

Computer Science 373 – Analysis of Algorithms
Prof. Steven Skiena
Fall 2021

Homework 3 – Graph algorithms
Due Thursday October 21, 2021

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. Solutions must be submitted via BlackBoard, with each partner submitting the same full assignment. Please don't wait until the last minute to look at the problems. All numbered problems come from the **third** edition of *The Algorithm Design Manual*, by Skiena.

1. Problem 7-4.
2. Problem 7-8.
3. Problem 7-16.
4. Problem 7-17.
5. Problem 7-18.
6. Problem 7-23.
7. Problem 7-34.
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 8-4.
10. Problem 8-5.
11. Problem 8-10.
12. Problem 8-16.
13. Problem 8-18.

Interested students can try the programming challenge problems at the end of each chapter – the amount of extra credit is small enough that you should be motivated by interest and not greed. Hot shots are encouraged to prepare Wiki solutions for any problems that need them.