**SFWRENG 2MP3 – Programming for Mechatronics**

**Fall 2018**

**Assignment 5: Pointers**

Note: Weekly course assignments account for 20% of the final course grade. **This assignment is due November 4tj, 2018 at 11:59pm.**

**Objectives**

The purpose of this activity is to develop a greater understanding of pointers and their application within the C programming language.

**Tasks**

In order to complete this assignment, you must submit a written report of the C code and output for each of the following questions.

**Question 1:** Create a program that allows a user to input a floating-point value, an integer, and a character. Next, create a pointer to each of the three variables. Your program should then print the address of, and value stored in, and the memory size of each of the variables (including pointers).

**Example Input (Integer):** 5

**Example Output:**

Address: 0x7ffda2eeeecc

Value: 5

Memory Size: 4

**Question 2:** Create a program that allows a user to enter two strings using pointers. Create a function that uses pointers to concatenate the strings and print the concatenated string (you cannot use strcat).

**Example Input 1**: Computer

**Example Input 2**: Science

**Example Output:** ComputerScience

**Question 3:** Create a program that uses pointers to find the largest integer that a user has entered (Number of integers has a maximum of 100). The output should be a string that contains a reference to the largest integer.

**Question 4:** Create a program that uses pointers to count the number of consonants and vowels within a string that has been entered by the user.

**Example Input:** McMaster

**Example Output:** The string has 6 consonants and 2 vowels

**Question 5:** Create a program to print the reverse of a string entered by a user through the use of pointers.

**Example Input:** McMaster

**Example Output:** retsaMcM