# MATH 344 Lab - Assignment 2

*Instructor:* Rong Qin

Due on 2/7 on Blackboard by 2 pm.

(1) Write a function called **calculateGrades** that takes an arbitrary length vector of *grades*, then curves them.
   (a) Compute the mean of *grades* (use **for** loop, not the built-in function **mean**())
   (b) Normalize *grades* so that the mean is 70 by doing the following: *curvedGrade* = 70**grades*/mean.
   (c) Test your function with a vector *score* = [50, 80, 54, 85, 73, 67]. Include the output in diary.
   (d) Test your function with a vector *score* = rand(1,100) * 100.

(2) Write a function called **mymat** that creates an $n \times n$ matrix with $11, 22, 33, \ldots, 11n$ on the subdiagonal of a sqaure matrix (elements directly under the diagonal) and zeros everywhere else. For example, for $n = 4$ the matrix would be

$$A = \begin{pmatrix} 0 & 0 & 0 & 0 \\ 11 & 0 & 0 & 0 \\ 0 & 22 & 0 & 0 \\ 0 & 0 & 33 & 0 \end{pmatrix}$$

The function should input the matrix size, $n$, and output a matrix, $A$, as described above. Test your program with $n = 2$, $n = 6$ and $n = 10$. These tests should be in the diary you turn in.

**HW GUIDELINES**

- You should turn in both your completed code (two m-files), and a diary containing successful execution of each code (using the tests given in the problems). Your grade will be based on correctness, completeness, organization, and neatness.
- Your m-files should return a value as a variable (do not print the answer on the screen). Turn in a diary file showing the code executed correctly.
- Remember that m-files should be commented so that the reader knows what the program/function does. Include your name and section number on the top of the first page.