Math 203: Linear Algebra

Spring 2024 Project Rubric

Objective

The project will be an effort by the student during the last month of the semester that will result in a paper-formatted report that summarizes two use-cases of topics presented during the course. Students will practice finding peer-reviewed results that have used methods from class, then summarize their implications in a paper.

Formatting

The project must be typed and formatted as if it were being submitted as a research paper summarizing results. Please begin with an introduction that describes the two topics from the class you will be addressing in the project. Then, the paper should summarize how each topic was used in the associated paper. Finally, end with some closing remarks or thoughts about what else could be done, if other techniques from class could be used, etc.

For example, suppose the student picks these two topics from class: determinants and eigenvalues. The student should find two academic papers where each topic is used. Then, the paper should look like:

Introduction
- Description of determinants
- Description of eigenvalues

Determinants in [Topic]
- Summary of the use of determinants in the first paper

Eigenvalues in [Topic]
- Summary of the use of eigenvalues in the second paper

Conclusion
- Discuss what else could be done or what other techniques could be used.

References
- Paper 1
- Paper 2
- Other papers, books, etc. if needed

There is no requirement on length. The paper should be long enough to adequately discuss the topics. However, I would recommend a few paragraphs for the introduction and roughly a page or two for each topic. The conclusion can also be fairly short. The references do not need to follow a particular formatting. But, the formatting should be consistent. If you use MLA, stick to MLA for all of your references.

Grading Rubric

The project paper is due by the day of your final, although I would recommend submitting the paper by April 23, which is the last day of class. The project will account for 5% of the students overall semester grade. On a scale of 10, the score break-down will approximately be the following:

- Topic 1: Approximately 4 out of 10 points will be given for picking one topic from class, adequately describing the topic, and finding an interesting use-case of the topic. Description of the topic and the summary of the use-case will be split about evenly in points.
- Topic 2: Approximately 4 out of 10 points split similarly to the first topic.
- Formatting: Approximately 2 out of 10 points will be given for the formatting of the project. This includes proper headers, full sentences, properly formatted references, etc. If the student is willing to learn LaTeX, a bonus point will be offered (see optional section below).

Optional: Learning LaTeX

LaTeX is a powerful tool for preparing academic documents. If you are a STEM major, there is a high chance you will come across this at some point in your career. While it is not required, you may find it beneficial, particularly if you are interested in staying in academia or attending graduate school.

The easiest way to begin learning LaTeX is to use an online editor, the most popular of which is Overleaf. You can register and use Overleaf for free. Your document will be stored in the cloud online and accessible anywhere you can log-in to your browser. There are premium features that can be purchased on a subscription basis, but this is not necessary nor recommended. Overleaf also offers a starting tutorial, which can be read here:

`https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes`

It may take a bit longer than 30 minutes to learn, but it's a convenient tool that you can use in future courses. If you have any questions, you're welcome to ask during office hours. Alternatively, if you're unsure what to do, keyword search with Google (and add-in 'latex') and an article with examples will likely pop-up.

Learning LaTeX is not required. However, submitting your individual project in LaTeX (with the .tex file printed out or attached) will give an additional point.