

## CS130 Assignment #1

**Date Assigned:** Wednesday, September 7, 2011  
**Date Due:** Wednesday, September 14, 2011 by 4:45pm  
**Points:** 75

In a Workbook called **PUNetIDExcel**, create each of the following worksheets:

Worksheet #1 – named "Forest Defoliation"

A forester counts the number of egg masses on 1/40 of an acre the preceding fall to determine the amount of defoliation that will be caused by the gypsy moth during the current year. The percent of defoliation  $y$  is approximated by  $y = \frac{300}{3+17e^{-1.57x}}$  where  $x$  is the number of egg masses in thousands. (Source: Department of Environmental Resources)

You are to design a worksheet with the title **Forest Defoliation** in cell B1 and two columns of information under the headings **Egg Masses** in cell A3 and **Percent of Defoliation** in cell B3. Underneath the Egg Masses heading, display values that go from 0 to 2000 in increments of 100. For each egg mass value, calculate and display the percent (e.g. 12.45%) of defoliation in the corresponding row and column for the given egg mass. Display percents to two decimal places. This worksheet is to look very professional. Column headings and values are to be right aligned and the worksheet heading is to be centered. Make sure the columns are wide enough to display all information as well as a little spacing between each column.

NOTE: If I drag down on the last row of your table, your worksheet is to continue doing correct calculations without me having to do any table modifications.

Worksheet #2 – named "Retirement"

You have just secured your first job with a starting salary of \$36,000 per year. At this point in time, you will be asked if you would like to contribute a portion of that salary toward a retirement plan. Also, you just found out that your company has a matching option up to 5% meaning if you contribute 1% of your present salary the company will match that 1% all the way up to 5%. Finally, you are to assume that each year your salary will keep up with inflation.

With this in mind, you are to design a worksheet that looks exactly like the following and gives correct results based on the specifications described.

	A	B	C	D	E	F	G	H
1	<b>Enter Retirement Information</b>							
2								
3	Starting Salary ->\$	36000						
4	Personal Contribution ->%	3%						
5	Inflation Increase ->%	2%						
6	Beginning Balance ->\$	0						
7	Years Until Retirement ->	45						
8	Yearly Interest Rate ->%	5%	<b>Retirement</b>					
9			Beginning Balance (\$)	Salary (\$)	Contribution (\$)	Interest Earned (\$)	Ending Balance (\$)	Year

Enter the following data for this assignment: Starting Salary (\$36,000), Personal Contribution (3%), Inflation Increase (2%), Beginning Balance (\$0), Years Until Retirement (45), and Yearly Interest Rate (8%). Your worksheet is to calculate 45 years of retirement information in rows 10 through 54 based on the above discussion. Assuming that the amount of interest earned is calculated after the contribution is made, what values go in row #10? I will go over this in class.

Below the Retirement table, you are to graph the ending balance for each of the 45 years. Make sure your graph is properly labeled, easy to read, and correct based on the data in the retirement table.

Note1: Split the screen so that the first 15 rows and the last 4 rows of the worksheet are showing on the display screen.

Note 2: If I drag down on the last row of your table, your worksheet is to continue doing correct calculations without me having to do any table modifications.

### How to Submit and Grading Policies

A copy of your single Excel file (properly named) with the two worksheets (properly named) is to be placed in the CS130 Drop folder by **4:45pm** on the due date to be considered on time.

Grading will be based on:

- Correctness of your results
- Completeness of your results
- Professional look of the worksheets as described above and discussed in class
- Ability to perform a what-if analysis by changing any of the user input data with accurate results computed and displayed in the worksheet.

Remember, this is an individual assignment. You are not to work with anyone in class on the solution to this assignment.

See me early if you have any questions.