Microsoft® Excel 2007
Intermediate III (Formerly Advanced I)

A Workshop for San Diego 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.

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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
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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MACROS

Microsoft Excel contains a powerful macro language called Visual Basic for Applications (VBA). Macros allow you to automate your work by turning a series of actions into a single command.

Macros can be created by writing VBA code or by use of the macro recorder. This document will only discuss the macro recorder.

Recording a macro involves starting the macro recorder, performing the steps involved in the macro, then turning off the macro recorder.

Planning The Macro

The simplest, and most effective, way to plan a macro is to write down every single step in the process on a piece of paper.

Take note of every time you click a toolbar button, select a command from the menus or type information into a cell.

Naming The Macro

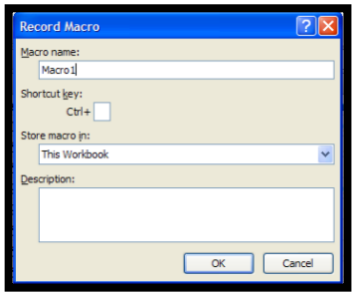
Excel will assign a non-descriptive default name to a macro if you do not enter your own name. Use a descriptive name so you can easily identify the purpose of the macro.

Names are subject to the following rules:

- The first character of the macro name must be a letter.
- Names can contain letters, numbers, and the underscore (_) character.
- Spaces are not allowed

Recording the Macro

Once you are sure you know the exact steps to perform, you are ready to record the macro.



1. Open the workbook and activate the worksheet where you want the macro to be recorded, and position the active cell where the macro should begin.
2. Click on the **View** tab and then click on **Macros** in the Macros group.
3. Click on **Record Macro**.

4. Type the name you want to use for the macro. You can enter a shortcut key for your macro now, or you can assign the shortcut key later.

5. Select a storage location for the macro.

6. Choose **OK** to begin recording.

7. At this point you need to decide if you are going to create the macro using relative references or absolute references. The default state of the macro uses absolute references. This is a very literal state. In most cases you will want to use relative references.

8. To use relative references, click on the **View** tab and then click on **Macros** in the Macros group. Click on **Use Relative References**.

9. Perform the actions you have planned for your macro.

10. When finished, Click on the **View** tab and then click on **Macros** in the Macros group.

11. Click on **Stop Recording.**

NOTE: The macro recorder records only the actions that you complete. If you cancel a typing entry, backspace a couple of times or open a dialog box and cancel, the actions will be ignored.

Running a Macro

To run a macro:

1. Click on the **View** tab and then click on **Macros** in the Macros group.

2. Select the **name** of the Macro you want to run and click on the **Run** button to execute your macro.

Assigning a Shortcut Key

The fastest way to execute a macro is to assign a shortcut key to run the macro.

To set or change a shortcut key:

1. Click on the **View** tab and then click on **Macros** in the Macros group.

2. Click on **View Macros**.

3. Select the name of the desired macro, and then click on the **Options** button. The Macro Options dialog box appears.

4. Type a letter in the Shortcut Key text box. If you type an uppercase letter, you will need to press the **Shift** key to run the macro.

5. Click on **OK** to complete the command.

Deleting a Macro

Once you decide that you no longer need a macro, it can be deleted.

To delete a macro:

1. Click on the **View** tab and then click on **Macros** in the Macros group.

2. Select the name of the macro to be deleted.

3. Click on the **Delete** button. A confirmation message will appear.

4. Click on **Yes** to delete the macro.

Adding A Macro to the Quick AccessToolbar

If you use a macro often enough to make it a valuable tool, but not often enough to remember the shortcut keystrokes used to launch the macro, you can add the macro to the Quick Access Toolbar.

To add macro buttons:

1. Click on the **drop down arrow** to the right of the Quick Access Toolbar.

2. Click on **More Commands.**

3. The Excel Options window will open.

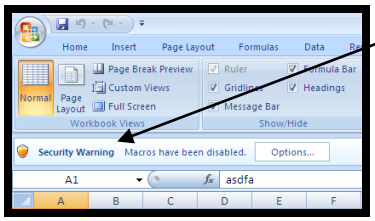
4. Click on the **drop down arrow** in the **Choose Commands From** window.

5. Choose **Macros**.

6. Select the **applicable macro** and click on the **Add button**.

7. Click **OK** to close the window.

Macro Viruses



Malicious individuals have been know to imbed viruses in macros. As a result, Microsoft (by default) opens a workbook containing macros in a way that the macros cannot run unless you specifically tell Excel to run them.

When you open a workbook that contains macros, Excel displays a Security Warning telling you that "Macros have been disabled".

Click on the Options button where you will see that you have two choices of actions when the Security Warning box displays:

- *Help Protect Me From Unknown Content.* The workbook is opened but you cannot run any attached macros.

- *Enable This Content.* The workbook is opened and the macros work normally. If a virus is present, you risk damage to your file and your computer.

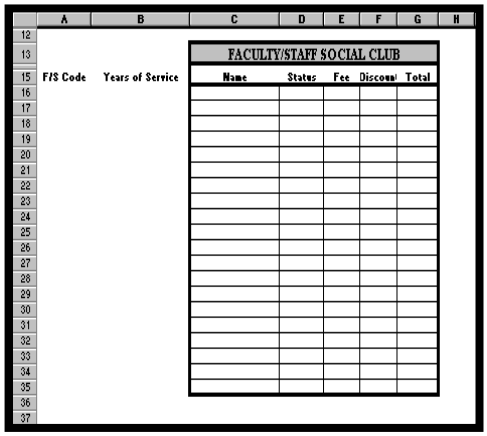
IF FUNCTION

The IF Function is one of the most useful functions available in Excel. When you design an IF Function, you ask Excel to perform a test, and then you tell Excel what to do if the result of the test is positive or negative.

The syntax you use is as follows:

=IF(logical_test, value_if_true,value_if_false)

While this may look intimidating, it really is quite simple. Set up a worksheet as follows:



Assume you enter the following formula in cell D16; =IF(A16=1,Faculty,Staff). The syntax is broken down as follows:

- **=IF** – All formulas in Excel start with the equal (=) sign and the IF indicates you want Excel to perform the IF Function. The remaining information in inserted within **parenthesis**.
- **logical_test** – You use the logical test to ask Excel to test something. Excel would look at cell A16 and determine if the value of that cell equals 1.

- **value_if_true –** If A16 has a value of 1 then Excel would insert the text "Faculty" in cell D16.

- **value_if_false** – If A16 has any value other than 1, Excel would insert the text "Staff" in cell D16.

The value_if_true and value_if_false parts of the function can contain text or formulas.

NESTED IF FUNCTION

You can insert an IF Function within another IF Function to provide a more complex logic in formulas.

For instance, if you wanted to evaluate the years of service for faculty and staff members so that you could provide a fee discount based on years of service, you could nest an IF Function within an IF Function.

For example, you might want to give a 20% discount for faculty/staff with 20 years of service or more, a 10% discount for faculty/staff with 10 years up to 20 years of service, A 5% discount for faculty/staff with 6 years up to 10 years of service, and no discount for faculty/staff with less than 5 years of service.

If cell B16 contains the years of service for faculty/staff, you could enter the following formula in cell F16:

=IF(B16>=20,E16*20%,IF(B16>=10,E16*10%,IF(B16>=5,E16*5%,0)))

PROTECTION

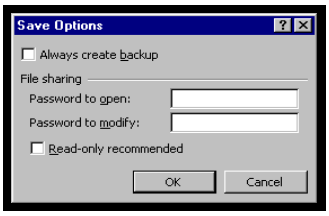
There are several levels of protection that you can place on a workbook. You can:

- Assign a password that is required before a file can be opened.
- Assign a password that is required to modify a file.
- Set up the file so that it is recommended as a "read-only" file.
- Hide worksheets in a workbook and require a password be used to re-display the worksheets.
- Protect specific cells within a workbook so that changes cannot be made to the cells.

Setting a Password to Open a File

To assign a password to a workbook:

1. Click on the **Microsoft Office Button** and then click on **Save As**.



2. When the Save As window opens, click the **Tools** button at the lower left corner of the window and then click on **General Options**.

3. Enter the desired password in the **Password to open** box.

   Note: If you elect to require a password to modify a file, the user must know the password to make any changes to the workbook. The user will have the option to open it and view it, but cannot save any changes to the file unless the file is given a different name.

   Note: If you elect to recommend that users open the workbook as read only, keep in mind that this is a recommendation only. The users are not prevented from editing and then saving changes to the workbook under a different name.

   The password can be up to 15 characters long and can include spaces. Passwords are case sensitive.

4. Click on **OK** and the Confirm Password dialog box will appear.

5. Retype the password (to verify your typing) and click on **OK**.

6. Click on **Save**.

7. Write the password down and keep it in a secure place. If you lose the password, you cannot open the file.

To open a password-protected workbook:

1. Click on the Microsoft Office Button, then click on Open. Navigate to the file you want to open.
2. Double-click on the file to be opened.
3. Enter the password in the Password dialog box.
4. Choose **OK** to open the file.

To Hide Worksheets

You can hide worksheets and then protect them from being displayed without a password.

To hide a worksheet:

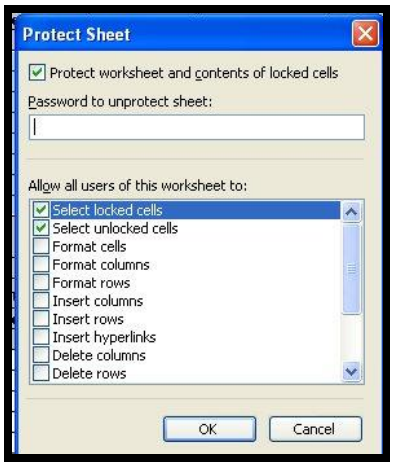
1. Select the worksheet to be hidden.
2. Click on the **Review Tab** and then click on **Protect Sheet** in the Changes group.

To Protect Cells in a Worksheet

When you protect a worksheet, Excel assumes that every cell in the worksheet is to be protected. You need to tell Excel which cells can be modified.

1. Select the cells that are permitted to be modified.

2. Click on the **Home Tab** and then click on **Format** in the Cells group.
3. When the **Format Cells** dialog box appears, click the **Protection** tab.
4. Click on the **Custom Lists** tab and then click on the **Locked** check box to remove the check from it, which unlocks the selected cells.
5. Click on **OK**.
6. Click on the **Home Tab** and then click on **Format** in the Cells group.
7. When the **Format Cells** dialog box appears, click **Protect Sheet**.



8. When the Protect Sheet window opens you can choose to use a password to unprotect the sheet. (This is optional.)

9. Click on **OK**.

TABLES

Microsoft added intelligent tables to Excel 2007. If you create a Table and click in the Table Excel displays a custom Table ribbon that allows you to do a variety of tasks. You can:

- Automatically add AutoFilter drop-downs to the headings in a table
- Have one-click access to banded rows, columns and other autoformats.
- Toggle a total row on or off.
- Have onc-click access to removing duplicates.
- Automatically copy new formulas to all cells in a column.
- Automaticaly extend a table when new data is added.
- Extend conditional formatting to the rows in the table.
- Automatically freeze panes to show the heading row as you scroll off the page.
- Automatically set up range names for an entire table.

Define a Table

A table must be set up so that each column contains the name of a field of data. Each row contains one record of the data.

To define a table, click in **any cell** of the data and then click on the **Insert tab** and choose **Table** in the Tables group. The Create Table window will open stating the range of cells that will comprise the table. If the range is correct, click **OK**.

Keep Headers in View

Select one cell in the table and use the scroll bar to scroll down the data in the table. The headings will remain visible at the top of the table.

Add a Total Row To add a total row:

1. Click in any cell in the table. The Table Tools tab becomes visible.

2. Click on the **Table Tools tab** then click on the **Design tab**. Check the **Total Row box** in the Table Style Options group.

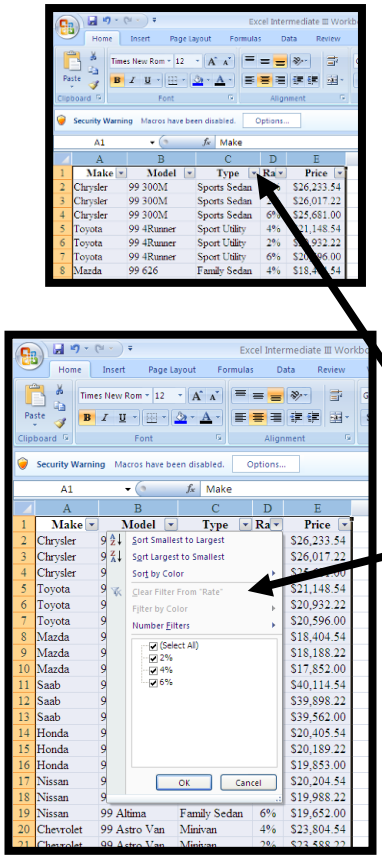
The Total Row can be toggled on and off as you need it.

Expand the Table To expand the table make the cell in the last row and last column of the table the active cell. Press the **Tab key** and a new row will be added to the table.

AUTO FILTER

If you are working with a list of items as you would if you had a database in Excel, you can use the AutoFilter tool to quickly search through your list for particular records.

The AutoFilter tool lets you filter out all records that do not meet your criteria. The list itself is unchanged and you can change the filter at any time to display a different set of records.



To apply an AutoFilter to a list:

1. Select a column (or multiple columns or cells in your database), click on the **Home** tab and then click on the **Sort & Filter icon** in the Editing Group.

2. From the drop down menu click on **Filter**.

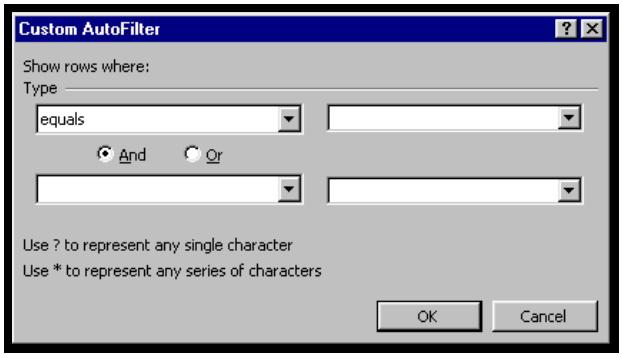
3. Excel will display an arrow button for each selected column or group of cells at the top of the columns. These buttons activate pull-down menus that allow you to show individual records meeting your selected criteria.

4. To display a filtered list of records, click on one of the buttons and select your desired criteria. You can select a single value or multiple values.

5. The **CUSTOM** is accessed by clicking on either the **Text Filter** or **Number Filter** option in the drop down menu. It allows you to display criteria meeting your customized needs. State your comparison criteria by selecting the desired operator then enter the

comparison value in the window on the right.

You can use multiple comparison criteria by selecting the **AND** or **OR** options and entering the desired criteria in the lower two windows.



ADVANCED FILTER

When using Excel as a database, you can query information by the use of filters. Filters allow you to extract data based on criteria you specify.

To filter your data you must first establish the criteria area and then input your criteria.

1. Insert three new rows at the top of your database.

2. Select the labels for all of the fields.

3. Copy these labels.

4. Paste these labels in Row 1. Rows 2 and 3 are now ready for you to establish your criteria.

5. Enter the criteria you want to use to filter your database.

   Note: Criteria entered on the same row will be treated as an "and" condition. Criteria entered on different rows will be treated as an "or" condition.

Filter in Place

To perform a filtering action that will place the search results in the location of the existing database:

1. Select any cell in your database.

2. Click on the **Data tab** and then click on **Advanced** in the Sort & Filter group. The Advanced Filter window will appear.

3. Excel will guess at the range of data you want to filter. If the guess is correct accept the entry in the List Range box. If it is not correct, click the Collapse Dialog button to the right of the List Range box. The dialog box will collapse.

4. Select the cells that contain the data to be filtered (all field labels must be included).

5. Click the Collapse Dialog button again to restore the dialog box to the screen.

6. Enter the range of cells that contain the criteria including the field labels.

7. Ensure that **Filter the list, in place** option is selected.

8. Click on **OK**. The filtered data will display.

Filter to Another Location

To place your filtered data in a new location:

1. Select any cell in your database.

2. Click on the **Data tab** and then click on **Advanced** in the Sort & Filter group. The Advanced Filter window will appear.

3. Excel will guess at the range of data you want to filter. If the guess is correct, accept the entry in the List Range box. If it is not correct, click the Collapse Dialog button to the right of the List Range box. The dialog box will collapse.

4. Select the cells that contain the data to be filtered (all field labels must be included).

5. Click the Collapse Dialog button again to restore the dialog box to the screen.

6. Enter the range of cells that contain the criteria including the field labels.

7. Ensure that **Copy to Another Location** option is selected.

8. Enter the cell name where you want to see the upper-left corner of the filtered data.

9. Click on **OK**.

RAND FUNCTION

This function creates a list of randomly generated numbers between 0 and 1 to a precision of 15 digits. You can use this function to sort a list of items into random order.

Every time the worksheet is recalculated (by entering text or numbers into a cell and pressing <ENTER>, the formulas will recalculate and new random numbers will appear in the spreadsheet cells.

To create a list of random numbers select all the cells and type **=RAND()**. Then press **Ctrl + ENTER** to place this function into all the selected cells.

If you do not want the numbers to be recalculated, select the cells with the random numbers in them and copy the cells. Click on the **Home tab** and then click on the bottom half of the **Paste button** in the Clipboard group.

Choose **Values**. This will turn the formulas into numbers.

If you need numbers greater than those generated (between 0 and 1), simply create a formula to multiply the randomly generated numbers by 10, 100, 1000, etc. This will give you numbers greater than 1.