**CSC 338 Parallel and Distributed Programming**

**Test 1**

Copy the Test1 folder from trace to your computer. Add your name in a comment at the top of test1.py and complete test1.py to read a file of numbers and calculate and print the sum of the numbers using n processes, where n is a command line argument. For example, the program will be invoked as follows for four processes:

python test1.py 4

You are allowed to use the sum function: *sum(a\_list)* returns the sum of *a\_list*. As stated above, each process should compute a subtotal and communicate that subtotal to the main process. The main process should balance the load, sending an equal number of integers to each process. If your program is able to handle a number of integers that is not evenly divisible by the number of processes, then the load should be balanced except that one process will receive more integers to sum than the others (alternatively, you could spread out the “extra” integers across several processes). You must write code that is appropriate for this context – in other words, you will not receive credit for turning in the solution to a class exercise or assignment.

The test will be graded according to the following criteria:

Name in comment at top of program………………………………………………. 10%

Basic structure with correct call of main().………………………………………... 20%

Read command line argument………………..…….……………………………… 20%

Calculate subtotals………………………………………………..………………... 10%  
Correctly create n processes...………….………………………………………….. 10%

Correct implementation for 4 processes and 40 integers…..………………............. 10%

Correct implementation for n processes and n \* m integers...………...……............ 10%

Correct implementation for arbitrary number of processes and integers…………... 10%

Copy the Test1 folder, with your completed program, to your upload folder on trace; be sure your name is in a comment at the top of the program.

This is an open-notes test; you may use anything on trace and the online Python language documentation but not the general internet.