the yellow note. Click elsewhere on the worksheet. A red triangle will appear in the upper right corner of the cell indicating that a comment is attached to the cell.
4. To view the comment, position the mouse pointer over the cell.
5. To delete the comment, click on the **Review** tab, and in the Comments group click on **Delete**.

## CONDITIONAL FORMATTING

Microsoft refers to the power of Conditional Formatting as “Data Visualization”.

With data visualization you can:

- Add data bars to cells based on the cell values
- Add color scales to cells based on the cell values
- Add icon sets to the cells based on the cell values

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- Identify duplicate values in a range of cells
- Identify cells with values greater than the average of the range of cells
- Identify cells with dates meeting your criteria

To access conditional formatting:

1. Select the desired range of cells.
2. Click on the **Home** tab and then click on **Conditional Formatting** in the Styles group.
3. A drop down menu will appear giving you the following options:



## Highlight Cell Rules

You can use conditional formatting to find cells with values greater than, less than, equal to or between a value or values that you specify.

You can also find cells containing dates within ranges you specify.

You can find cells containing text you specify and you can find duplicate values and unique values.

## Top/Bottom Rules

You can find cells with the largest values or smallest values and cells with values that exceed or are less than the average of the cells that are selected.

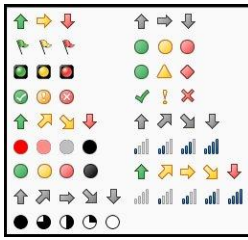
## Data Bars

You can superimpose colored data bars in the cells with the longer bars representing the larger values and the smaller bars representing the smaller values.

## Color Scales

Excel can fill the cells with a color scheme based on the values in the cells. You pick the color for the highest value and the lowest value and Excel will fill the cells using a gradient of the two colors chosen.

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## Icon Sets

Excel can automatically apply an icon to a cell based on the relative size of the value in the cell compared to other values in the range.

## LINKING WORKSHEETS AND WORKBOOKS



When you open Excel, you are opening a Workbook that consists of a variety of Worksheets. Each Worksheet contains a massive grid of rows and columns (1,048,576 rows and 16,384 columns), and each Workbook can contain from one to 255 Worksheets.

Each Worksheet is assigned a default name such as Sheet1, Sheet2 etc., and the name can be easily changed to a more meaningful name by double clicking on the default name and typing in the new name.

## Linking Worksheets

You can include a large amount of data on a Worksheet, but often it is hard to find information spread out over a single Worksheet. Many users find it easier to work with multiple Worksheets, and they use Excel's linking function to calculate values based on cells on other Worksheets.

As an example, assume that you have a single Workbook with data in a Worksheet named SalesIncome and in a second Worksheet named InterestIncome. You need to add the value of cell A7 on SalesIncome to cell B3 on SalesIncome with the result showing in cell F9 on a third Worksheet named TotalIncome.

The formula you would type in cell F9 on the TotalIncome sheet would be:

**=SalesIncome!A7+InterestIncome!B3**

=	Tells Excel that this is a formula
<b>SalesIncome</b>	Refers to the sheet labeled SalesIncome
!	Simply separates the sheet reference from the cell reference
<b>A7</b>	Is the cell reference on SalesIncome
+	Indicates the type of operation to be performed
<b>InterestIncome</b>	Refers to the sheet labeled InterestIncome
!	Simply separates the sheet reference from the cell reference
<b>B3</b>	Is the cell reference on InterestIncome

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## Linking Workbooks

Some people may elect to use multiple Workbooks in addition to multiple Worksheets, and Excel provides a means of linking Worksheets in multiple Workbooks in order to calculate formulas.

As an example, assume that you have a Workbook named SalesData and another Workbook named BankReports. Each Workbook contains multiple Worksheets.

Assume that you need to add the value of cell C3 in Worksheet UnionBank in Workbook BankReports to the value of cell G6 in Worksheet NorthSales in Workbook SalesData. The result is to be shown in the Workbook BankReports in cell N8 on Worksheet Taxes.

The formula you input into cell N8 would be:

**=[SalesData]NorthSales!G6+[BankReports]UnionBank!C3**

<b>=</b>	Tells Excel that this is a formula
<b>[SalesData]</b>	A Workbook name
<b>NorthSales</b>	A Worksheet in the SalesData Workbook
<b>!</b>	Simply separates the sheet reference from the cell reference
<b>G6</b>	A cell in the NorthSales Worksheet
<b>+</b>	Indicates the type of operation to be performed
<b>[BankReports]</b>	A Workbook name
<b>UnionBank</b>	A Worksheet in the BankReports Workbook
<b>!</b>	Simply separates the sheet reference from the cell reference
<b>C3</b>	A cell in the UnionBank Worksheet

## CHARTS

To create a chart it's best if you select the data to be charted first. Then click on the **Insert Tab** and then click on the **type of chart** you want from the Charts group.

Your chart will be created automatically and it will be placed in the active worksheet and it is automatically linked to the worksheet you created it from. When you change the data on your worksheet, the chart is updated to reflect these changes.

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**Plotting Data Series in Rows or Columns** When you create a chart, you specify the orientation of the data—whether the data series are in rows or columns that are adjacent to each other.

**Plotting Nonadjacent Selections** However, sometimes the data you are plotting is in rows or columns separated by other data or by blank rows or columns. You can make nonadjacent selections and use them to create a chart by:

1. Selecting the cells in the first row or column
2. Hold the CTRL key down while you make additional selections.

**Changing the Chart Type** Sometimes you want to change the chart type to better illustrate your data.

To change the chart type:

1. Activate the chart by clicking on the chart image.
2. Click on the **Chart Tools – Design** tab and then select **Change Chart Type** from the Type group.
3. Select the type of chart you want from the Change Chart Type window.

## Adding items to a chart

A simple chart cannot always convey information as clearly or completely as you would like. You can add information, increase visual interest, and enhance readability by adding elements such as data labels, titles, a legend, and gridlines.

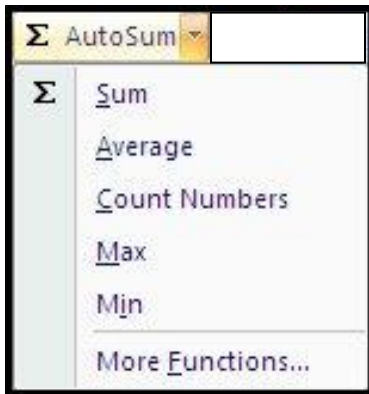
**Adding Elements** To add additional elements to your chart, click on the **Chart Tools – Layout** tab. Here you can pick and choose from a variety of items that can be added to your chart.

## FUNCTIONS

Microsoft Excel comes with a variety of built in pre-defined functions for your use.

Whenever you want to use a built-in Microsoft Excel function or a custom function, all you need to do is to assemble the arguments correctly, and insert the function into your formula. The formula bar shows the changes you make as you build your formula.

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To insert a function, click on the **Formulas** tab and the Functions group displays a variety of functions.

The **AutoSum** button quickly shows you the most often used functions. The most common functions (Sum, Average, Count Numbers, Max and Min) will be listed and can be activated from the drop down list. To find additional functions click on **More Functions**.

## FORMAT PAINTER



Once you have a cell or range formatted the way you want it, you may decide that that formatting should be applied elsewhere on the spreadsheet. Instead of going through all the formatting steps again, use the Format Painter tool to copy the desired formatting to the other area(s).

1. Select the cell or cells that contain the formatting you want to copy.
2. To apply the formatting to one cell or range, click on the **Home** tab and in the Clipboard group click on **Format Painter** (the paint brush). To apply the formatting to multiple cells or ranges, double click on the **Format Painter** icon.
3. Select the cell or cells that you want to format with the same options. When you release the mouse button, the selected range will be formatted just like the original range.
4. If you are formatting more than one cell or range, select the cells or ranges to be formatted and release the mouse button. Continue this step until all desired cells or ranges are formatted.
5. When you are done formatting multiple cells or ranges, click on the **Format Painter** icon once more to quit the Format Painter.

## CURRENT DATE AND TIME

To enter the current date in a cell, press the **Control** and the **Semicolon** keys simultaneously.

To enter the current time in a cell, press the **Control** and the **Shift** keys simultaneously then press the **Colon** key.

## FRACTIONS

To enter a fraction, type the integer, then hit the space bar and type the fractional part.

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To enter only the fractional part, type a space, and then the fractional part.