

Algorithms and Uncertainty Project Guidelines

This quarter you will be doing a small project in algorithms; 30% of your grade for this course will derive from this project. The project will consist of choosing a theoretical paper on a topic related to the course, and writing a 7-10 page summary of the paper. We will provide a list of possible papers you can choose from, although it is fine if you want to choose a paper that is not on our list; just check with us first.

All projects must be done in **groups of 2**. Working on your own is not allowed.

Requirements

Write a summary of the paper. Your write-up should contain the following items:

- **Introduction:** This part should contain the problem definition, motivation, applications, and a brief summary of prior work.
- **Main contributions:** This part should contain the main results of the paper and why these results are interesting/important.
- **Overview of the proofs:** In this part you should give a high-level overview of the proof and the main ideas. What is the novelty of the paper which makes it different from the previous work?
- **Details of the proof:** Pick the most interesting lemma used in the proof and write your own version of the proof of that lemma.
- **Future directions:** In this part, you should present at least two open questions or directions for future research related to the paper.

Your writeup should add significant value to the published version: more intuition, extra examples, details filled in, figures that clarify the ideas, clearer exposition, etc.

Deadlines and evaluation

- Email your paper choice to Anna and Nikhil by May 1.
- The final paper on your project will be due on May 30. You will post it to the class discussion board. The paper will be evaluated on clarity, correctness, completeness, and depth.
- 2-4 groups will be selected to give a 30 minute presentation on their paper. These presentations will be during the final class period (June 2) and the final examination period. All students are encouraged to attend these presentations. The presentation will be evaluated on clarity, and on how interesting it is. Ideally, the presentation itself should be split between the two members of the group.

- Each student that is not part of a presenting group will read one write-up from another group and provide a substantial comment on the discussion board for this by June 7. Comments can include a discussion of points that you found unclear and why, questions about the results, suggestions for further related research, citations to relevant papers, etc. Comments need not be more than about a page long (and less is okay – we’re looking for quality, not quantity.)