

CS269: Mathematical Frameworks for Social Computing

Final Project Guidelines

Winter 2012

1 Project Overview

All students are required to complete a class project. This project is intended to provide you with a chance to explore an area of research related to the course in more depth. The project is fairly open-ended. You may choose to explore any topic that excites you, as long as your project relates to the themes of the class.

Projects may be completed in groups of up to three students. It is **very strongly recommended** that you work in a group of two or three. Some of the papers you read will involve ideas and techniques that are new to you, and it can be extremely useful to discuss them with your partners. Plus, research is more fun when you get to share your ideas and discoveries with collaborators! **The same criteria will be used to evaluate groups of any size** — in other words, your group will not be expected to do more if there are three members as opposed to one or two.

Here are a few types of projects you might consider:

- Take a model that is described in a paper and explore how accurate the assumptions are in practice, or implement an algorithm and explore how much its performance degrades if the assumptions aren't satisfied. Use real data or simulations to back up your claims.
- Read and critique several related papers we did not discuss in class. If you choose this option, you should be sure not to just summarize existing work. You should strive to provide insight about this work, such as connections between different papers, assumptions that you found unrealistic or unmotivated, or interesting open problems that could be studied. Projects of this variety will be graded based on the insights you provide.
- Try to tackle a new research problem. Design your own model for a social computing system and try to prove a few results in your model, or try to extend the results in one of the papers we read in class. This type of project can be the most fun, but it can also be hard. Start by trying to prove something simple, and go on from there. If your results don't work out, it's ok — explain what you tried, give a clear description of your reasoning, and describe what went wrong.

You are welcome to work on a less theoretical research problem too, as long as you can clearly articulate how it relates to the themes of the class, including the “mathematical frameworks.” This list is not meant to be exhaustive, but to give you a general sense of the scope that is expected. If you have an idea for a different type of project you would like to work on, feel free to propose it, or come talk to me.

2 Important Dates and Milestones

There are four deliverables associated with the project. All submissions are one per group.

- **Project Proposals:** Proposals may be submitted by email (jenn@cs.ucla.edu) any time between now and Monday, February 13. Submit your proposal in plain text, right in the body of the email. Be sure to copy all group members on the email so that I can send feedback to everyone.

Your proposal should contain a preliminary project title, a list of team members, and a brief (approximately 3 paragraphs) summary of what you plan to do. It should include a list of the primary references that you plan to use. (Claiming that you don't need any references is not a good idea!)

The proposal deadline is purposely set late so that you will have lots of time to consider different options, but you are encouraged to submit your proposal earlier if you're ready to get started and want some feedback. This could be especially useful if you plan to propose a research project that will take more time to complete.

- **Progress Reports:** A brief progress report should be submitted by email (jenn@cs.ucla.edu) by Friday, March 2. This is roughly the midpoint between the date that initial proposals are due and the date that the final reports are due. You may submit your progress report either in plain text in your email or as a pdf attachment of no more than one page.

Your progress report should include a **brief** description of the work that you have already completed, and a summary of the next steps that you plan to take. The purpose of this report is to help you make sure that you are on track for finishing your project in time. By this point, you should have read some relevant papers and made some initial progress, and should have a clear idea of what to do next.

- **Project Presentations:** Each group will be responsible for a short in-class presentation describing the idea behind your project as well as your results. All presentations will take place on Tuesday, March 13 and Thursday, March 15. The exact amount of time will depend on the number of groups.

Presentation scores will be based on the clarity, structure (we will talk about this more in class), technical merit, and relevance to the course. All students are required to attend the presentations.

You are not required to use slides for your presentation, but if you would like to, please email a pdf version of your slides to me by 10am on the day of your presentation.

- **Final Report:** The primary component of your project is the final report, which will be due at 5pm on Monday, March 19. You are welcome to submit your report earlier than this, but **no reports will be accepted after the deadline**. Final reports must be submitted as a hard copy in person. You can either drop off your report with me in 4532H Boelter Hall, or if I am not around, leave it with Edna Todd in 4532N. Please give your report directly to either me or Edna.

Final reports must be no more than **six pages** including any figures and references, must be in 11 point or larger font, and must use single column format. As long as you follow these requirements, you are free to use any format that you like. If you received help from anyone outside your group (including your advisor, another faculty member, or other students in the class), you must acknowledge their contributions appropriately in the report.

Your grade will be based in part on the clarity of your report, so please make sure your final report is written clearly! You may wish to show a draft of your report to a student from a different project group in order to get feedback about the presentation of your results. The ability to communicate your results clearly is a very important part of the research process.

Your report will also be evaluated based on the technical quality of your work. This means that techniques you use should be reasonable, stated results should be accurate, proofs should be correct and complete, and any gaps in your arguments should be noted and explained.