Purpose

The purpose of the project is for you to produce a piece of creative and individual research about a mathematical topic.

More generally, I would like for you to realize two things during the course of this project:

1. mathematical thought is creative and
2. the skills you use for mathematical thought and research are valuable and transcend to various areas of life

I will provide a careful outline to aid you in this process. While it may seem that following such a strict outline will entirely stymie any creativity you may attempt to bring to the project, I assure you that this is a trade-off that will work well for you, and that there will be sufficient creative opportunity.

It may also feel that the project instructions and guidelines are vague. This is may be true, but remember, as you research new mathematical (and otherwise) material, you will often be lost and not know which direction will lead you down the ‘right’ path. However, pursuing ‘wrong’ avenues is not always fruitless and can still provide for a valuable learning experience (you will not be penalized for perusing such avenues).

Requirements

The requirements are as follows:

- You must choose one of the provided topics.
  If you have an idea for a project that is outside of the suggested topics, I am totally open to letting you pursue it. However, you must talk to me about it before beginning. Further, I will require a draft of your project to make sure you are on a fruitful path.

- The length is to be 3-6 pages with approximately 12 point font and 1 inch margins.
  You will be unable to address the issues I identify adequately in less than three pages, so that is a lower bound for the length of your paper. The word limit for your final document is 1500 words (this is around 6 double spaced pages).
  You are also encouraged to include graphs, diagrams, flow charts, illustrations, etc to clarify your points (but if your diagram takes up a full page, it will not count as a page of your project).

- I will provide a step by step process for accomplishing each project. You must do each step.

- Do not include an introduction or conclusion.
  In my experience most students spend far too much time writing these and produce an essentially worthless waste of space nonetheless. Further, the projects are structured in such a way that in introduction (and conclusion) will not make much sense.

Further details

Write the paper so that someone else who is in this class could understand everything you wrote a year from now. Thus, you should include details that are easy to forget, but should not spend lots of time explaining the basics.

There are four things you have to do to produce a well written document: write, edit, edit, and edit. You should be incredibly sick of your own writing at some point. Anything that you find especially clever is probably crap and should be removed. (This is true of most academic writing.)

Finally, your aim in your writing should be, above all else, clarity. To this end, avoid making jokes: they come across poorly and are difficult to understand in written format. Do not be sarcastic, or ask vague questions. Remember this: if I read what you’ve written and think you’re wrong you’ll lose some points, but if I read what you’ve written and don’t know what you mean, you’ll get no points at all.
Procedure

You can choose to do any project you like. I will briefly explain a bit of the context of each project as it arises in class. Some projects are ‘harder’ than others and this will be taken into account when I am grading. Each project will have it’s own specified instructions.

While it is not required that you submit a draft, it is extremely highly recommended. The odds of you getting a good grade without submitting a draft are vanishingly small. Feel free to work in groups doing the research and discussing the projects. All writing must be done individually. Similarly, please avoid working with a tutor. If you have questions, come speak with me about your confusion. The goal of this project is to have you develop your own original understanding from reading and thinking, not from having someone else teach you and I cannot monitor what the tutors do and do not say. I would much rather that you did not understand everything and clearly communicated your misunderstandings than presented regurgitated correct information.

When you submit a draft, I will mark it up with lots of criticism and probably provide a summary of this at the end. Take as much time as you need editing it again after that. For a second round of criticism from me, ask, and if I have time I will grant your request. I will not provide more than two rounds of criticism. You will not need to use any outside sources, so don’t. Although I do recommend gathering definitions from Wikipedia.

Don’t cheat or plagiarize, it’s extremely obvious when you do (believe it or not). You will receive an F if you plagiarize.