How To Give a Talk
Advice on Preparing and Presenting Technical Talks in the Mathematical Sciences

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Outline
- Motivation
  - Giving a good talk is important!
- Preparation
  - Know your audience
  - Convey a central message
  - Putting together the slides
- During the presentation
  - How to speak
  - Where to stand
- Wrap-up

Giving a Good Talk is Important
Particularly for students and recent graduates!
- More people will see your talks than will read your papers or will speak with you in person
- The audience will form their impressions of you and your work based on your talks
- Early in your career, every talk should be treated as if it is as important as an interview talk

When, Where, & Why

When: Start as early as you can — no later than one year before you get your PhD
Where: Student seminars, internships, local conferences, national meetings, special meetings
Why: Talks are how you become known to the world
Footnote: Posters are another way to present your work
Know Your Audience

- One of the biggest mistakes speakers make is not knowing their audience
  
  **Important:** Ask your host what the audience will be like before you prepare your talk
  
  - Will your audience include...
    - Specialists in your sub-field? In your field?
    - Researchers in the mathematical sciences?
    - Engineers and scientists?
    - Graduate students? Undergraduates?

The Central Message

- What did you do? Why is it important?
  - What’s the one sentence summary of your talk that the audience should walk away with?
  - Tune your message to your audience
  - Repeat the message over and over again throughout the talk
  - Keep the content of the talk focused on the central message

Outline of a Math. Sci. Talk

- Title Slide
  - Credit to co-authors and funding agencies
- Outline
  - Skip this for 10-15 minute talks
- Background Material
- **What you did!**
  - New algorithm, theorem, proof, etc.
- **Why is it important?**
  - Numerical results
- Summary & future work

Background Material

- Minimize background material
- Don’t spend too much time on background — at least two-thirds of your talk should be your original work
- Identify those who have done related work (papers, software, or ideas) and spell their names correctly!
  
  **Hint:** People love to hear their own names
- Describe any motivating applications that will later tie into your numerical results
What You Did!

- Emphasize your **simple message** repeatedly
- Back it up with details of algorithm and theory
- Use **pictures and diagrams** as much as possible in lieu of wordy explanations
- Keep notation to a minimum and avoid too many abbreviations
- Never use equation numbers — repeat the equation if necessary
- Illustrate your points via **simple examples**

Why Is It Important?

- Think **big picture**
- Emphasize an application
- Tables...
  - Don’t make font too small
  - Use color for emphasis
- Figures...
  - Be sure axes are clearly labeled
  - Use color to differentiate lines

Summary & Future Work

Repeat what you did and why it was important!

- Future work is important for students and recent PhD’s because it shows that you are thinking beyond your thesis problem
- Include your contact information at the end
  - Email
  - Web page

Basic Do’s and Don’t’s

**Do:** Use landscape orientation

**Don’t:** Put transparencies in plastic

**Don’t:** Forget to title each slide

**Don’t:** Overcrowd the slide

**Don’t:** Use **yellow on a white background**!

**Do:** Use lots of pictures

**Do:** Make the fonts large (try the floor test)

**Don’t:** Forget to check grammar and spelling
Practice, Tuning & Timing

- Prepare your talk at least one week in advance
- Practice! Practice! Practice!
  - Helps with nerves on the day of the talk
  - Get feedback on the practice talks
- Perfect the timing
  - Allow 3-5 minutes per slide
  - Use the practice runs to be sure that you can finish on time

During the Presentation, Part I

- Nerves are natural
  - Take a deep breath and keep going
  - The extra energy will help your talk
- Speak slowly, clearly, and loudly
- Do not block the audience’s view
  - Try to stand next to the screen
  - Point to the screen, not the projector
- No cover-ups

During the Presentation, Part II

- Be explicit when referring to the slides
  - Avoid saying “this” or simply pointing
  - Could a remote listener follow the talk?
- Don’t run over on time
  - Be respectful of the audience’s busy schedules
  - It’s better to be five minutes short than five minutes over!
  - Take complicated questions offline

Questions & Answers

- Repeat questions before answering
- Good answers when you’re on the spot:
  - “Excellent question! I hadn’t thought of that before, but I’ll get back to you.”
  - “I’m not sure I agree with you, but we should probably talk further offline.”
- Have respect for the questioners and their questions
  - Inevitably, someone will tell you that your work has already been done by someone else!
Remember…

- Know your audience
- Create a simple message
- Allow plenty of time to prepare your talk
- Practice! Practice! Practice!
- Don’t block the slides during the talk
- Speak slowly and clearly
- Don’t run over on time
- Have fun & learn from your mistakes!!