

Computer Science 373 – Analysis of Algorithms
Prof. Steven Skiena
Fall 2025

Homework 3 – Graph algorithms
Due Thursday October 23, 2025

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 BrightSpace, **as scans of hand-written originals**, 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.