How to give a seminar (or lecture)
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Brown baggage. Our goal here is to help the senior students and postdocs prepare for professional talks, departmental seminars and job seminars. The focus is on giving them the feedback that they need to improve. You don't do them any favors by telling them what you think they want to hear. The talk may be informal, with questions blurted out in the middle, and may have funny stories. But formal or informal, it is worth looking for the following points. These points also apply to giving lectures, and many apply to writing papers.

Content
- *Don't talk about too many projects in the seminar. Don't try to cover your entire dissertation.*
- Never, under any condition, go overtime.
    - If you start late, then cut something out. The worst possible thing that can happen is that some of the audience is thinking about leaving instead of focusing on your brilliant summary. There is no problem with finishing early.
- Don't try to stretch a 15-minute talk into a 50-minute talk. Fifteen-minute talks in brown bag are acceptable. Fifty-five minute talks are not. If you can't give your talk in 45 minutes, it lacks a clear focus.
- Remember the 20-minute Rule: You should show a data slide no more than 20 minutes into your talk (or your audience has the right to get up and walk out!).

Style
- Be yourself:
    If you are intense, be intense.
    If you are relaxed, be relaxed.
    If you are funny, be careful.
- Humor is best used to make the audience remember something about the science.
- *Speak more slowly than you think you need to.*
- *Basic slides are better than busy/cluttered slides with too much text or too many animations.*
- *If using animations to make text or figures appear/disappear or to add emphasis, remember where the animations are located. Otherwise un-anticipated animations can be surprising to the speaker and break up the flow of the talk.*
- **Don't apologize** for your slides/overheads. Get them right.
- Your slides must be readable to the entire audience. If the people in the back row can't read them, then they are advised to throw their lunch at you.
- Don't say "I put this slide in to remind me of...." It reminded you. Keep going.

Introduction

- Know what you are going to say, and make it punchy. Keep it short, but tell us why your talk is of interest to a group of biologists.
- Tell what your main points are going to be; remember this is not a mystery show. You are educating your audience. Give them every opportunity to get the main point.
- *Don't use too many data slides from other people's research in your introduction. Those slides take time to explain adequately--simply state the primary result of a previous study to avoid losing the audience early on with a complicated figure.*
- *Don't introduce broader implications in the introduction that are never returned to.* Likewise, if you're not going to talk about something, then don't bring it up only to say that you're not going to talk about it.
- Show some slides of the plant/animal and the habitat it lives in. Tell us why this organism is a good one for testing theory. Assume we know nothing about what you study or why you do it.

Methods

- Mention them briefly when necessary to explain the experimental results. This should be a small part of most talks. If people doubt your methods they can ask questions, but most people will trust you in a talk. Don't lose your audience with descriptions of DNA hybridization, multifactor repeated nested analysis of variance, and etc.
- Never go on and on about how hard the work was.
- Do not belabor your statistics.
- *Use pictures or diagrams rather than words to describe methods when possible.*
- *For theoretical work, present the model in both words AND numbers/equations.*

Results

- *Leave the question at the top of the results slide so it is clear which question is being answered by the data.*
- Give only the MAIN results.
- Don't show us DNA sequences unless the bits that need attention are clearly indicated.
- Avoid showing statistical tables. Graph the results, and simply indicate whether the treatments are or are not significantly different (*p-value and R^2 typically suffice*). Briefly indicate how that result fits in with expectation. Sample sizes: If you have significant differences then you don't usually need to include them.
- *Make sure the colors used in your graph are very distinct from one another.*
- Pay particular attention to the axes labels. Make them enormous! Speaking of axes: state what they are when the graph first comes up. Then explain the rest of the graph. *Avoid "unconventional axes" that do not have the x-axis increasing to the right and the y-axis increasing toward the top of the graph.*

Conclusions

- These should be directly related to the questions you set out at the beginning. If you rejected some of the alternatives, then you did science. Make it clear which alternatives are rejected and which remain.
- *Always try to reconnect what was presented to the overall big question. This may be obvious to the speaker or their lab mates, but this should be explicitly stated for the audience.*
- There should be a slide that briefly summarizes your main points. Don't give a long list of what you found. Tell us what you want us to remember. Make it implicitly clear that you are within a minute or two of taking questions. *Spend enough time on this summary/conclusion slide that the audience can write down the main points.*
- End the talk definitively. Simply say thank you. Don't fade off with some sort of limp: "I think that is all I have to say."
- *Avoid unnecessarily long thank you slides. You do not need to read all 26 names on the slide. Even better, very briefly work acknowledgements into the methods slides where the people deserve credit.*

Questions

- If 5-10 hands go up immediately, then you probably gave a great talk. If no hands go, then most of the audience just wants to get out of there.
- Listen carefully to the question, and then repeat it in a succinct form so that everyone can hear. Answer thoroughly, but quickly: you don't want to lose your audience now; you want to leave time for as many questions as possible.
- *Have a few back-up slides at the end of the talk for anticipated questions and know where these slides are so there is no fumbling.*