## Lab 5

## Ch En 263 – Numerical Tools

Due: 23 Jan. 2024

## Instructions

- Complete the exercise(s) below, and submit the following files to Learning Suite:
  - Handwritten portion: scan each page (or take a picture) and combine them into a single pdf named: LastName\_FirstName\_Lab5.pdf
  - Excel portion: submit a workbook named LastName\_FirstName\_Lab5.xlsx where each worksheet tab is named "Problem\_1", "Problem\_2", etc.
  - Python portion: submit a separate file for each problem named LastName\_FirstName\_ Lab5\_ProblemXX.py where XX is the problem number.
- $\bullet$  Warning: the LS assignment will close promptly at 11:59 pm and late assignments will only receive 50% credit.

## Lab Exercises

1. Do the following in an Excel Workbook. The data in the table below shows the opening stock price for Google from several days in August and September in 2016. Use conditional functions to calculate (a) the number of days where the price was greater than \$770 and (b) the average price on those days.

Date	Price $(\$)$	Date	Price $(\$)$
19-Sep-16	772.42	31-Aug-16	767.01
16-Sep-16	769.75	30-Aug-16	769.33
15-Sep-16	762.89	29-Aug-16	768.74
14-Sep-16	759.61	26-Aug-16	769.00
13-Sep-16	764.48	25-Aug-16	767.00
12-Sep-16	755.13	24-Aug-16	770.58
9-Sep-16	770.10	23-Aug-16	775.48
8-Sep-16	778.59	22-Aug-16	773.27
7-Sep-16	780.00	19-Aug-16	775.00
$6\text{-}\mathrm{Sep}\text{-}16$	773.45		
2-Sep-16	773.01		
1-Sep-16	769.25		

Hint: We used this data on the last HW, so you can just copy and paste the table.

- 2. Do the following in a Python file.
  - (a) Define x = 4. Write an if statement that will print the value of x if it is less than 7.
  - (b) Using x = 4, write an if statement that will add 4 to the value of x if it is less than 2 and subtract 2 if the value is greater than or equal to 4. Then print x to the console.

- (c) Let a be your age (in years). If a is less than 20, then print 'you are younger than 20'. If a is between 20 and 25 (inclusive), print 'you are between 20 and 25'. If a is greater than 25, print 'you are older than 25'.
- (d) Define a piecewise function  $f(t) = \sin(2\pi t)$  when  $-1 \le t < 1$  and 0 for all other t. Evaluate the function at f(-1.5), f(-0.99), f(0.2) and f(1.1) and print each value to the console.