

Homework 4

ENGR 130, AU 23

Submit your solution for Question 1 and your algorithm for Question 3 as a single pdf file. Question 2 will be submitted through MATLAB Grader, but you will also submit your solutions for Questions 2 and 3 as a single .m file. Follow all instructions in the Assignment Submission Guide posted in the Canvas Resources area. Failure to do so will result in a reduced (or possibly zero) grade.

Question 1 (3 points)

Work the remainder of MATLAB Onramp. Allow 30 minutes for completion.

Complete this problem as follows:

- Access the MATLAB Onramp course here: <https://matlabacademy.mathworks.com/>. Your previous work will be saved.
- Work through the remaining modules of this course.
- Upload to Canvas your certificate or a screenshot verifying 100% completion of the course. Make sure your name is visible.

Question 2 (4 points)

Go to the assignment HW4 – MATLAB Grader and complete the assignment that is linked there. Include a copy of the code you submit to MATLAB Grader in your submission to Canvas.

Question 3 (12 points + 2 for commenting and style)

The final grades of students in a class are stored as percentages in a vector. This vector is in the provided MATLAB file, HW4_scores.m, so that you can easily copy it and paste it into your script file.

First write an algorithm and then a MATLAB script to analyze the data, according to the following specifications:

- Use a loop to iterate through each student's score and calculate their letter grade based on the following scale:
$$\begin{aligned} 90 &\leq A < 100 \\ 80 &\leq B < 90 \\ 70 &\leq C < 80 \\ 60 &\leq D < 70 \\ 0 &\leq F < 60 \end{aligned}$$
- Display each student's score and their corresponding letter grade.
- Calculate and display the class average.
- Calculate and display the percentage of the class receiving each letter grade.
- The output should follow the format of the sample below.

```
Student 1: Score xx, Grade X
Student 2: Score xx, Grade X
.
.
.
Student 20: Score xx, Grade X
```

```
The average score for the class is xx.x.
xx.x percent of the class earned a(n) A.
```

xx.x percent of the class earned a(n) B.
xx.x percent of the class earned a(n) C.
xx.x percent of the class earned a(n) D.
xx.x percent of the class earned a(n) E.

Because it would be helpful to be able to use this script for classes of any size, you should write your code so that the vector of grades could have any number of elements and your code would still function properly.