**ENGR 2011: Engineering Analysis and Applications**

**Homework No. 1: Simple Linear Algebra**

**Goal:** Demonstrate that you can do some simple linear algebra in Python.

**Textbook Problems:** N/A

**Computer Problems:**

1. Write a Python program named p01.py that initializes each element of a 5x5 matrix to a value of 1.0. In the same program, initialize the elements of a second matrix to a value of 10.0. Demonstrate that you can add, subtract, and multiply these two matrices. Print your results to stdout.

Your program should run this way:

python p01.py

Extra credit will be given if you demonstrate something really cool!

1. Write a Python program, named p02.py, that reads a spreadsheet from a file and prints its values to stdout. Use this file as an example:

/data/isip/www/isip/courses/temple/engr\_2011/homework/current/hw\_01\_p02.xlsx

Your program should run this way:

p02.py <any filename>

For example,

p02.py hw\_01\_p02.xlsx

To do this assignment, you should import the pandas library. There is a standard function call that will import a spreadsheet into what is called a data frame. Do a Google search to learn more.

1. Convert hw\_01\_p02.xlsx to a csv file. Write a Python program, p03.py, that reads this file and prints the matrix to stdout. Your program should run this way:

p03.py hw\_01\_p02.csv

Again, you can do a Google search to learn how to read a text file into a matix data type.

Submit these three programs in your homework directory:

ece-000:/data/courses/engr\_2011/current/homework/hw\_01/<lastname\_firstname>/