

18.784: INFORMATION FOR PRESENTATIONS

Basic information. You will give two collaborative 75-minute presentations on Gouvea's book, plus one individual 20-minute presentation on your paper topic.

- The 75-minute presentations will be in groups of two. **The work should be divided roughly equally between the two teammates.** The typical model is that one person presents the first half for 35 minutes and then the other person presents the second half for 35 minutes, leaving 5 minutes at the end for questions, but if you think another format would work better for your material then feel free to innovate.
- Presentations should be on the chalk board, rather than (say) slides.
- **Please encourage questions and interruptions from the audience, and be prepared to adapt your presentation to accommodate them.** It may be advisable to plan to speak for 30 minutes each, and leave the rest of the time as a buffer for potential questions.
- You should work closely together with your teammate to ensure that both parts of the talk are presented clearly and work well together. In addition to the practice talk with me, you are expected to practice your talks with each other and try to improve each other's presentations.
- You are also asked to **prepare typed lecture notes for your talks**, to be due the week after your talk. To make up for this, you are excused from problem sets for the weeks that you present.

How you should prepare your talk. I will assign approximately 10 pages from Gouvea's book during the talk. (The first week is lighter, to make up for the shorter amount of preparation time.) You should cover the main definitions and results from these pages, but **you do not need to cover every detail, especially when it comes to proofs.** For long or technical proofs, it is okay to skip some steps, or to just give the main interesting idea, or even just to give an illustrative example. On the other hand, you will notice that the book has many problems. **You are expected to add to the material** by working out some of these problems (as much as is enlightening) or by adding your own helpful examples.

In summary, your lectures should extract the most important points from the assigned passage of the book, and also spell out some details which are **not** explained in the book.

- The following is a recipe for a **successful presentation.** Read the relevant pages, digest the material (consult the resources on reading mathematics for the tips on how to do this), and then try to organize it into a story that is compelling for **you.** Then put the book aside and try to tell the story yourself, from memory. You'll most likely find that you can't quite remember how a definition went, or what the statement of a Theorem was, or how to prove something. At this point you can turn back to the book and find the answer, and you'll understand the key point you were missing. This process will also prepare you to anticipate potential confusions from the audience, and design examples to explain them.

- All too many times, I have seen *unsuccessful presentations* that went like this. The speaker copies parts of the book onto their notes, and then copies the notes onto the board, not realizing that key motivations or definitions or Lemmas were missed. To avoid this, a good trick to resolve to **avoid using lecture notes** as much as possible. This will force you to understand your own narrative. You may still keep a copy of your notes nearby, to consult in case you get nervous and forget something, or want to double check that something was stated correctly, etc.

Tips for giving good presentations. See these documents by Halmos and Ruff (click on the names to link to the websites) for guidelines on presentations. Also see the practical suggestions by Bjorn Poonen. More advice can be found at this website. In addition, I would like to emphasize the points below.

- Appreciate that giving a blackboard talk is more difficult than it seems! Your presentations will require thoughtful planning and practice.
- Most people write too small at the board – write for the audience at the back of the room, not for yourself.
- Most lectures are too fast. Plan to pause frequently and ask for questions. You can often gauge from facial expressions whether people are engaged and following.
- A rough rule of thumb is that it takes 30 minutes to cover 2 one-sided, single-spaced pages of notes. Of course, the best way to know your timing is to practice the talk.
- Not every word you say needs to be written on the board, but everything you want the audience to remember should be written down.

Feedback. After every talk, I will solicit feedback from the audience via online Google Form. I will then send the (anonymized) comments to the speakers. If there are questions or ambiguities arising from this, I am available to discuss.

Recall that 10% of your grade is based on the quality of your feedback to your peers. Please comment on things that worked well, things that didn't work well, and give (constructive) suggestions for improvement. I do not necessarily expect there to be much to say about every talk.

Individual final presentations. The final presentations are 20 minutes long, plus 5 additional minutes allotted for questions. This is a common time length for junior research presentations at conferences. It is not intended to be a summary of your paper, but more like a “teaser trailer” to get people interested in reading your paper. Beware that 20 minutes feels very short at the blackboard! As such there is usually no time to cover proofs, and possibly not even precise definitions, depending on your topic.

It is okay to elide technicalities (and even highly recommended in some circumstances) in your talks as long as you tell the audience that you are doing this: for example, it is perfectly acceptable to say “a group is a set G with a binary operation $G \times G \rightarrow G$ satisfying some technical properties...”, without writing them all down, or “a monoid is like a group without inverses”.

Overall, I will be looking at your final presentations as an opportunity to celebrate your hard work, not as an occasion to nitpick.

Grading. Presentations will be graded according to the following rubric.

- **Mathematical correctness (40%).** I am looking to see that the math and its motivation are correct and demonstrate a solid understanding of the material; terminology and notation are used correctly; any errors are minor and are quickly caught and corrected.
- **Clarity and design (40%).** I am looking for good organization, examples, figures, explanations, and carefully structured board work. Delivery should be well-prepared and the language appropriately precise.
- **Audience Engagement (10%).** The presenter should be sensitive to audience engagement. This includes the pacing of the lecture, pausing adequately to invite questions, and addressing them satisfactorily.
- **Process (10%).** I am looking to see that the practice presentation was carefully crafted (e.g., well-practiced), and that feedback on practice talks was taken into account.