Microsoft® Excel 2003
Intermediate I

A Workshop for San Diego State University Faculty and Staff

Sponsored by Academic Affairs

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://rohan.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

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

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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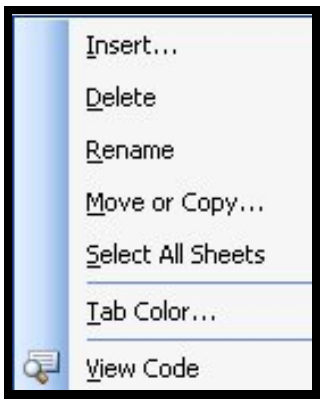
WORKSHEET TABS



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.

Select All Sheets

Selects all the worksheets in the workbook.

Tab Color

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

View Code

Takes you to the Visual Basic Editor.

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.

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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

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 (#).

Error value	Meaning
#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.

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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.

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	**14471**	**15806**	**12958**	**11381**

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).

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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 A1 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 (A1) or a mixed address ($A1 or A$1).

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 FUNCTION

To avoid the problem of unintentionally including empty cells in your calculations use #NA 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 **Insert** on the Menu Bar and select **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 **Edit** on the Menu Bar, choose **Clear** and then click on **Comment**.

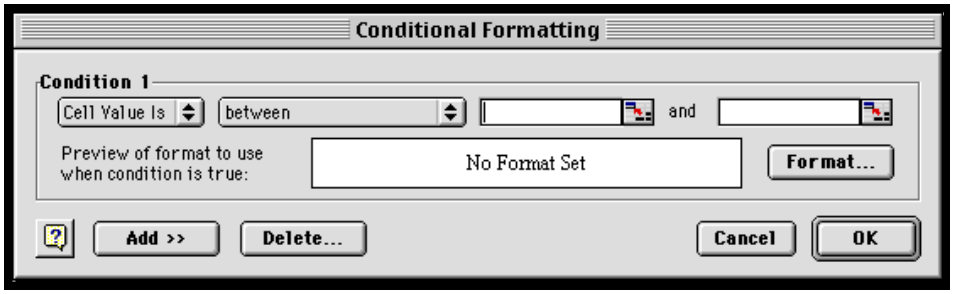
CONDITIONAL FORMATTING

You can use Excel's Conditional Formatting feature to have Excel automatically change the formatting for a cell if the value in the cell changes, based on criteria you select.

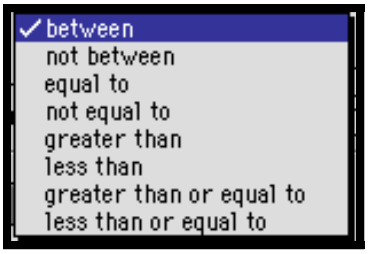
For instance, if you are tracking an inventory of items and you want to be sure you notice when the inventory of the item falls to zero, you can instruct Excel to change the formatting of the cell so it is shaded with a heavy red line around it and the text is boldfaced.

To assign conditional formatting:

1. Select the cell(s) containing the value you want to format conditionally.



2. Select **Format** from the Menu Bar and then select **Conditional Formatting.** The Conditional Formatting dialog box appears.

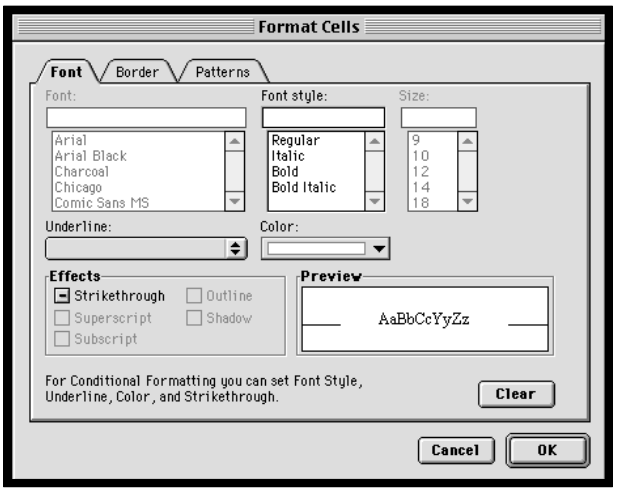


3. Most often you will want to select the **Cell Value Is** option in the drop down list at the far left of the box.

4. The next drop down list contains the arguments you will use to activate the conditional formatting. Depending on the argument selected, the remaining text boxes will vary.

5. In the remaining text boxes enter the data to complete the argument.

6. To specify the formatting, click on the **Format** button. The **Format Cells** dialog box appears.



7. Use the **Font**, **Border** and **Patterns** tabs to select the desired formatting.

8. When finished, click **OK**. You will be returned to the Conditional Formatting dialog box where you will see an example of the selected formatting. Click **OK** to exit the box.

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 (65,536 rows and 256 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
SalesIncome	Refers to the sheet labeled SalesIncome
!	Simply separates the sheet reference from the cell reference
A7	Is the cell reference on SalesIncome
+	Indicates the type of operation to be performed
InterestIncome	Refers to the sheet labeled InterestIncome
!	Simply separates the sheet reference from the cell reference
B3	Is the cell reference on InterestIncome

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

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

CHARTS

A chart is a graphic representation of your worksheet data. Values from cells (data points) are displayed as bars, lines, column, pie slices, or other shapes in the chart. Data points are grouped into data series, which are distinguished by different colors or patterns on the chart.

Creating a Chart Using the ChartWizard

The ChartWizard is a series of dialog boxes that simplifies creating a chart. The ChartWizard guides you through the process step by step: you verify your data selection, select a chart type, and decide whether to add items such as titles and a legend. A sample of the chart you are creating is displayed so you can make changes before you finish working with the ChartWizard.

The Difference Between Embedded Charts and Chart Sheets

You can create an embedded chart as an object on a worksheet when you want to display a chart along with its associated data.

You can create a chart sheet as a separate sheet in a workbook when you want to display a chart by itself on a page. The corresponding data is stored on a different sheet in a workbook.

Whether you create an embedded chart or a chart sheet, your chart data 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.

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

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 you data.

To change the chart type:

1. Activate the chart by clicking on the chart image.
2. From the Format menu, select the Chart Type command.
3. Select the type of chart you want from the palette.

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 Data Labels

To add items, right click on the chart. The Chart Options box will appear.

Specify the kind of data labels you want displayed.

Adding a Chart Title and Axis Titles

Enter the Chart title, Category (X) axis title or Value (Y) axis tile in the applicable boxes:

Adding a Legend

To add a legend that identifies the data series or categories in your chart check the Show Legend box. Then indicate the placement of the legend by clicking on the appropriate button.

Adding Gridlines

You can add Major and/or Minor gridlines along the (X) and/or (Y) axis. Simply check the appropriate boxes.

Adding Data Series and Data Points

Changing data in a chart

Once you have created a chart, you sometimes need to update it by adding or deleting a data series. In some cases, you might want to change the range of worksheet data the chart is based on.

It's easy to add data to an embedded chart on a worksheet:

- Select the data on the worksheet to be added and drag it onto the chart.

Deleting Data Series

You can delete a data series by selecting it and pressing the DEL key. You can also select the Clear command from the Edit menu, and then select Series.

Changing the Range of Data Plotted

If you want a chart to display different data than was originally plotted, you can change the worksheet range the chart is based on.

To change the range:

1. Select the chart on your worksheet.

2. Click the ChartWizard button.

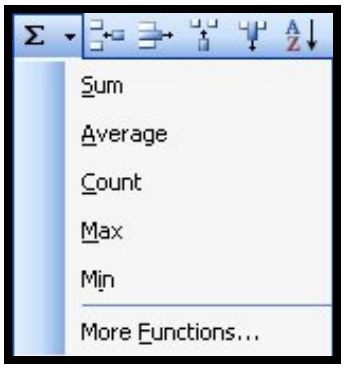
3. In Step 2, specify the new range to be plotted in the chart.

FUNCTIONS

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

Using the Function Wizard

Whenever you want to use a built-in Microsoft Excel function or a custom function, you can use the Function Wizard to help you select a function, assemble the arguments correctly, and insert the function into your formula. The formula bar shows the changes you make as you build your formula.



Find a function by clicking on the **AutoSum** button on the Standard Toolbar. The most common functions (Sum, Average, Count, Max and Min) will be listed and can be activated from the drop down list. To find additional functions click on **More Functions**.

TEAR OFF PALETTS

As you use Excel's toolbars, you will notice that clicking on some of the buttons results in a drop down pallet being displayed. Palettes that contain title bars can be turned into floating palettes. To tear off a palette:

1. Click on the drop-down arrow to the right of the button on the toolbar. The palette is displayed.

2. Click the title bar and drag the palette to a new location on the screen.

3. Release the mouse button and the palette remains floating on the screen.

4. To close the palette, click on the **Close** button in the upper right hand corner.

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 Format Painter button on the toolbar once. To apply the formatting to multiple cells or ranges, double click on the Format Painter button.

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 button 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 fraction.

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