

Most importantly, do not go over the allocated time. No one complains about a talk that ends early, but each and every minute outside the timeframe becomes exponentially excruciating (as we can all testify). The best method in helping perfect your timing is practice, practice, practice, either in front of others or by yourself. Ideas that look reasonable in notes or on slides often don't work when said out loud. Giving voice to the written word also reveals new and better ways to frame and articulate your mathematics.

Through all of this, keep in mind that attending a talk is a far costlier investment than reading a paper. While the latter can be done at leisure, the performative nature of the former forces the audience to arrive at a specified space at a specified time. We should honor their sacrifice by cutting the steak properly to give them an enjoyable and enriching presentation of mathematics.

Myth

A word of warning as your ability to give good talks improves. There is a disproportionate number of seminars and colloquia given by high-caliber mathematicians that leave most of the audience bewildered and confused. Over time, we come to expect this outcome, due to the following mathematical myth:

The deeper the mathematics involved, the worse the talk will be.

This correlation exists not because this myth is true, but the skillset needed for creating extraordinary mathematics is quite different from the one needed for talking beautifully about it. And so, having digested your delectable meal, some might assume that your mathematics must be simplistic, without appreciating the skill and time it took in framing complex ideas through a strong narrative. A word of encouragement: it is undoubtedly worth the effort and the cost in pushing through these judgments, bringing mathematics that is a joy to hear to a world that is eager to listen.

References

- [1] Aachi R. Dubbing of silences in Hayao Miyazaki's *Spirited Away*: A comparison of Japanese and English language versions, *Perspectives: Studies in Translation Theory and Practice* 24 (2016), 144–156.
- [2] Gottschall J. *The Storytelling Animal*, Houghton Mifflin Harcourt, 2012.
- [3] Littlewood J. *A Mathematician's Miscellany*, Methuen and Company, 1953. MR3363433
- [4] Pascal B. *Provincial Letters*, Letter XVI, 4 December 1656.
- [5] Quiller-Couch A. *On the Art of Writing*, Lectures delivered at the University of Cambridge, 28 January 1914.
- [6] Su F. *Mathematics for Human Flourishing*, Yale University Press, 2020.
- [7] Tufte E. *Envisioning Information*, Graphics Press, 1990.



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Credits

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10 Ancient Rules for Giving a Conference/Seminar/Research Talk in Mathematics

A New Translation from the Original Cuneiform Stone Tablets

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1. Thou shalt finish your talk on time. This is the prime directive; obey this rule above all others. Preferably you should end slightly early: you will please your audience with the gift of extra minutes in the day. If you are late, you steal time from your audience and displease the gods.
2. Do not accomplish the goal of finishing on time by the artifice of speeding up a talk that is too long. The gods will not be fooled. Your audience did not volunteer to hear a 3-hour talk in 45 minutes. Instead, select what is best and omit the rest.
3. Practice your talk for time and pace. If you check the clock during your presentation and say, "Uh oh, I'd better speed up!" this angers the gods. Prioritize. Do not spend more time on a topic than is warranted by your overall goal.
4. Have an overall goal. Keep it clearly in mind while preparing your talk. Remember that your job is to inform, not confuse or impress.
5. It's easier to inform if your audience is paying attention. Therefore the gods grant you permission to entertain, as long as it does not interfere with your goal or violate

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DOI: <https://dx.doi.org/10.1090/noti1975>

the prime directive (rule 1). Give the talk you would like to hear.

6. Know your audience—you must know what things you should explain, what things require only a reminder, and what things everyone already knows. Explain what is needed, but don't belabor the obvious.
7. The gods must be able to compile your talk. Therefore figures must be clearly labeled, and all terms and notation must be clearly defined before use.
8. If you project figures or words onto the cave wall, omit anything that you do not plan to explain fully. Describe; do not read.
9. Praise those whose work in the same crops have contributed to your harvest.
10. Do not hide your own weaknesses, or the gods may expose them for you on their own terms. The gods have not selected you to sell used chariots but rather to educate.



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Advice for the Campus Interview

Amanda Folsom and Alex Kontorovich

Introduction

Congratulations, you're invited for a tenure-track job talk! What should you expect for your visit, and how should you plan your lecture? We will decompose our discussion according to whether you are interviewing for a predominantly *research* versus *teaching* position. Some of our advice

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DOI: <https://dx.doi.org/10.1090/noti1974>

will overlap with more general suggestions for how to give a department colloquium; for the latter, the reader is invited to peruse, e.g., [Ell10, Ger97, Gow07, Hal74, Kra13, McC99, Tao09].

Research University Interview

Pre-interview

The single most important bit of advice happens well before the job talk:

Prove the absolute best theorems you can!

If you want an offer from a research university, there is simply no substitute for first-rate work. There are lots of other places to read advice on your research program; we won't rehash such discussions here, but feel it is important to restate the obvious.

Next, also well before the job talk: When you apply to a position, it is important to try to find someone in that department close to your research (ideally someone you know personally). If it's a job you really want, consider emailing them to let them know you've applied. While the relatively recent appearance of MathJobs.org has been a blessing for applicants and letter writers, it has increased tenfold the number of files delivered to hiring committees. The odds of winding up on a short list may be greatly increased by personally reaching out to someone on the tenured faculty close to your work. Even if they're not themselves on the search committee, they can forward your file to the committee members. Or they can do nothing; it's not necessarily an imposition to write and say that you've applied.

The Visit

Here is a bit of game theory: if you were invited, then you were invited by somebody. That is, there is a person or group of people in the department already advocating for you; they're most likely people you already know or, at the very least, people close to your research.

The people closest to your research are not the ones you need to impress!

They're probably already impressed with you or else they wouldn't be trying to convince their colleagues to hire you to their department. The people you do need to impress: everyone else, especially those far from your research area.

A typical visit will involve meetings with the department chair, the head of the search committee (often but not always the chair), and perhaps the director(s) of the graduate/undergraduate program(s). The chair/search head will want to know whether you seem like a collegial person to have in the department; the program directors will want to get a sense of whether you can teach introductory and advanced courses in the undergrad/grad curricula. You may be asked to speak with a dean, as well as other members of the faculty interested in conversing with you one-on-one.

Our best advice here: just be yourself. Do be curious about the department and faculty life: where do people live (how are the commutes? schools?); what is the grad student to faculty ratio (how many PhD students, on average,