



Excel II

Welcome to Student Computing Education!

- Information Technology Division (ITD) – <http://itd.ncsu.edu>
- Computing Services (CS) – <http://www.ncsu.edu/it/essentials>
- Student Education – <http://www.ncsu.edu/it/education/students>

Instructor:

Twanda Baker – twanda_baker@ncsu.edu

Handout written by Twanda Baker

Objectives:

- Sizing Columns and Rows
- Hiding and Unhiding Columns and Rows
- Worksheet Magnification
- Freezing and Unfreezing Panes
- Finding Records
- Sorting Records
- Filtering Data
- Formula Review
- 3-D Formulas
- Conditional Formulas
- Absolute and Relative References
- Nested “IF” Functions
- Password Protecting your Workbook

Materials:

1. Double-Click *My Computer* (The computer icon your desktop)
2. Double-Click *the I drive (I:)* and navigate to the ‘Student_Ed’ folder
3. Double-Click Excel I (you may want to consider copying this to your desktop)
4. Double-Click to open student_excel2.xls

Evaluation:

Please evaluate this class by going online within 24 hours of the end of class to <http://www.ncsu.edu/it/education/students/evaluations> .

Thank you!

Sizing Columns and Rows

Changing column width

1. Select the column(s).
2. Put your mouse pointer on the column divider, the line to the right of the column heading. Notice the mouse pointer changes to \leftrightarrow .
3. Drag the line left to decrease width or right to increase width.

Exercise 1

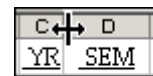
In the “Advisor” worksheet, widen the Advisor column.

1. Place your mouse pointer in the gray column header on the line between column A and B.
2. When the mouse pointer looks bold with arrows pointing left and right \leftrightarrow , click and drag slowly to the right until the column is wide enough to display all of the text.

Exercise 2

Widen the Year column. (“Advisor” Worksheet)

1. Double-click the column divider \leftrightarrow between columns C and D.



Changing the height of Rows

1. Select the row(s).
2. Put your mouse pointer on the line below the row heading. Notice the mouse pointer changes to \updownarrow .
3. Drag the line left to decrease width or right to increase width.

Exercise 3

Change the height of several rows at once. (“Advisor” worksheet)

1. Using the gray row header, select rows 1 through 15.
2. Place your mouse pointer on any row divider within the selected area.
3. Drag slowly downward and widen to desired height.
4. Notice all rows in the selected area have been modified.

NOTE: Once column(s) and row(s) have been selected, changing properties such as width and height can be accomplished through the **Format** menu.

Hiding and Unhiding Columns and Rows

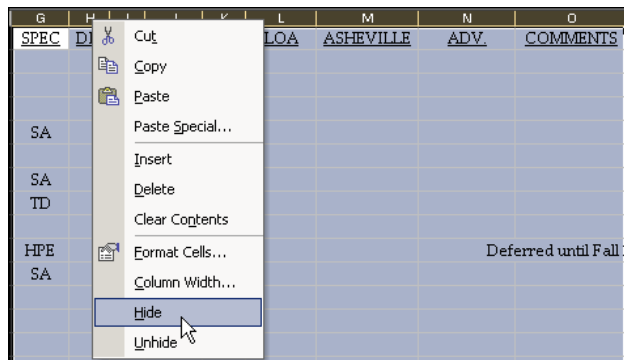
Hiding

1. Select the row(s) or column(s) you want to hide. (*Remember to use the row and column selector).
2. Under the **Format** menu select either **Row** or **Column**.
3. Click **Hide**.

Exercise 4

Hide columns G through O using the right-click method. (“Advisor” Worksheet)

1. Select columns **G** through **O** using the gray column headers.
2. While pointing in the selected area, right-click.
3. Click **Hide**.



Unhiding

1. For columns, select the column to the left and the right of the hidden column(s). For rows, select the row above and below the hidden row(s).
2. In the **Format** menu select **column** or **row**.
3. Click **Unhide**.
4. The hidden column(s) and row(s) will become visible.

Exercise 5

Unhide columns G through O. (“Advisor” worksheet)

1. Select columns **F** and **P**.
2. From the **Format** menu select **Column**
3. Click **Unhide**.

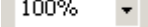
Worksheet Magnification

Using the Zoom feature

1. Select the **View** menu.
2. Select **Zoom**.
3. Select the desired magnification.
4. Click **OK**.

Exercise 6

Magnify the worksheet to 150%, and then zoom out of the worksheet to 50% using the Zoom box on the standard toolbar. (“Advisor” worksheet)

1. Look for the Zoom box on the standard toolbar .
2. Click the down arrow side the box and select **150%**.
3. Observe the changes in the worksheet.

4. Click the Zoom box, and type **50**.
5. Press **Enter** on the keyboard.
6. Observe the changes in the worksheet.

Magnifying a range of cells

1. Select only the range of cells you'd like to magnify.
2. Select **View -> Zoom ->Fit Selection**.
3. Click **OK**.

Exercise 7

Magnify a specific set of cells. ("Advisor" worksheet)

1. Select cells **A1:E17**
2. Click the down arrow in the Zoom box.
3. Click **Selection**.
4. Observe the changes in the worksheet.
5. Change the Zoom back to **100%**

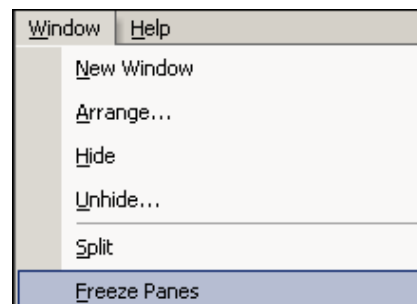
Freezing and Unfreezing Panes

Freeze Panes

1. To freeze both row and column headings, click once on the cell directly below the column heading and to the right of the row headings you want to freeze.
2. From the **Window** menu select **Freeze Panes**.

Unfreeze Panes

1. Select the **Window** menu.
2. Select **Unfreeze Panes**.



Exercise 8

Freeze the first row of the worksheet so that it's always showing as the first row when we scroll down. ("Advisor" worksheet)

1. Click in cell A2.
2. Select **Freeze Panes** from the **Window** menu.
3. Scroll down past the first screen and notice that row 1 remains the top row.
4. Select **Unfreeze Panes** from the **Window** menu.

Finding Records



1. Select **Find** from the **Edit** menu.
2. In the **Find What** text box, type the text you want to locate in the worksheet.
3. Click the **Find Next** button. Excel will highlight the text it finds with each click of the Find Next button.
4. You may choose to search by rows or columns.

Exercise 9



In the Advisor worksheet, find each record with “**John**” in the student column.

1. Click anywhere inside the data.
2. Select **Find** from the **Edit** menu.
3. In the **Find What** text box, type **John**.
4. Click the **Find Next** button. Excel will highlight the text it finds with each click of the **Find Next** button.
5. Notice that student names such as “Johnson” are also targeted.
6. Click **Close**.





TIP! Navigate between worksheets by right clicking the worksheet navigation buttons   to the left of the worksheet tabs.

Sorting Records

1. Click once inside the column that you want sorted. (* Do **NOT** select the whole column.*)
2. From the standard toolbar select  to sort in ascending order.
3. Select  to sort in descending order.

Exercise 8

In the **Source Data** worksheet, sort by the **Order Amount** column.

1. Click inside the Order Amount column.
2. Click the **Descending Order** button  from the Formatting toolbar.
3. Notice the spreadsheet is now arranged such the largest order amount is at the top and the smallest order amount is at the bottom.
4. Click the **Ascending Order** button .
5. Notice the change in the order amount column.

Multi-level Sorting

You can sort by more than one field at once.

1. From the Data menu select Sort.
2. In the Sort by box, use the down arrow to select the first field you want sorted. Specify whether you want Ascending or Descending order.
3. In the Then By boxes select up to two more field to sort.
4. Make sure to specify whether your columns have header rows.

Exercise 9

In the Source Data worksheet, sort first by Salesperson, then by Order Date.

1. Select **Sort** from the **Data** menu.
2. In the **Sort by** box click the down arrow and select **Salesperson**. Choose to sort by **Descending** order.
3. In the **Then by** box click the down arrow and select **Order Date**. Choose to sort by **Ascending** order.
4. Click **Header Row**.
5. Click **OK**.

Subtotaling a list

Subtotal sections of your data.

1. Sort list by desired field.
2. Select the **Data** menu then click **Subtotals**.
3. In the **At each change in** use the down pointing triangle to select the field to be subtotaled.
4. In the **Use function:** box, select the function you prefer.
5. In the **Add subtotal to:** box, click the check box for each field you'd like totaled.
6. Click **Replace current subtotal** and **Summary below data**.

Your workbook will show subtotals in Outline form. Use the Detail level buttons or the Level Symbols to control how much information is displayed. To Remove subtotal go to the **Data** menu, click **Subtotals** then click **Remove All**.

Exercise 10

Subtotal the Order Amount for each Salesperson.

1. With the Salesperson column sorted, select the **Data** menu then click **Subtotals**.
2. In the **At each change in:** box use the down pointing triangle to select Salesperson.
3. In the **Use function:** box, select the **SUM** function.
4. In the **Add subtotal to:** box, click only the Order Amount box.
5. Click **OK**.
6. Review subtotals, then remove them (**Data->Subtotals->Remove All**).

	A	B	C	D	E
140	USA	Callahan	4/27/2005	11034	\$539.40
141	USA	Callahan	4/22/2005	11036	\$1,692.00
142	USA	Callahan	4/24/2005	11046	\$1,485.80
143	USA	Callahan	5/1/2005	11056	\$3,740.00
Callahan Total					\$123,032.67
145	USA	Davolio	7/23/2003	10258	\$1,614.88
146	USA	Davolio	8/2/2003	10270	\$1,376.00
147	USA	Davolio	8/9/2003	10275	\$291.84
148	USA	Davolio	8/26/2003	10285	\$1,743.36
149	USA	Davolio	9/2/2003	10292	\$1,296.00
150	USA	Davolio	9/11/2003	10293	\$848.70
151	USA	Davolio	9/17/2003	10304	\$954.40
152	USA	Davolio	9/23/2003	10306	\$498.50
153	USA	Davolio	9/26/2003	10311	\$268.80
251	USA	Davolio	3/27/2005	10975	\$717.50
252	USA	Davolio	4/3/2005	10976	\$912.00
253	USA	Davolio	4/2/2005	10981	\$15,810.00
254	USA	Davolio	4/3/2005	10984	\$1,809.75
255	USA	Davolio	4/7/2005	10991	\$2,296.00
256	USA	Davolio	4/3/2005	10992	\$69.60
257	USA	Davolio	4/6/2005	10995	\$1,196.00
258	USA	Davolio	4/17/2005	11012	\$2,825.30
259	USA	Davolio	4/24/2005	11023	\$1,500.00
260	USA	Davolio	4/20/2005	11027	\$877.72
261	USA	Davolio	4/30/2005	11038	\$732.60
Davolio Total					\$182,500.09

Filtering Data

1. Click on any cell in the field to be filtered.
2. From the Data menu, point to Filter and select AutoFilter.
3. Notice dropdown menus to the right of each column heading.
4. Click the down arrow for the field you want displayed and select the desired category.

To turn off the AutoFilter feature, go to the Data menu, point to Filter and select AutoFilter.

Exercise 11

Using the Source Data worksheet, use AutoFilter to display all the records where Peacock is the salesperson. Then filter out all the records from the USA.

1. From the Data menu, point to Filter and select AutoFilter.
2. Notice the dropdown menu to the right of each column heading.
3. Click the dropdown menu to the right of the Salesperson column.
4. Select Peacock.
5. Notice that only the records with Peacock as the Salesperson are displayed.
6. From the **Data** menu, point to **Filter** and select **Show All**.
7. Click the dropdown menu to the right of the **Country** column.
8. Select **USA**.
9. Notice that only the records from the **USA** are displayed.
10. From the **Data** menu, point to **Filter** and select **Show All**.
11. From the **Data** menu, point to **Filter** and select **AutoFilter**.

Formula Review

Exercise 12

Complete the timesheet by putting appropriate formulas in the following fields: Week 2 Total, Hours Worked, Gross Pay.

1. Click in **F27** (Week 2 Total)
2. Click the AutoSum button Σ
3. Press **Enter** on the keyboard.
4. Click in **C31** (Hour Worked)
5. Type =
6. Click **F17** (Week 1 Total)
7. Type +
8. Click **F27** (Week 2 Total)
9. Press **Enter**. Notice the sum is calculated in C31 (Hours Worked)
10. Click **C32** (Gross Pay).
11. Type = **C31 * B31** (This multiplies the Flat Rate and the Hours worked)
12. Press **Enter** on the keyboard.
13. Format **C32** (Gross Pay) to currency style by clicking the $\$$ on the toolbar.
14. Enter fake hours into the timesheet to make sure it calculates properly.

	A	B	C	D	E	F	G	H
1	NORTH CAROLINA STATE UNIVERSITY TEMPORARY EMPLOYEE TIME RECORD							
2	PAYROLL ID 2R 06							
3	WORK PERIOD BEGINNING: 8/17/2003				ENDING: 8/30/2003			
4	ADJUSTMENT (CHECK)							
5	NAME: _____				SSN: _____		DEPT/TKL:	
6								
7								
8	WEEK 1							
9	DATE		IN - OUT		Total			
10	SAT	8/17/2003						
11	SUN	8/18/2003						
12	MON	8/19/2003	9:00 AM	3:00 PM				6
13	TUE	8/20/2003	10:00 AM	4:00 PM				6
14	WED	8/21/2003	11:00 AM	5:00 PM				6
15	THU	8/22/2003	12:00 PM	6:00 PM				6
16	FRI	8/23/2003	1:00 PM	7:00 PM				6
17	WEEK 1 TOTAL							
18								
19	WEEK 2							
20	DATE		IN - OUT		Total			
21	SAT	8/24/2003						
22	SUN	8/25/2003						
23	MON	8/26/2003						
24	TUE	8/27/2003						
25	WED	8/28/2003						
26	THU	8/29/2003						
27	FRI	8/30/2003						
28	WEEK 2 TOTAL							
29								
30	FAS ACCOUNT CHARGES							
31	FLAT RATE	HOURS WORKED	EARNING CODE	FAS ACCOUNT	LABOR OBJECT	PROJECT	WORK AGAINST POSITION	
32								
	Gross pay:							

3-D Formulas

3-D formulas include cell references from other worksheets in the same or different workbooks. In 3-D formulas the worksheet names are separated from the cell address by an exclamation point (!).

Exercise 15

In worksheets 2003, 2004 and 2005 Buchanan’s sales totals are in the same cell location **D12**. In this scenario, we can use a 3-D function to Sum D12 across 3 different worksheets.

1. Click the **3-Year Totals** worksheet tab
2. Click **B2**, the cell which will hold the 3 year total sales for Buchanan.
3. Click the AutoSUM Button. The formula bar should read : **=SUM()**
4. Click the **2003** worksheet tab.
5. Click cell **D12**, which holds the total sales by Buchanan for the year 2003.
6. Hold the Shift key down and click the **2004** worksheet tab. Notice how both 2003 and 2003 tabs are selected.
7. Continue to hold down the Shift key and click the **2005** worksheet tab.
8. Notice the formula bar should read: **=SUM('2003:2005'!D12)**.
9. Press Enter.

	B2	=SUM('2003:2005'!D12)
	A	B
1	Three Year Sales Totals 2003-2005	
2	Buchanan Total	\$68,792.25
3	Callahan Total	\$123,032.67

Exercise 16

In the 3-Year Totals worksheet, use a 3-D formula to calculate the total Sale Order Amount each salesperson sold for 2003 – 2005.

1. Click the **3-Year Totals** worksheet tab
2. Click **B3**, the cell which will hold the 3 year total sales for Callahan.
3. Type =
4. Click the **2003** worksheet tab.
5. Click cell **D30**, which holds the total sales by Callahan for the year 2003.
6. Type +
7. Click the **2004** worksheet tab.
8. Click cell **D68**, which holds the total sales by Callahan for the year 2004.
9. Type +
10. Click the **2005** worksheet tab.
11. Click cell **D40**, the cell which holds the total sales by Callahan for the year 2005
12. Press **Enter**
13. Practice this type of formula by repeating these steps for Davolio.

	B3	=2003!D30+2004!D68+2005!D40
	A	B
1	Three Year Sales Totals 2003-2005	
2	Buchanan Total	\$68,792.25
3	Callahan Total	\$123,032.67
4	Davolio Total	\$182,500.09
5	Dodsworth Total	\$75,048.04
6	Fuller Total	\$162,503.78
7	King Total	\$116,962.99
8	Leverling Total	\$201,196.27
9	Peacock Total	\$225,763.68
10	Suyama Total	\$72,527.63

Conditional Formulas

If functions provide a value based on a condition you specify. It is structured as follows:

=IF(conditional test, value if true, value if false)

Exercise 17

Import a table of student grades from the following webpage

<http://www.ncsu.edu/it/education/training/excel/grades.html>

In a fictional Pass/Fail course, students must make a final grade of 60 or greater to pass the course, otherwise they fail. Use an If function to enter “Pass” or “Fail” in column F.

4. In f2 enter: **=If(e2>=60, “Pass”, “Fail”)**
5. Copy this formula down the whole column. Right-click F2, select **copy**. Select the rest of the cells in column F. Right-click selected cells, click **Paste**.

Exercise 18

In the previous example we specified “60” in our formula as the score needed to pass the course. If we later decided to change the passing score to something else, we’d have to make that change in each formula. We can avoid this problem by referring to another cell instead of using an actual number. This way, if we decide to change the score required to pass, we could make the change in one place and all the records would be affected.

Designate cell H2 to contain the Passing Grade, Change the Conditional formula used in the previous exercise such that it reference H2 instead of 60. Copy the formula and paste it to the remaining rows.

1. In cell H1 type, **Passing Grade**.
2. In cell H2 type, **60**.
3. Modify the formula in cell F2 (the Grades column) to **=If(e2>=H2, “Pass”, “Fail”)**
4. Copy this formula down the whole column. Right-click F2, select **copy**. Select the rest of the cells in column F. Right-click selected cells, click **Paste**. The Grades should have stayed the same since we didn’t change the score required to pass. *However,* notice how everyone is now passing the course.
5. Click cell F3 and look at the formula in the formula bar. Notice how it no longer references H2 but H3.
6. Click cell F3 and look at the formula in the formula bar. Notice how it no longer references H2 but H4.

The feature that adjusts a formula as it is copied across a row or down a column is no longer working in our favor. To force the formula to reference H2 in every case, we need to create an absolute reference to H2 in formula, and then copy it to the remaining rows.

Absolute and Relative References

When formulas with relative cell references are copied, its cell references adjust to its new location. Absolute cell references don't change when its formula is copied. A dollar sign (\$) typed before the column letter and before the row number creates an absolute cell reference. Pressing the [F4] key repeatedly toggles you through each of the four types of cell references.

Cell Entry	Type of Referencing	Result
C1	Relative	Both the row and column will change when copied to another location.
\$C1	Mixed	The column will not change when copied to another location, but the row will.
C\$1	Mixed	The row will not change when copied to another location, but the column will.
\$C\$1	Absolute	The column and the row will not change when copied to another location.

Exercise 19

1. Double click cell F2.
2. Move the insertion point to the reference that needs to be made absolute (in-between the H and the 2).
3. Press the F4 key until H2 looks like \$H\$2 (only takes one press, but go ahead and toggle through the other options until you get back to the one we want).
4. Press the **Enter** key.
5. Copy this formula down the whole column. Right-click F2, select **copy**. Select the rest of the cells in column F. Right-click selected cells, click **Paste**.

Nested IF functions

When more than one condition must be tested, nested If functions may be used (up to 7 conditions deep).

=IF(conditional test, value if true, If(conditional test 2, value if true, value if false)).

Exercise 20

In an alternative Pass/Fail grading system, student can earn a "Pass", "D" or "Fail". Write a nested if statement that enters "Pass" for grades above 69, enters "Fail" for grades less than 60 and a "D" for anything in-between.

4. In H2 type, **69**

5. In I1 type **Failing if below**.
6. In I2, type the score for failing, **60**
7. In cell F2 enter, **=If(e2>\$H\$2, "Pass", If(e2<=\$I\$2, "Fail", "D"))**
8. Copy this formula down the whole column. Right-click F2, select **copy**. Select the rest of the cells in column F. Right-click selected cells, click **Paste**.

Password Protecting Your Workbook

1. From the File menu, select Save As.
2. In the Save As dialog box, click Tools, and then select General Options.
3. You have two options for password protecting your workbook.
 - a. Require a password to open the workbook.
 - b. Require a password to modify the workbook.
4. Type in your password and click OK. Retype your password and click OK.

Exercise 21

1. From the File menu, select Save As.
2. From the **Tools** menu, in the Save As window, select **General**.
3. In the password to modify box type: **modify**
4. Click **OK**.
5. Retype: **modify**.
6. Click **OK**.
7. Save your document with its original name, classinfo. Close the document.
8. Open classinfo.
9. Type **modify** in the password box and press Enter on the keyboard.

Thank you for your interest in Student Education. We hope that this class has been helpful. If you have additional questions or comments about this class or any others, please contact us at classreg@ncsu.edu or leave us feedback at our webpage, <http://www.ncsu.edu/it/education/students>.