Importing Gradebook Data

1. Go to the grade book (EEE website)
2. Click on the *Summary* tab, and under *Column Options* check only the following boxes:
    a. Student name on official record
    b. HWs, Midterms and Finals (in Assignment Information group)
3. Click *Save Changes* (the summary table will be redisplayed with the above options selected). Important: if students are not ordered alphabetically, click on the *PH Name* link in the *Students* column.
4. Click on *Download Options* and check the following two radio-buttons
    a. **Download for personal use**

    Columns to include

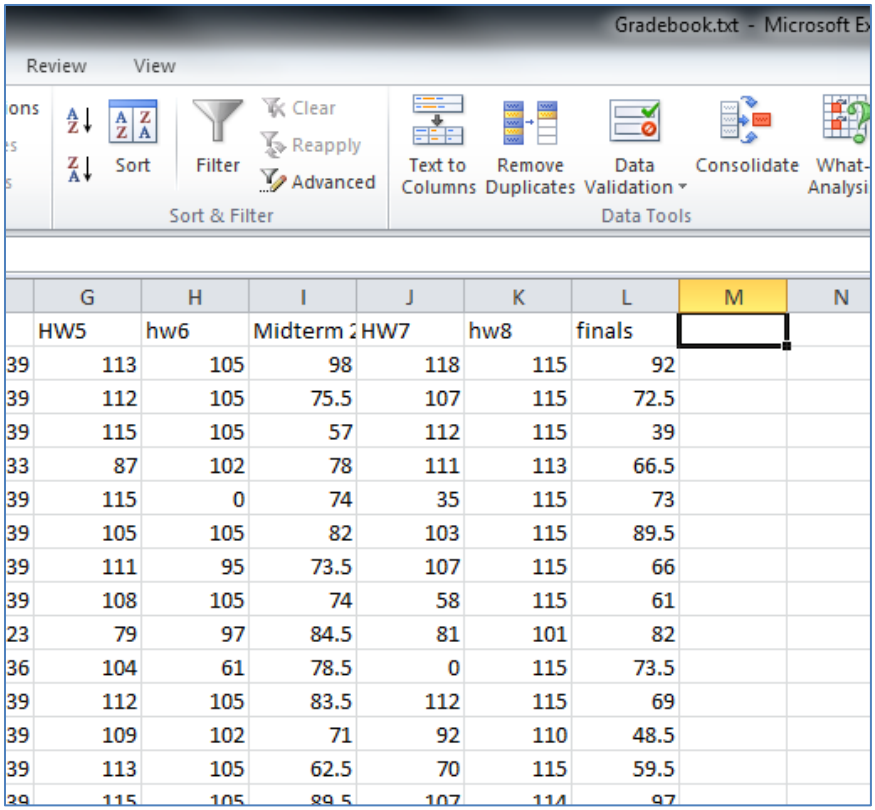
    b. Only assignments and columns displayed on the Summary view
5. Hit the *Next* button (the file download should start)
6. Save file as: `Gradebook.txt`

Importing Webroster Data

1. Follow the *Rosters* link for the course in question (EEE website).
2. Click on the *WebRoster* link, which will take you to the University Registrar.
3. Click on the *Show Options & Seating* link, and check only the following boxes:
    a. Student Name (Last, First)
    b. Major
4. Click on the *Display Tabbed Text* link (the system may introduce additional columns). Important: if students are not ordered alphabetically, go back to step 3 and activate *Sort by* radio-button next to the *Student Name* cell.
5. Highlight the table header (Name, Major, Option, …), and the corresponding data (students' names, their majors, …). Copy the text, and paste it into a text editor (e.g. Notepad or Wordpad in Windows OS—do not use MS Word).
6. Save the file as: `Webroster.txt` (make sure the file is saved as Plain Text Document-default for Notepad, but not for Wordpad)

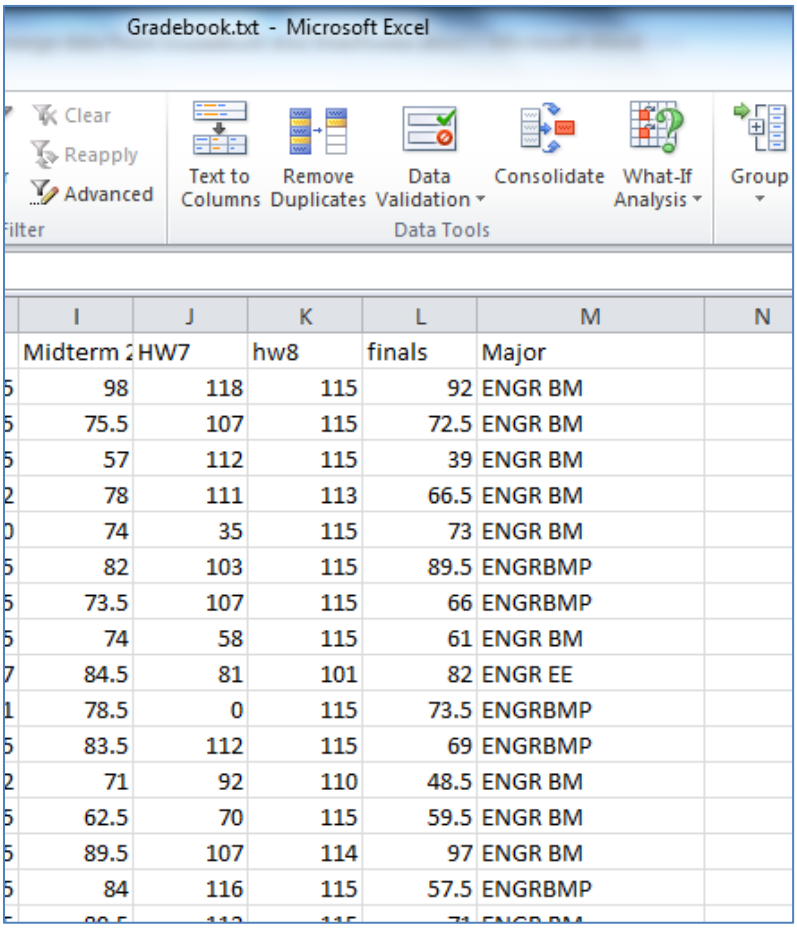
Merging the Two Files into a Single Excel Spreadsheet

1. Open a new Excel workbook and under *Data* menu, select *From Text*. Navigate through folders and select the file `Gradebook.txt`. You may need to set your filter All Files (*.*) in order to be able to see the file in the dialogue box.
2. Hit the *Import* button and make sure the *Delimited* radio-button is pressed. Hit *Next*.
3. Make sure the *Tab* box is checked and hit *Next*.
4. Make sure the *General* radio-button is pressed and click *Finish*. A dialog box may ask you where you want your data. Leave it in the existing worksheet and hit *OK*.
5. The data from `Gradebook.txt` should now be transferred into your Excel worksheet.
6. Click on the header of the first free cell to the right (see Fig. 1) and under *Data* tab, select *From Text*. Navigate to the file `Webroster.txt` and click on the *Import* button. Go through the same sequence as in steps 2-4.
7. You should have a single spreadsheet with data from Gradebook and Webroster merged. There should be two columns containing student names. Check the first, second and last entries of these two columns and make sure they match. They should, since both Gradebook and Webroster data were ordered alphabetically. If so, remove the spurious columns from Webroster data, only leaving the column corresponding to the Major. You can do this by a right click on the column header, followed by selecting *Delete* from the pop-up dialog (see Fig. 2 for the end result).
8. Save the file as an Excel workbook: `Merged.xlsx`



	G	H	I	J	K	L	M	N
	HW5	hw6	Midterm 2	HW7	hw8	finals		
39	113	105	98	118	115	92		
39	112	105	75.5	107	115	72.5		
39	115	105	57	112	115	39		
33	87	102	78	111	113	66.5		
39	115	0	74	35	115	73		
39	105	105	82	103	115	89.5		
39	111	95	73.5	107	115	66		
39	108	105	74	58	115	61		
23	79	97	84.5	81	101	82		
36	104	61	78.5	0	115	73.5		
39	112	105	83.5	112	115	69		
39	109	102	71	92	110	48.5		
39	113	105	62.5	70	115	59.5		
39	115	105	89.5	107	114	97		

Figure 1. Merging Webroster with Gradebook data using Excel.



	I	J	K	L	M	N
	Midterm 2	HW7	hw8	finals	Major	
5	98	118	115	92	ENGR BM	
5	75.5	107	115	72.5	ENGR BM	
5	57	112	115	39	ENGR BM	
2	78	111	113	66.5	ENGR BM	
0	74	35	115	73	ENGR BM	
5	82	103	115	89.5	ENGRBMP	
5	73.5	107	115	66	ENGRBMP	
5	74	58	115	61	ENGR BM	
7	84.5	81	101	82	ENGR EE	
1	78.5	0	115	73.5	ENGRBMP	
5	83.5	112	115	69	ENGRBMP	
2	71	92	110	48.5	ENGR BM	
5	62.5	70	115	59.5	ENGR BM	
5	89.5	107	114	97	ENGR BM	
5	84	116	115	57.5	ENGRBMP	

Figure 2. Data from Gradebook and Webroster merged into a single Excel spreadsheet.

How to Split the Spreadsheet into Majors

1. Open the file `Merged.xlsx`, select the *Major* column by clicking on its header, and then click on the *Sort&Filter* button under the *Home* menu. From the pull-down menu select the *Filter* option (see Fig. 3)
2. The *Major* column header will generate a drop-down menu. Expand it and select the BME majors by checking the ENGR BM box, as well as variants thereof (see Fig. 4).
3. Only the rows whose Majors match the filter criterion will be displayed.
4. Select all the cells and copy the content (Ctrl+C).
5. Open a new Excel workbook, click on the cell A1 and paste the content (Ctrl+V). This should transfer all BME majors and their scores into a new Excel spreadsheet. Save this file as `BME.xlsx`.
6. You can go back to `Merged.xlsx`, and repeat the procedure for BME premedical majors. Filter the BME premed majors in by checking the ENGRBMP box. Cut and paste this data into a new Excel workbook, and save the file as `BMEP.xlsx`. You should now have BME and BMEP majors' data split up into two independent Excel files, which you can treat with your favorite statistical package to fill out the FCAR assessment table. The file names are, of course, optional, but if you saved them under these names, you can use my MATLAB program to generate the numbers for you. You can then simply cut and paste these numbers from a MATLAB-generated file into your FCAR.

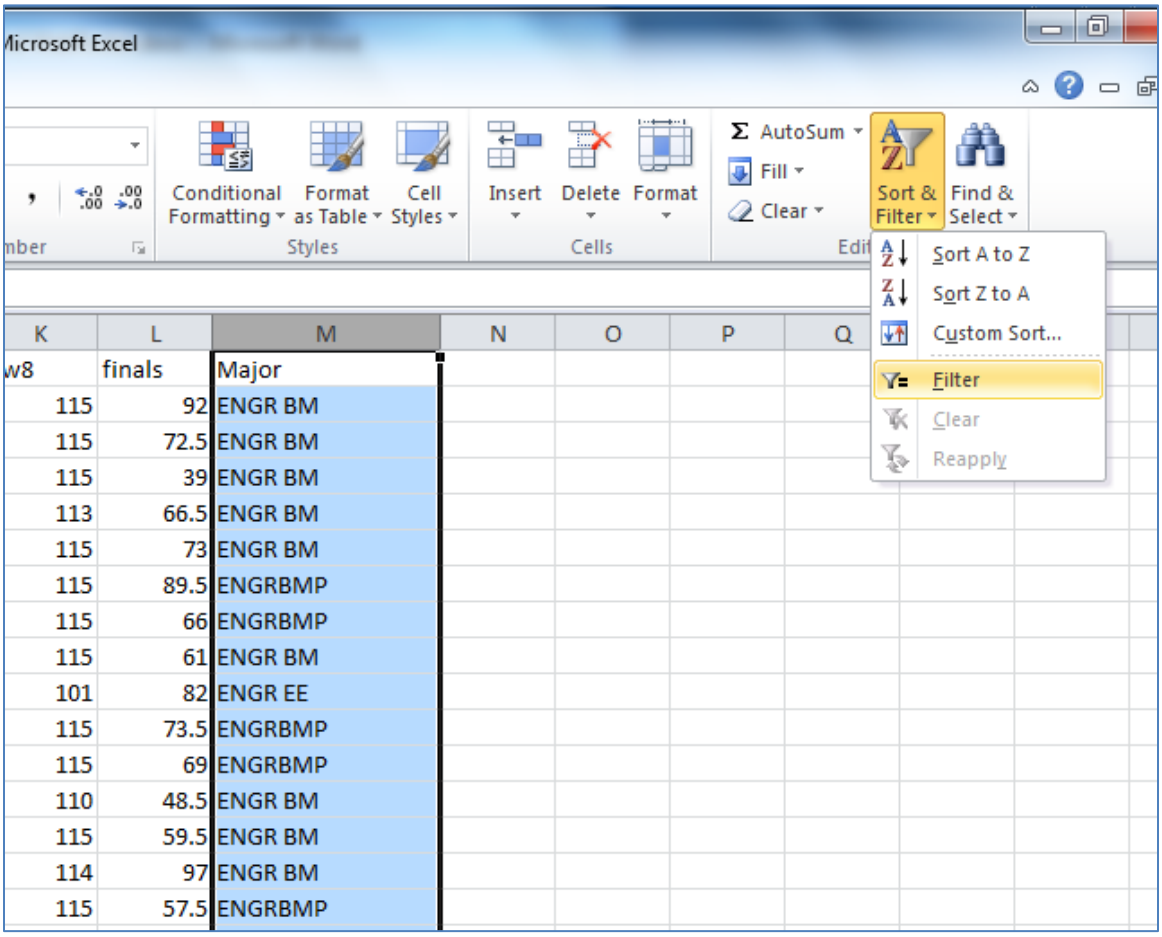
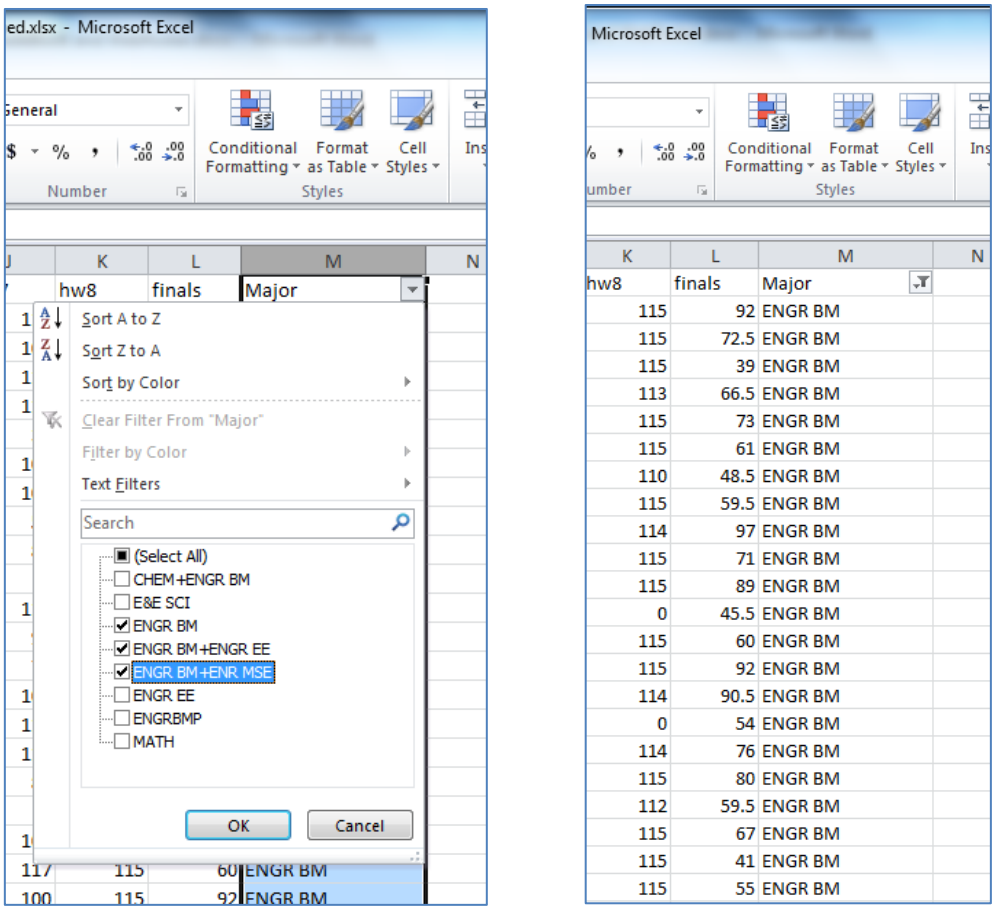


Figure 3. Filtering the spreadsheet entries by the Major.



hw8	finals	Major
115	92	ENGR BM
115	72.5	ENGR BM
115	39	ENGR BM
113	66.5	ENGR BM
115	73	ENGR BM
115	61	ENGR BM
110	48.5	ENGR BM
115	59.5	ENGR BM
114	97	ENGR BM
115	71	ENGR BM
115	89	ENGR BM
0	45.5	ENGR BM
115	60	ENGR BM
115	92	ENGR BM
114	90.5	ENGR BM
0	54	ENGR BM
114	76	ENGR BM
115	80	ENGR BM
112	59.5	ENGR BM
115	67	ENGR BM
115	41	ENGR BM
115	55	ENGR BM

Figure 4. Left: Selecting the BME majors (and those with dual majors of which one is BME). Right: Filtered cells, with BME majors only.

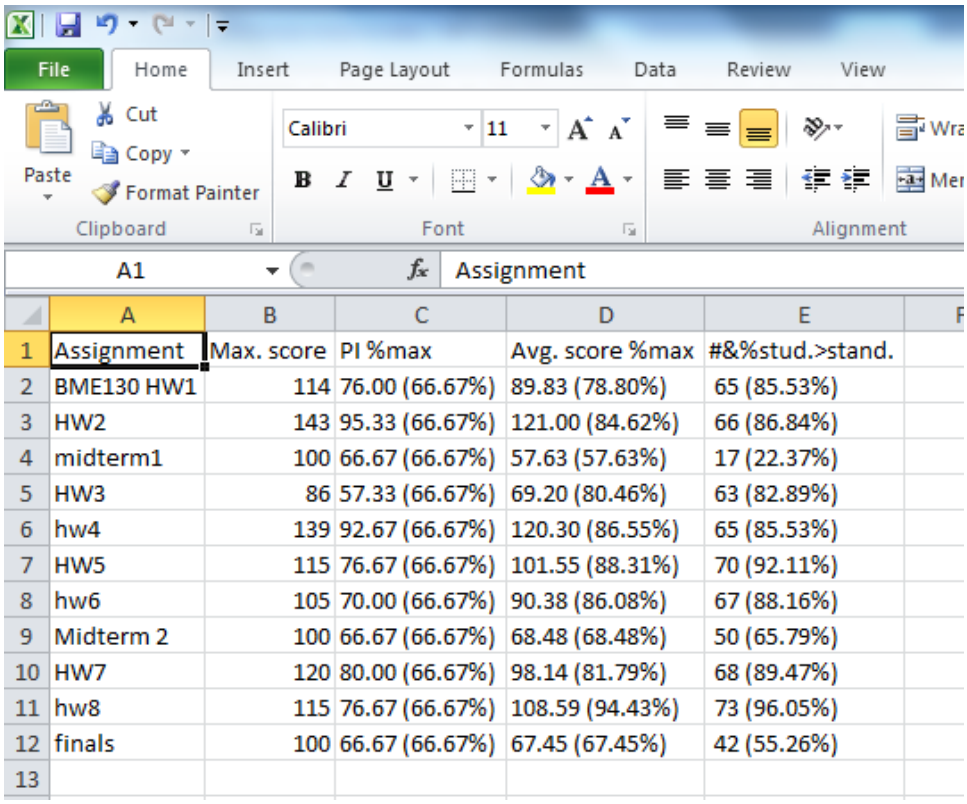
Automated Data Analysis

I created a simple MATLAB function that analyzes data and puts the results in an FCAR-friendly format. The function, `assess_performance.m`, handles the files `BME.xlsx` and `BMEP.xlsx`, or whatever your choice of the file name is, as long as the files are in Excel format. It will require you to provide the file name, the maximum scores per assignment (e.g. hws, midterms, final) and the performance standard. For example, this is how I analyze my `BME.xlsx` file (the easiest is to keep `BME.xlsx`, `BMEP.xlsx` and `assess_performance.m` in the same directory, and to set this as a MATLAB working directory):

```
>> MaxScore = [114 143 100 86 139 115 105 100 120 115 100];
>> Standard = 2/3*100;
>> [N,P,A]=assess_performance('BME',MaxScore,Standard);
Number of students: 76
Number of assignments: 11
>>
```

The elements in MaxScore are the maximal scores per assignments, where the order exactly matches the order of the columns in your Excel file. If all of your assignments are graded on a 100-point scale, you can simply set `MaxScore` to an empty array, i.e. `MaxScore = [];`

`Standard` is a number between 0 and 100 that defines the performance standard (I happen to choose 66.67% above). You can decide to choose something else. The above function will put the results into a tab-delimited text file: `BME_assessment.txt`. This file can be opened by Excel and its columns will nearly match those of the FCAR table. This can be done in the same manner as with `Gradebook.txt` and `Webroster.txt` files. An example is given below (Fig. 5).



	A	B	C	D	E
1	Assignment	Max. score	PI %max	Avg. score %max	#&%stud.>stand.
2	BME130 HW1	114	76.00 (66.67%)	89.83 (78.80%)	65 (85.53%)
3	HW2	143	95.33 (66.67%)	121.00 (84.62%)	66 (86.84%)
4	midterm1	100	66.67 (66.67%)	57.63 (57.63%)	17 (22.37%)
5	HW3	86	57.33 (66.67%)	69.20 (80.46%)	63 (82.89%)
6	hw4	139	92.67 (66.67%)	120.30 (86.55%)	65 (85.53%)
7	HW5	115	76.67 (66.67%)	101.55 (88.31%)	70 (92.11%)
8	hw6	105	70.00 (66.67%)	90.38 (86.08%)	67 (88.16%)
9	Midterm 2	100	66.67 (66.67%)	68.48 (68.48%)	50 (65.79%)
10	HW7	120	80.00 (66.67%)	98.14 (81.79%)	68 (89.47%)
11	hw8	115	76.67 (66.67%)	108.59 (94.43%)	73 (96.05%)
12	finals	100	66.67 (66.67%)	67.45 (67.45%)	42 (55.26%)
13					

Figure 5. Auto-generated assessment file opened with Excel.

The columns in the assessment file correspond to those in FCARs, with the exception of the *Number of students tested* column, which can easily be edited manually. Depending on how your assignments map into PIs, you may need to selectively transfer these data into your FCAR (i.e. you may wish to omit particular assignment).

Lastly, you can use the output variables, `N`,`P` and `A`, to calculate averages of the number of students meeting the standard (column E, 1st number), the percentage of students meeting the standard (column E, 2nd number), and the percentage average score (column D, 2nd number). Alternatively, you may want to generate these numbers directly in Excel.

Finally, you can do the same procedure to analyze the premed data:

```
>> [N,P,A]=assess_performance('BMEP',MaxScore,Standard);
Number of students: 34
Number of assignments: 11
>>
```

The function will generate the file: `BMEP_assessment.txt`, which can be handled in the same way with Excel. Transferring these numbers into a premed FCAR should then be straightforward.