

PROJECT DESCRIPTION

IDEAS OF MATH, FALL 2024

1. Description

The goal of this class project is to provide the students a chance to work with the concepts they learn in MATH 102 on certain topics of their chosen. The project is about a mathematical concept that has not been discussed in class.

The students must produce a mathematical report and a deliverable (video or presentation).

There are two options for the deliverable:

- (1) Create a video
- (2) Create a poster / Powerpoint presentation

2. Timeline

- (1) Each group is given a topic on August 27, 2024.
- (2) Team/topic change requests must be submitted via email by September 6, 2024.
- (3) Meeting with Prof. to talk about initial progress. (Schedule by Google Sheet from Oct 21-25).
- (4) Your written report is due Friday, Dec 1, 11:59 PM. Note
 - The report will be rejected if it is not written in LaTeX.
 - Late work will be rejected.
- (5) Video showoff / presentation in class on December 3.

3. Topics and Groups

There are 6 topics and 11 groups in total. (What does it say about the number of groups with the topics?) Please follow the link to the Google Sheet on Canvas to know your assigned group and topic.

Date: September 19, 2024.

4. Requirement and evaluation

There are two objectives:

- (1) You must write a full mathematical report.
- (2) You present a mathematical concept to other people.

Both will be evaluated using the following criteria (adapted from a grading Rubric by Kathryn Mann of Cornell):

I. Oral Presentation

a) Content (3/5).

- Appropriate choice of material given the time constraint
- Mathematical concepts (examples, theorem statements, etc.) explained correctly
- Sufficient definitions, illustrations, and/or motivation are given
- The mathematical material is at a level appropriate for math 130 students to understand

b) Clarity and Delivery (2/5).

- Board writing is clear and large enough. (Same for diagrams/pictures if you draw any.)
- Speaking is clear and well-paced; the presenter faces the audience rather than the board when possible
- Concepts are clearly and concisely explained
- The presentation appears rehearsed and is within the time limit. (Note: it is okay – in fact, I encourage you – to have some written notes with you while you present. But ideally, you should not have to look at them very much!)

II. Written Report

a) Mathematical Content (4/10).

- Is the mathematics consistent and correct?
- Is it at a level of sophistication appropriate for this class?
- Are topics and ideas introduced with sufficient explanation?
- If there are pictures, figures, or examples, are they accurate, appropriately used, and do they support the text?

b) Clarity of Mathematical Exposition (3/10).

- Are topics presented in a logical order?
- Does the paper achieve an appropriate balance of conciseness and explanation?
- Are complicated parts/proofs (if any) broken into steps?

c) Style (3/10).

- Is the paper clearly written, in paragraph form?
- Is the grammar, spelling, and sentence construction correct?
- Does the introduction serve its purpose?
- Is the paper readable and does it flow?

5. Advice

Start early and meet with the instructor regularly when you have questions.

A guide for math writing: <https://math.berkeley.edu/~kpmann/writingadvice.pdf>