

Rubric for writing up problems on problem sets

Analysis of algorithms

CSCI 511

Automatic deductions:

- Failure to either list group members or state that you worked alone: -10 pts
 - If this was not an honest mistake but instead plagiarism, you will be investigated.
- Failure to mention that you used an AI tool: no credit, potentially plagiarism.
- Work is not typed: no credit

Components required for full credit on each problem:

- Explanation of steps to arrive at answer (~50-70% of pts): This should be a combination of prose written in complete sentences plus math as needed.

This is the most common place for people to lose credit.

The best explanations for a problem that asks for “an algorithm” will explain the pseudocode that’s given using a combination of a few comments within the code and around a paragraph of writing that says what it does. Use descriptive variable names.

The best explanations for an analysis problem will include two parts:

- Intuition for the result explained in words, usually with minimal math.
 - An actual proof using math. This does not have to be extremely formal but should cover the correct logic. The problems in the homework can all be solved using the proof techniques that you learned in 301 and that we cover in class. You’ll need to get creative. Often people provide an intuitive explanation but skip a proof and are surprised when they lose points.
- Correct answer (~30-50% of pts): Either a mathematical/analytical result or code/pseudocode. Pseudocode following the conventions of the book is strongly preferred to actual code. If you want to present an algorithm in a language closest to pseudocode, Python is best but avoid list comprehensions and other idiosyncratic pythonic ways of doing things.
 - Runtime analysis (~5-10% of pts): You need to analyze the runtime of any algorithms presented. Usually this is short.

Examples of other things that can cause you to lose points:

- Skipping a step in an explanation/derivation (often minor).
- Using a complicated formula or result without explaining where it comes from. If you found a formula in the book or internet, reference the source.
- Poorly organized.

Quizzes and exams: In general, I’d like the same components for an answer in these settings. But with limited time, I’ll expect less writing overall.