

Computer Science 373 – Analysis of Algorithms
Prof. Steven Skiena
Fall 2018

Homework 3 – Graph algorithms
Due Thursday October 25, 2018

To facilitate grading, limit the solution of each problem to the front side of a single sheet of paper. You may put two or more problems on a single side if they completely fit, but keep the problems in order. Staple all these sheets together! Please don't wait until the last minute to look at the problems. All numbered problems come from the second edition of *The Algorithm Design Manual*, by Skiena.

1. Problem 5-4.
2. Problem 5-7.
3. Problem 5-12.
4. Problem 5-13.
5. Problem 5-14.
6. Problem 5-19.
7. Problem 5-25.
8. Implement an algorithm to print out the connected components in an undirected graph (in whatever language you wish). Test files will be provided on my WWW page. Turn in a print out and the output on all my examples.
9. Problem 6-4.
10. Problem 6-5.
11. Problem 6-9.
12. Problem 6-15.
13. Problem 6-17.

Interested students may attempt the extra credit programming challenges problems described at the end of the relevant chapters for a small amount of additional points – small enough that you should be motivated primarily by interest and not greed.