

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

Homework 5 – Dynamic Programming and Intractability
Due Thursday December 4, 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. Implement the dynamic programming algorithm for approximate string matching (in whatever language you wish) and use it to find the best alignment between the following pairs of strings:
“watch the movie raising arizona?”, “watch da mets raze arizona?”
“this is what happens when I type slow”, “htishisth whaty havpens when ui type fasht”
“leonard skiena”, “lynard skynard”
2. Problem 10-8.
3. Problem 10-13.
4. Problem 10-25.
5. Problem 10-30.
6. Problem 10-31.
7. Problem 11-1.
8. Problem 11-2.
9. Problem 11-11.
10. Problem 11-16.
11. Problem 11-17.
12. Problem 11-18.
13. Problem 11-22.

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.