

# CMSC 201

## Section 60

### Fall 2023

#### Homework #6

#### Python Graphics using Matplotlib

Value: 40 points

#### Assignment:

##### Part 1: (10 points)

Write a Python program that generates the natural logarithms of the integers between 10 and 100, inclusive. Then use matplotlib to generate a graph of the logs on the y axis, with the integers on the x axis. Label both axes, and label the figure "Natural logs."

##### Part 2: (10 points)

Write a Python program that generates the squares and the square roots of the integers from 1 to 20, inclusive. Use matplotlib to plot a line chart showing both lines - that is, the squares, and the square roots.

##### Part 3: (10 points)

Write a Python program that uses the randint program from the random package to generate 100 random integers. Use matplotlib to create a scatter plot of the numbers generated.

#### Part 4: (10 points)

Write a Python program that uses the `randint` routine from the `random` package to generate 1000 random integers. Use the `matplotlib` library to create a histogram showing the distribution of numbers generated. Used 10 bins in your plot.