Giving Scientific Presentations

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Think about a scientific presentation that you’ve seen that had a strong influence on you. What do you remember about the presentation and about the speaker that made it such a memorable presentation? Take a minute to write a list of these characteristics.
Content

★ Should be at an appropriate level for the audience
★ Should be able to fit in the time allotted
★ Have an introduction that sets the stage for what you will present and that draws the audience in
★ What is the main point of your seminar? It is unlikely you can make more than 1.
Content

★ Should have more of a narrative in a talk than you would in a scientific paper, but you should still make sure to concentrate on a logical (rather than historical) presentation of the material.

★ Your story should be wrapped up with a clear and compelling conclusion.

★ Make sure to acknowledge all who contributed, either at the start or at the finish.
Keep It Simple

★ A talk is different than a research paper.

★ Your job is to convince the audience of your conclusions not to produce an archival document.

★ Present only enough detail to establish credibility and to prove your point.

★ Keep your graphics as simple as possible.
Style

★ The more excited you are about your work, the more interested your audience is likely to be

★ Make eye contact!

★ At this stage of your career, it’s better not to tell jokes

★ Learn how to manage your audience
Audience Management

★ How do you deal with audience members who interrupt you?

★ What do you do when you get questions that lead you away from your topic?

★ How do you deal with a crowd that does not seem interested?
Goals

The goal of a scientific talk extends beyond delivering a scientific message:

- You may be demonstrating that you are an attractive candidate for a position—every talk is a job talk!
- You may be demonstrating your mastery of a subject.
- Highlight your role and accomplishments and those of others.
- You may be guiding your audience towards asking...
Goals

What are the goals for:

- A candidacy exam?
- A literature seminar?
- A PhD exam?
- A talk at a regional or national meeting?
- A job interview?
Organizing a Scientific Presentation
Factors in Organization

How you will organize a presentation depends on three major factors:

★ The type of talk you are giving (i.e., your goal)

★ The nature of your audience

★ The length of your talk

How does length affect your talks organization?
Talk Length

We will break up talk lengths into four rough categories:

- 10 to 15 minutes
- 15 to 20 minutes
- 20 to 30 minutes
- More than 30 minutes
10 to 15 Minutes

★ This is enough time to tell a short story

★ Start with a quick intro (do not give an outline!), then cut to the chase

★ Make sure to underscore your main message

★ Avoid extraneous details

★ Give a quick wrap-up
15 to 20 Minutes

★ This is enough time to tell a “longer” short story with a bit more detail

★ The intro can be a bit longer, but still skip giving an outline

★ You will have time to go into greater detail, but make sure to stay on message

★ Give a more complete wrap-up
20 to 30 Minutes

★ This is “novella” length; you can tell a complete story and there may be room for small detours.

★ You can have a full intro (and outline if you wish).

★ There is time enough to go into some details for the specialist but paint a broad picture for the less expert.

★ Give a full wrap-up with future prospects.

★ Can include videos.
Longer Than 30 Minutes

★ This is a full novel length; you can have multiple chapters or even take significant detours

★ Complete intro with full context of previous work

★ There is time enough to have videos or other sorts of time-intensive elements

★ Give a complete wrap-up with future directions
Figure on 1.5 minutes per slide, and never go faster than 1 slide per minute (this puts strict limitations on what you can do in short talks, which is why you should avoid giving an outline)

Each slide should present no more than one idea (an idea can have multiple points)

Do not overcrowd slides—having fewer than a slide every two minutes or so is just as much of a problem as is having too many slides

Use visual cues to yourself to prompt verbage.
General Considerations

★ Landscape is standard

★ Use space effectively; do not overfill

★ Consider the role of blank space on the page. It can be used to separate ideas.

★ Establish a standard format and stick to it.

★ Use only easy to see colors / combinations.
Type of Graphs and Tables

- ALWAYS label axes! ALWAYS show units!
- KEEP IT SIMPLE: 3-D graphs usually don’t work well. Avoid novel graph forms.
- USE STRONG COLORS. Avoid complex hatch markings.

Taken from Prof. Ken Suslick’s UIUC website
Format of Graphs

- Avoid “key” boxes when possible.
- Always use thick lines (3 pt) & strong colors.

**TURN OFF autoscale.** Fill slide well; use empty space cleverly.

- Add a conclusions statement below: *Give the Bottom Line.*
Micrographs Can Project Well.

- Give information with image:
  
  Sonication of \( \text{Fe(CO)}_5 \) in \( \text{C}_{16}\text{H}_{34} \), under Ar,
  
  25\(^\circ\)C, 20 KHz, 80 W

- ALWAYS provide size scale.

- For projected image,
  medium quality jpeg or png at 200 dpi
  (unless original is very small).

Taken from Prof. Ken Suslick’s UIUC website
Things to Keep in Mind

★ Do not make slides overly wordy (this is one place where scientific talks may differ from lectures)

★ Do not use more equations than necessary, and remember that each equation is a sentence

★ Use cartoons whenever possible—they generally hold interest better and help to explain concepts

★ Small tables are OK if need be, but try to avoid them in favor of graphs—the idea is to show trends
Dynamics of Disk-Like Molecules

- For a molecule lying parallel to a pore surface, reorientation along the surface may not be inhibited; this motion cannot be seen by OKE for symmetric molecules.

- Reorientation of such a molecule off of the pore surface should be less inhibited than that of a rod-like molecule.

- For a molecule lying perpendicular to a pore surface, reorientation about an axis perpendicular to the surface may not be inhibited.
Things to Keep in Mind

★ Whatever the length of your talk, present it in a logical order that leads your audience to your desired conclusion

★ Do not be afraid to come back to important points within your talk or to say that a particular point will be important later in the talk

★ Design your talk to suit your personal strengths and the strengths of your work
Practice

★ Until you are very comfortable with giving talks, you will need to practice

★ Go through to nail the timing and so that you do not need to look at your slides constantly

★ Keep in mind that you may go faster or slower in front of a live audience—learn what you tend to do and how to fix it

★ You want to be very familiar with your talk, but do not memorize it or make it mechanical
PowerPoint

- PowerPoint allows us to do far more in a presentation than we were able to with photographic slides or overheads.
- You can incorporate images, videos, audio and special effects easily.
- You can also make an attractive slide much more easily.
- These abilities up the ante as well—presentations are now expected to be more professional.
Use a large font size so that your text can be seen from the back of the room or by older eyes.

Make sure that all text is well spaced.

Use a sans serif font such as Arial.

Fonts with serifs are harder to read and do not always project as well.
★ Each slide is a guide for the audience and for you

★ Different people learn in different ways: listening, reading, looking. Make your presentation friendly for all three types of learning

★ It is OK to remind the audience of what they already know; they may think of their knowledge in a different context
Page Layout

★ Page layout should be reasonably consistent. It takes extra attention to keep track of a presentation in which the layout of slides changes constantly.

★ Changing layouts also makes it look as if you threw together slides from different presentations

★ PowerPoint has many templates to choose from, but you can also create your own layout
Making Your Own Layout

Your layout should be:

★ Uncluttered

★ Versatile: a range of different objects and text should fit within your style

★ Visually logical
Many backgrounds are available, or you can make your own

Stick with something simple and uncluttered

Avoid using bright colors that will make your text dance in the viewers’ eyes
PowerPoint allows you to transition from slide to slide and to introduce new features to pages in creative ways.

Use these effects sparingly and strategically; they can tire your audience and cause their attention to go elsewhere.

One situation in which gimmicks can be useful is in introducing steps in a sequential process.
STED With Fluorophores

★ The molecule is excited with 2-photon absorption

★ IVR occurs on a time scale of several ps

★ Stimulated emission takes the molecule back to the ground electronic state

★ Excited state absorption competes with stimulated emission, but is comparatively weak

★ The fluorescence yield of the higher state is ≤ that of $S_1$
Slide Transitions

- Right click on the slide background
- Choose “Slide Transition”
- Choose the desired transition
- Click on the “x” to close the transition selection box
Animation

★ Right click on the object or text
★ Select “Custom Animation”
★ Select entrance, exit, or emphasis effects
★ You can do this for multiple objects and choose the order in which objects are animated
Proofreading

★ You should always proofread your presentation carefully; there is zero tolerance for error in many presentations

★ Use the spell checker built into PowerPoint; it may not know a lot of scientific words, but you can train it, and it will catch many other things
Videos

★ You can easily incorporate videos into your presentation: click insert, choose “Movies and Sounds,” and then “Movie from File”

★ Decide if you want your video to play automatically or only after you click on it

★ Only use videos that add value to your presentation!
If you will be giving your presentation on someone else’s computer, keep some things in mind:

★ Use only common fonts. Fonts do not travel with your presentation, and if the computer does not have one of your fonts the results will be completely unpredictable

★ Copy any videos onto the computer with your PowerPoint file

★ Be wary of PC/Mac issues