

ENGR 0011 – Fall 2018
HW 3

Acceptable behaviors for this assignment include:

- Consulting your textbook or other written material
- Asking your team members
- Asking your professor or TA

Note that consulting materials and asking others is only acceptable as long as they do not provide you with the solutions – you have to come to the solution on your own!

Unacceptable behaviors for this assignment include:

- Copying the solution(s) from a solution manual, book, or other written material
- Copying the solutions(s) from assignments submitted in previous semesters
- Providing the solutions to a classmate, student in other section, student in future section, or online solution banks
- Asking someone to complete the assignment for you

Sheet 1: Name Sheet 1 “Plan of Study” and follow the instructions below.

The purpose of Sheet 1 is for you to begin designing your four-year plan of study. Each person in the team should have one of these, but you are only required to submit one with this assignment.

- a. Begin by laying out your first semester courses as shown below. Enter all the courses you are taking, with the number of credits for each course on the next column.

	A	B	C	D	E	F	G	H	I	J
1										
2	Semester 1									
3		Fall 2018	Credits	Letter Grade	Grade	Points		Letter Grade	Points	
4								A+	4	
5		ENGR 0011	3	A-		3.75	11.25	A	4	
6		CHEM 0960	3	D-		0.75	2.25	A-	3.75	
7		PHYS 0174	4	C-		1.75	7	B+	3.25	
8		MATH 0220	4	B+		3.25	13	B	3	
9		PSY 0010	3	A-		3.75	11.25	B-	2.75	
10								C+	2.25	
11		Total	17			44.75		C	2	
12				Semester GPA:	2.632			C-	1.75	
13				Cumulative GPA:	2.632			D+	1.25	
14								D	1	
15								D-	0.75	
16								F	0	
17										
18										

- b. Have Excel sum the total number of credits, as shown.
- c. In the next column, enter a prediction of what letter grade you will get in each course. In the next column, convert this letter grade to a number by using the lookup table shown in columns H and I. You must use the VLOOKUP command to convert the letter grade to a number.
- d. In the next column, calculate the number of points for each class by multiplying the number of credits by the grade. Have Excel sum the total number of points, as shown.
- e. Compute the semester GPA by dividing the total number of points by the total number of credits.
- f. Once you have this done, copy the data in columns B – F into row 17 and create the same type of information for your upcoming Spring semester.
- g. Then, do the same for your next six semesters. When you are done you should have all 8 semesters designed with all the classes you will take for your entire four years at Pitt.
- h. Then, calculate the cumulative GPA in each semester. The cumulative GPA is your total points for a given semester plus all the previous semester points, divided by the total credits for a given semester plus all the previous semester credits.
- i. As noted above, you must use the VLOOKUP command to convert the letter grade to the number grade. Every semester must use the same lookup table in cells H4 – I16
- j. Now enter predicted grades for every class. Then, pick a few classes and enter grades of C and D for them. Notice the impact each class/grade can have on your GPA.

Sheet 2: Name Sheet 2 “ENGR 11 Grades” and follow the instructions below.

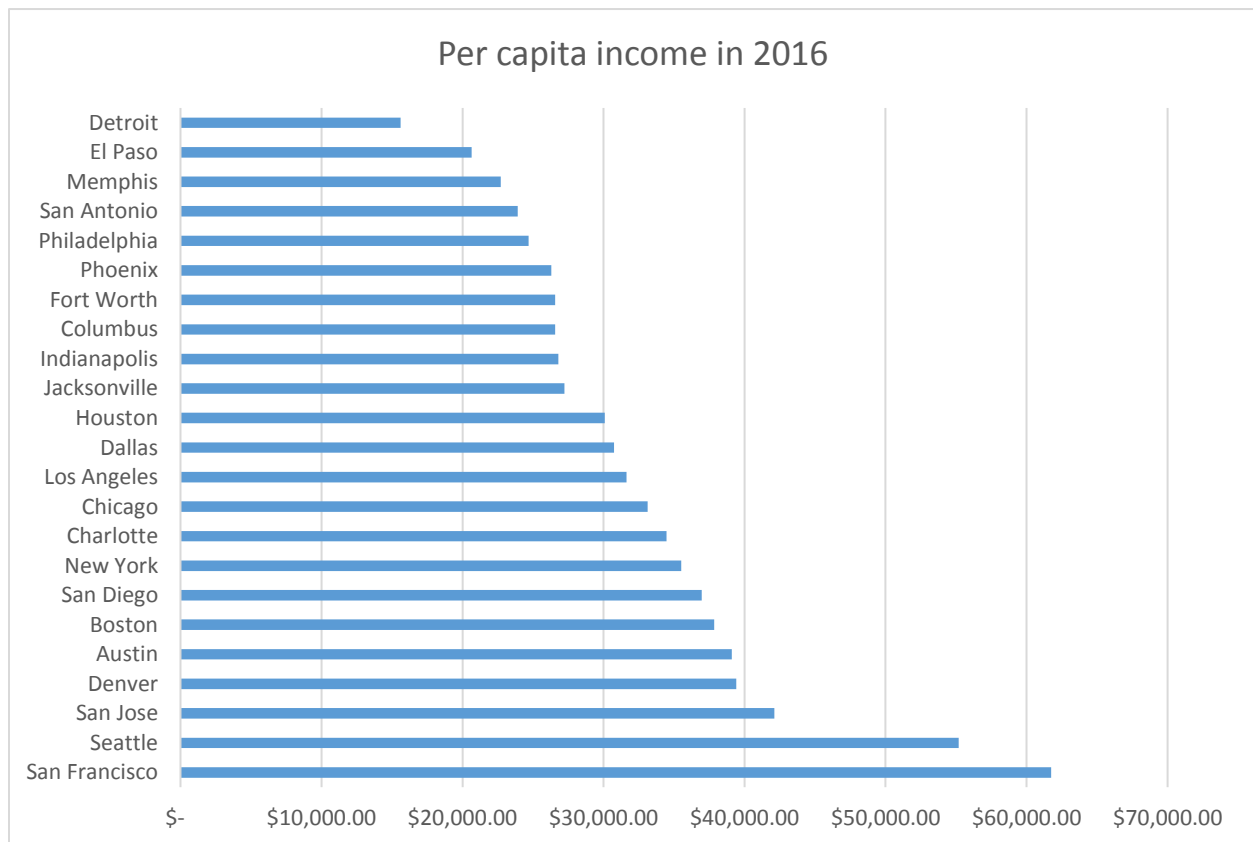
In this worksheet, you will use Excel to calculate your ENGR 0011 grades. Each person in the team should have one of these, but you are only required to submit one with this assignment.

- Create a section for all the homework assignments, then calculate one total homework grade.
- Do the same for the quizzes, writing assignments, and all the other grades you will get in ENGR 11. You can enter predictions for the grades you do not yet have.
- Use the ENGR 11 syllabus to find the percentages for each grade category. After you enter all the data, have Excel add up all the points to get your total score.
- Use another lookup table to convert the total points into a letter grade. The conversion from points to letter grade is provided in the course syllabus. This time, you will be using VLOOKUP to convert a number into a letter.

You can update this worksheet as you get additional homework, quiz, and other grades, to determine your final course grade.

Sheet 3: Name Sheet 3 “Per Capita Income” and follow the instructions below.

- Retrieve the file “PerCapitaIncome” from CourseWeb, and copy the data onto your Excel file.
- Use formatting (borders, bold headings, currency format for the income, and any other formatting you would like) to make the tables more readable.
- Sort the data alphabetically by State, then alphabetically by City (two-level sort).
- Make sure city names and regions are visible in the entire column (you may need to reformat the columns).
- Use Conditional formatting so that Excel **highlights in yellow** all per capita incomes that are greater than or equal to \$40,000.
- Create a Pivot Table that computes and shows the maximum per capita income for each region.
- Copy and paste your data elsewhere on the same Excel sheet, then sort that table from highest income to lowest.
- Create a chart like the one shown below.



Sheet 4: Name Sheet 4 “Equation” and follow the instructions below.

- Using Excel, plot the equation below over the domain 1 – 8, as shown in section 1.5.
$$y = e^x - 3x^2 + 7$$
- Using the graphical approach with at least 20 points, find the value of x, to two decimal places, when the function equals 30. Below your plot, enter the solution as follows “The solution using the graphical approach is ...”.
- Now find the value of x using Goal Seek, and enter the solution as follows “The solution using Goal Seek is ...”.

Sheet 5: Name Sheet 5 “Intersection” and follow the instructions below.

- Plot the equation from Sheet 4 and also the equation below, on the same plot:
$$y = x^{2.5} + 18$$
- Use the graphical approach with at least 20 points to estimate the x location of the intersection of the two functions. (Hint: The functions are equal at the point of intersection.) Below your plot, enter the solution as follows “The solution using the graphical approach is...”.
- Use Goal Seek to find the actual x location of the intersection, and enter the solution as follows “The solution using Goal Seek is ...”.

This is a group assignment. Upload the Excel file through your class computer using the official file submission link (found on the desktop of class computers in GSCC 138 or BEH 229 at the beginning of the class when this assignment is due). The file should be named Assign-3-GroupName (e.g. Assign-3-GroupL03).