

**MATH 2000 - WRITTEN AND ORAL PRESENTATIONS
OF A MATHEMATICAL PROJECT**

What you learn in MAT2000.

- Written and oral presentation of mathematics through a project.
- How to search the literature for material which is important for your project.
- How to communicate with others about mathematical ideas.■
- Use of Latex for written presentation of mathematics.

Types of projects

- Write your own presentation of material from a book or a paper.
- Combine results from books/papers to give an exposition of a topic.
- Write the proof of a general theorem in a particular case which is interesting.
- Apply a method from the literature to a particular situation.
- Prove a new theorem. (Almost impossible!)

Advisors

- The advisors are professors who will present projects in the beginning of February.
- Projects are assigned on a first-come first-served basis.
- Some projects may be partially shared, but everyone has to write his/her own project.

General outline of a mathematical paper.

- Introduction which explains the background of the problem.
- Definitions.
- Statement of the main results.
- Indication of methods used.
- Detailed proofs, divided into lemmas, theorems and propositions.
- Concluding remarks and indication of where one could go from here.
- Sometimes it is natural to start with a table of contents.

Some advice on how to write.

- It is very important to write such that it can be read and understood by others. Think of a potential reader as one of your fellow students, who knows some mathematics, but is not an expert in your topic.
- Try to make the ideas as clear as possible. A page of calculations is not very informative if you do not tell what you doing.
- If the proof is long, break it into digestible pieces. Divide into sections.
- Tell the reader what is going to happen before it happens.
- Tell the reader what has just happened before you go to the next step.
- At the end of an argument, summarize it.
- Always be very clear under which hypotheses you are working. If this changes, you must say so. ■

The work process.

- Rule number one for mathematical writing is that you have something to say. Understand the project properly and what are the main definitions and results before you start to write anything. Perhaps write an outline ?
- Rule number two is that once you have grasped the main outline of your project, start to write it up. The writing process will force you to focus your thoughts on the details and improve your understanding of the subject. You will probably discover during this process that you need to change your initial idea of the presentation, but that is fine.

References.

- It is very important that you make a list of which references you have used. Any reference that contributed to your project should be on the list.
- It is likely that an argument in your project is taken more or less directly from a paper or book. But you must avoid making a word-for-word replica. What you write should be what is inside your own head.