

# Computer Science 2300: Homework 7

Due: May 9, 2011

**Note:** Please use rigorous, formal arguments. If you are asked to provide an algorithm then you may either write pseudocode similar to the pseudocode in the DPV text, or provide a clear description in English. You **must** also provide an argument for why the algorithm is correct and an analysis of the running time. If doing reductions, remember to show that instance and solution conversion can be done in polynomial time. We encourage you to collaborate with other students, while respecting the collaboration policy. Please write the names of all the other students you collaborated with on the homework.

1. (10 points) DPV Problem 7.10 (Maximum flow in a network)
2. (10 points) DPV Problem 7.18 parts (a) and (b) (Max Flow reductions)
3. (10 points) DPV Problem 8.1 (Optimization vs Search)
4. (5 points) DPV Problem 8.9 (Hitting Set)
5. (5 points) DPV Problem 8.15 (Maximum Common Subgraph)
6. (10 points) DPV Problem 8.20 (Dominating Set)