

# Lab 1 Assignment

Due on Friday, May 22nd by 5pm

- (1) Write an m-file to calculate the dot product of two vectors with arbitrary dimension. The function should input two vectors,  $u$  and  $v$ , and output their dot product,  $d$ . Test your program with the vectors  $u = (1, 2, 3, 4)$  and  $v = (2, 4, 6, 8)$ . Recall that the command “`dot(u,v)`” also calculates the dot product, so this is a good way to check that your program is working correctly. This test and check should be in the diary you turn in.
- (2) Write an m-file to create an  $n \times n$  matrix with 110, 320, 530,  $\dots$ ,  $210n - 100$  down the diagonal and zeros everywhere else. For example, for  $n = 3$  the matrix would be

$$A = \begin{pmatrix} 110 & 0 & 0 \\ 0 & 320 & 0 \\ 0 & 0 & 530 \end{pmatrix}.$$

The function should input matrix size,  $n$ , and output a matrix,  $A$ , as described above. Test your program with  $n = 2$  and  $n = 5$ . These tests should be in the diary you turn in.

## HW GUIDELINES

- You should turn in both your completed code (the 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.
- 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.