# Introduction to Computer Science
# Homework Six
### Due Sunday February 20, 2011

General Instructions

- Please email me the programs as a .py attachment.
- Name your programs with a helpful name. Include your name somewhere in the file name.
- Your program should be fully commented. Be sure to include your name and the date and an overall description of what the program does, in addition to any other comments that are needed.

These exercises are intended to be mostly straightforward practice of some of the conditional statements we've learned about recently.

1. Write a program that calculates a grade point average. Use a while loop so that the user can enter as many grades as he or she wants. When done, the program tell the user the number of classes taken and the grade point average. Only worry about letter grades, not +'s and -'s.

   (a) **Optional.** Enhance the program to account for + and - grades.
   (b) **Optional:** Add some code that catches errors in the user's entries. E.g., if the user enters a number the program should print a warning.

2. Write a function that takes as a parameter a list of numbers and returns the largest value in the list. Write a program that tests this function. The function should work for a list of arbitrary length.

3. Problem 17 from page 232 of Zelle.

4. Write a program that reads in a plain text file and calculates the average word length. (**Optional:** Modify the program so it also calculates the value of the Automated Readability Index. See `http://en.wikipedia.org/wiki/Automated_Readability_Index`.)

5. **Optional:** Problem 14 in Zelle, page 264.

6. **Optional:** Problem 11–12 in Zelle, page 264. (A few years ago I wrote such a program for Suzanne Morse so she could calculate degree days for Maine for her Gardens and Greenhouses class.)

7. **Optional:** Write a program that takes a list as a parameter, and then sorts the list. There are many different sorting algorithms. Some are fast, some are slow. For small lists it doesn't matter much. Ponder this problem some on your own before you start googling or looking at wikipedia. If someone handed you a deck of cards, what would be the quickest way to sort it?