

GROUP PROJECT PRESENTATIONS

Math 480A: Algebraic Complexity Theory
Spring Quarter 2019
Jarod Alper

1. OVERVIEW

In groups of 4, you will choose and study a specialized topic within complexity theory. You will present your topic on a poster including background material, relevant examples, pictures and/or computations. The target audience for your poster is your fellow students, *not me*.

2. MOTIVATION

The following three reasons explain why we are having group presentations:

- (1) The group projects allow you to choose your own trajectory through the field and will expose you to what you find interesting. There are many different directions the projects can go and the projects give you the freedom to pursue and learn what you want to.
- (2) Communication of technical ideas is an incredibly important skill. Whether you are a future research mathematician or scientist or an employee at a company, chances are you will need to communicate your ideas to others. The group project will give you an opportunity to explain what you've learned to others.
- (3) Both in academia and in the professional world, teamwork is essential and the group project will provide some experience in learning to work well in groups.

3. DATES AND DEADLINES

- On Friday, May 17, your group needs to submit a project proposal (see below).
- During the time of the final examination (2:30-4:20 pm on Wednesday June 12), you will bring your poster. There will be time for you to explain your topic to other participants and there will be 10-15 block of time reserved for you to present your topic to me.

4. PROJECT PROPOSAL

In less than two pages, present a summary/outline of your topic. You should try to answer some of the following questions:

- What topics will you cover? This may be hard since you likely haven't learned most of the topics yet but you should try to state generally what you plan to learn.
- How does your topic relate to the course content?
- What books, articles or papers will you use? Try to make precise pointers to the parts of the reference material you will use.
- Why is your topic interesting?

- What examples, computations or data would you like to use?
- How will you divide the work? Please list what each group member is responsible for doing.

You will receive feedback on your project proposal which should help you in your further studies.

5. THE GROUP PROJECT

There will be several days of lectures devoted to the group presentations. You will break into your groups to discuss and work on your project. I will spend time with each group reviewing the goals and providing whatever ways I can.

It can't be overstressed that: *Learning mathematics on your own is difficult!*. This project will be challenging but I am here to help. In addition, the course website provides some resources that you may find useful.

6. THE POSTER AND PRESENTATION

In the end, you will design a poster which summarizes your topic. You need to present the information clearly and succinctly. You should begin by providing the necessary background material and introducing your topic. You should then provide details of what you've learned—the actual format that you use and whether you include pictures, formulas or computations will depend on your project. In the end, you should try to highlight at least one major conclusion that you find interesting—it could be a theorem that you tried to understand or it could be a computation that you performed.

During the presentation, you should be prepared to present the topic succinctly in 10-15 minutes. Each member should have a role in explaining parts of the topic. In addition, you will be responsible for responding to questions.

7. ASSESSMENT

Each member of your group will be given the same grade on the assignment. The grade will be determined by:

- the project proposal;
- the group presentation to the instructor; and
- the design and content of the poster.