



**COMPUTER SCIENCE  
AND SOFTWARE ENGINEERING**

**AUBURN UNIVERSITY  
SAMUEL GINN COLLEGE OF ENGINEERING**

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## **COMP 3220 Homework 8**

**Due: Thursday, December 4th, 2014, 11:59PM**  
**(Please submit using Canvas)**

This assignment is worth 100 points. You are required to use the SWI Prolog environment (<http://www.swi-prolog.org>) to implement the programs below.

Please upload a single package that includes (1) the source-code, (2) a text file including the instructions for properly executing the programs e.g., usage/invoke of the program (i.e., goal/query) and any constraints that the GTA should be aware of prior to running and testing the program, and (3) screen snapshots (pictures/snapshots embedded in a single WORD file) of the command line or GUI-based execution and output of each program on a test case.

- (1. 10pts) Using the structures `parent(X,Y)`, `male(X)`, and `female(X)`, write a Prolog structure that defines `sister(X,Y)`.
- (2. 15pts) Write a Prolog program that finds the maximum of a list of numbers.
- (3. 25pts) Write a Prolog program that succeeds if the intersection of two given list parameters is empty.
- (4. 25pts) Write a Prolog program that returns a list containing the union of the elements of two given lists.
- (5. 25pts) Write a Prolog program that implements Quicksort.