

Giving a science research talk

How to (and to not) leave your audience behind

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Background

- There is a joke that goes: A kangaroo kept getting out of his enclosure at the zoo. Knowing that he could hop high, the zoo officials put up a ten-foot fence. He was out the next morning, just roaming around the zoo. A twenty-foot fence was put up. Again he go out. When the fence was forty feet high, a camel in the next enclosure asked the kangaroo, "How high do you think they'll go?" The kangaroo said, "About a thousand feet, unless somebody locks the gate at night!"
- Out this zoo all the animals are happy and healthy. We take great care of them!

$$\nabla^2 c = \kappa^2 c,$$

$$\partial c_a / \partial t = [J_a^1 \alpha(c, c_a) + J_a(c_a) \beta(c, c_a)] R$$

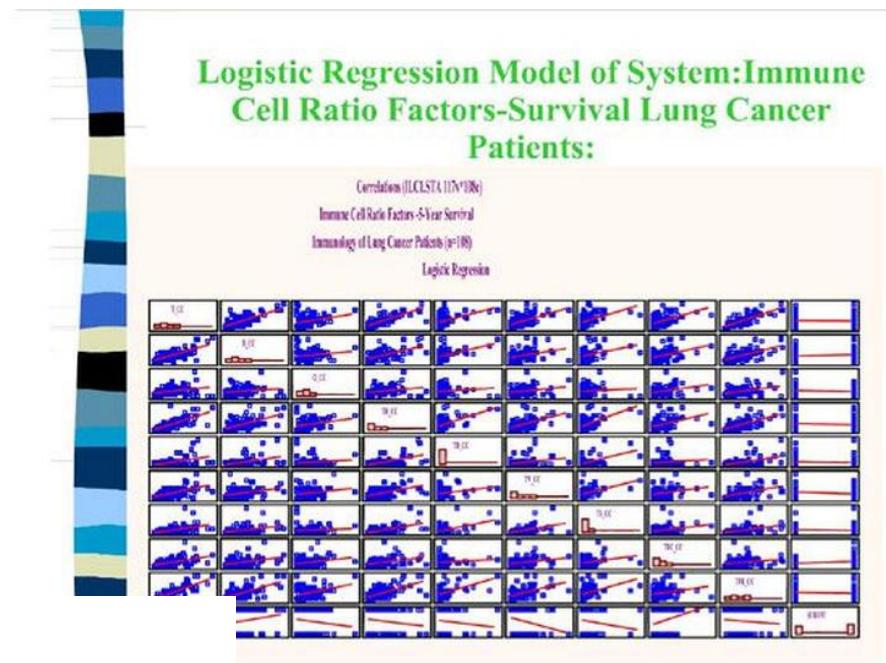
$$+ D_a \nabla^2 c_a - k c_i c_a$$

$$\partial c_i / \partial t = D_i \nabla^2 c_i - k_a c_i c_a + J_i(c, c_a) \beta(c, c_a) R$$

$$\partial R / \partial t = [D_{\text{cell}} - (\lambda + \lambda_2 \gamma(c, c_a)) R] \nabla^2 R$$

$$- \lambda_2 \partial \gamma / \partial c_a R^2 \nabla^2 c_a - \lambda_2 \partial \gamma / \partial c R^2 \nabla^2 c$$

$$+ r R (R_{\text{eq}} - R) - k_{23} \gamma(c, c_a) R.$$



Plan for this talk

Things to think about beforehand

Creating slides

Organizing talk

Giving your talk

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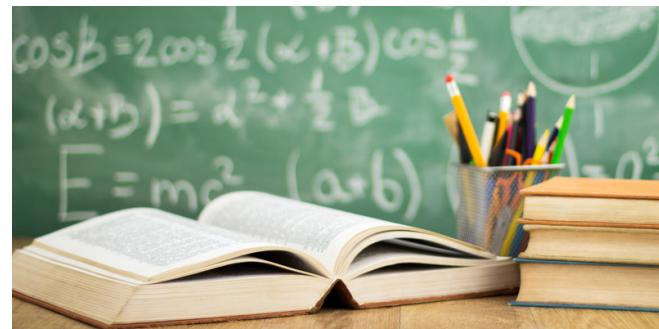
Don't wing it



Plan your talk



Define your goals



5

Preparing 1/2



Be aware of your audience



Undergrads?

Your sub-sub field, sub field, or anyone?

Their entire attention may not be on you

Have they heard similar talks before?

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Slide design



Illustrate concept

Provide data

**Don't make audience
read**

**Keep audience aware
of where you are**

Equations may be OK

$$f(x) = \alpha e^{\frac{(-x^2)}{2\sigma^2}} + \sinh(\theta k_B T) - (1+z)^\beta \Omega_\Lambda$$

$$f(x) = [Spatial] + [Thermal] - (1+z)^\beta \Omega_\Lambda$$

Do you refer to it later?

X = position

Alpha = ...

Sigma = ...

Theta = ...

k_b = Boltzman constant

T = temperature

Z = redshift

Beta = D.E. dep. On redshift

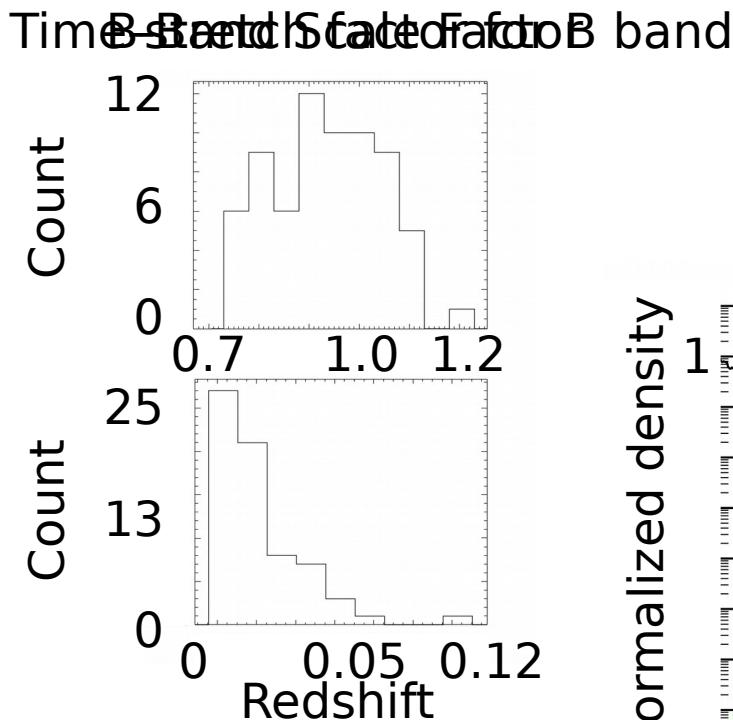
Omega_Lambda = D.E.
energy density

What variables / terms are actually important?

Describe every variable ~~unless you're sure everyone knows them.~~

Graphs and plots

(Nobili & Goobar 2008)

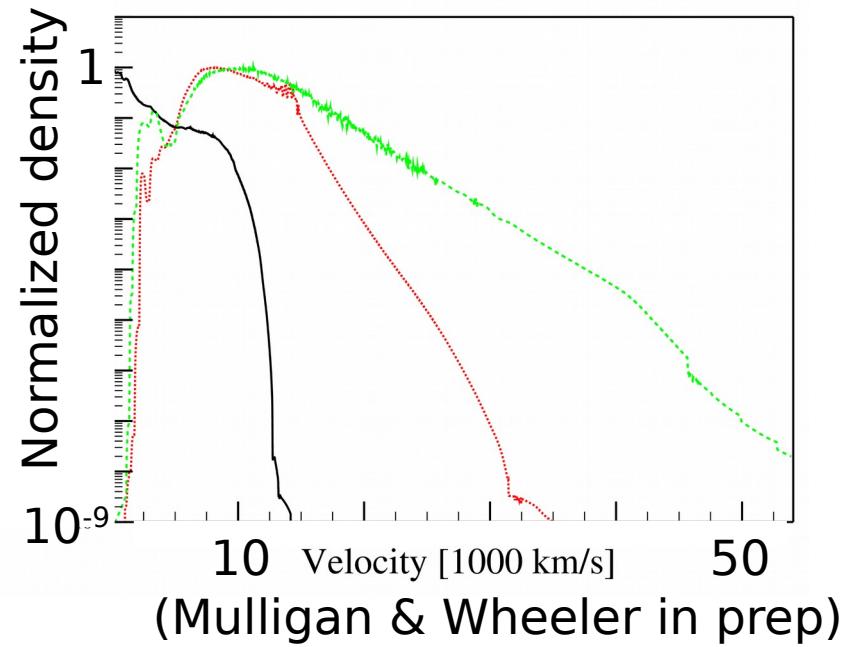


Make sure that axes are legible

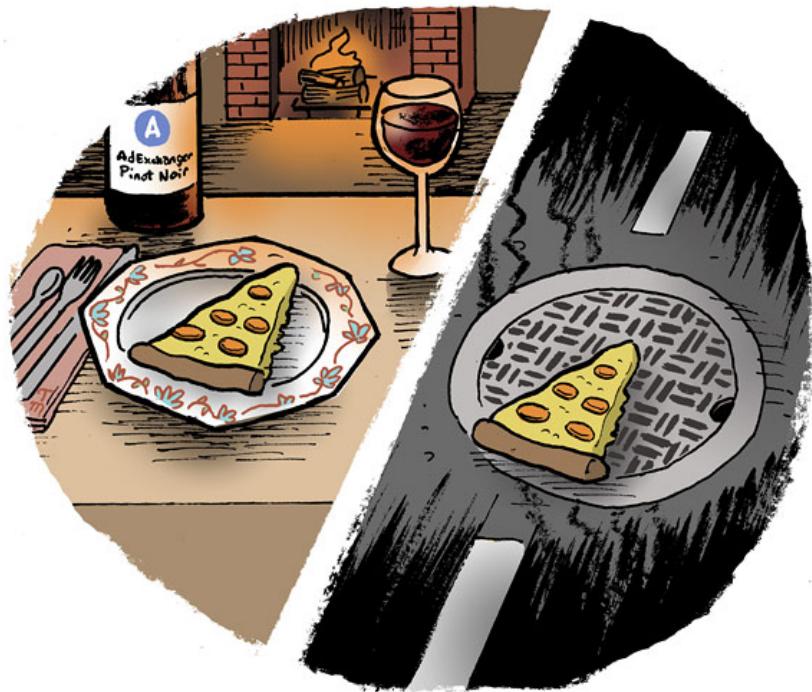
16-20 pt text for axes

Use easy to understand axis labels

Use line style & thickness in addition to color



Videos & Images



Context Matters



Just because you can
doesn't mean you should.

Plan for this talk

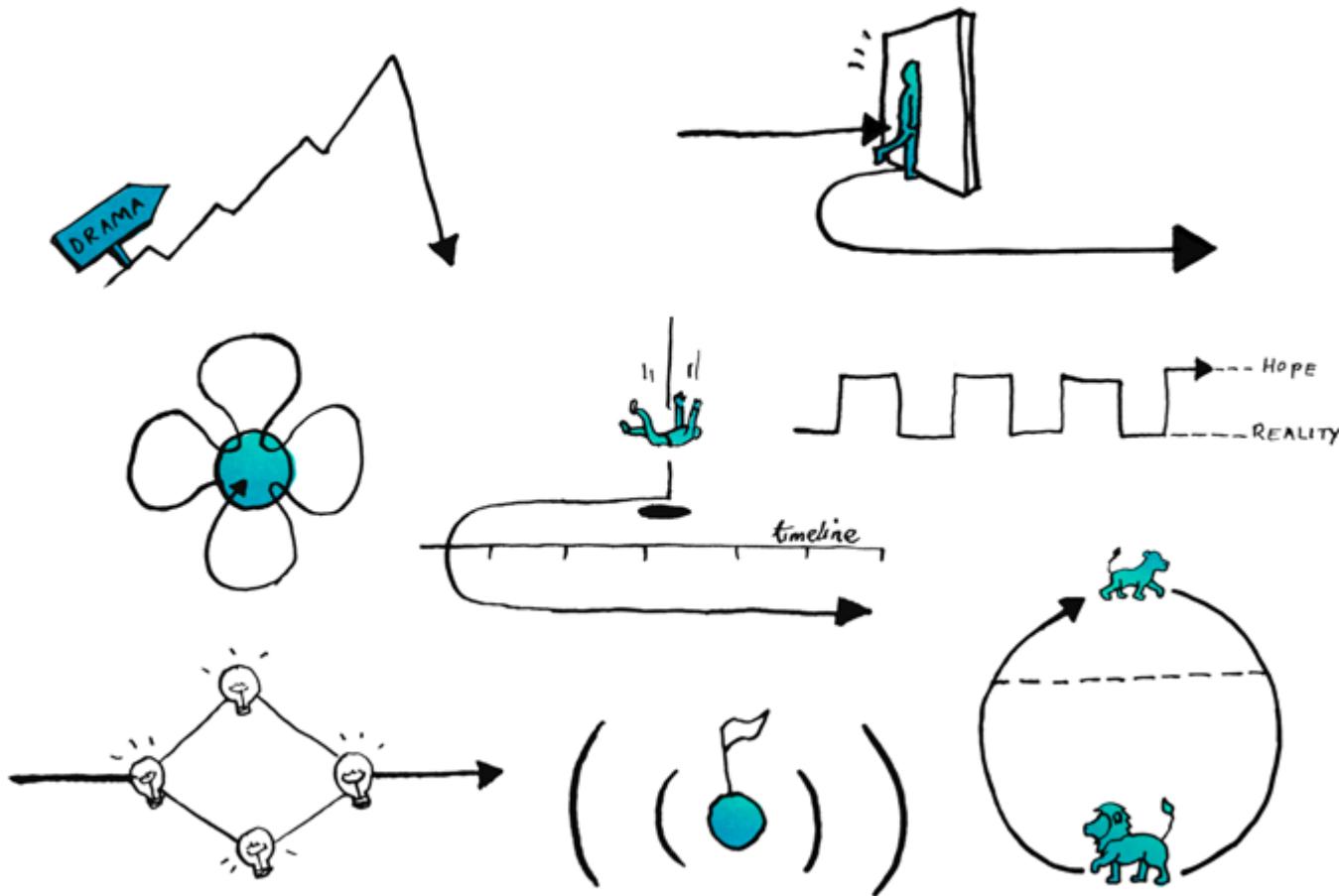
Things to think about beforehand

Creating slides

Organizing talk

Giving your talk

Tell a story



Narrative techniques help guide the brain

Provide framework that can help understanding and highlight important points

<http://www.sparkol.com/engage/8-classic-storytelling-techniques-for-engaging-presentations/>

Be repetitive

Repetition is the mother of all learning.

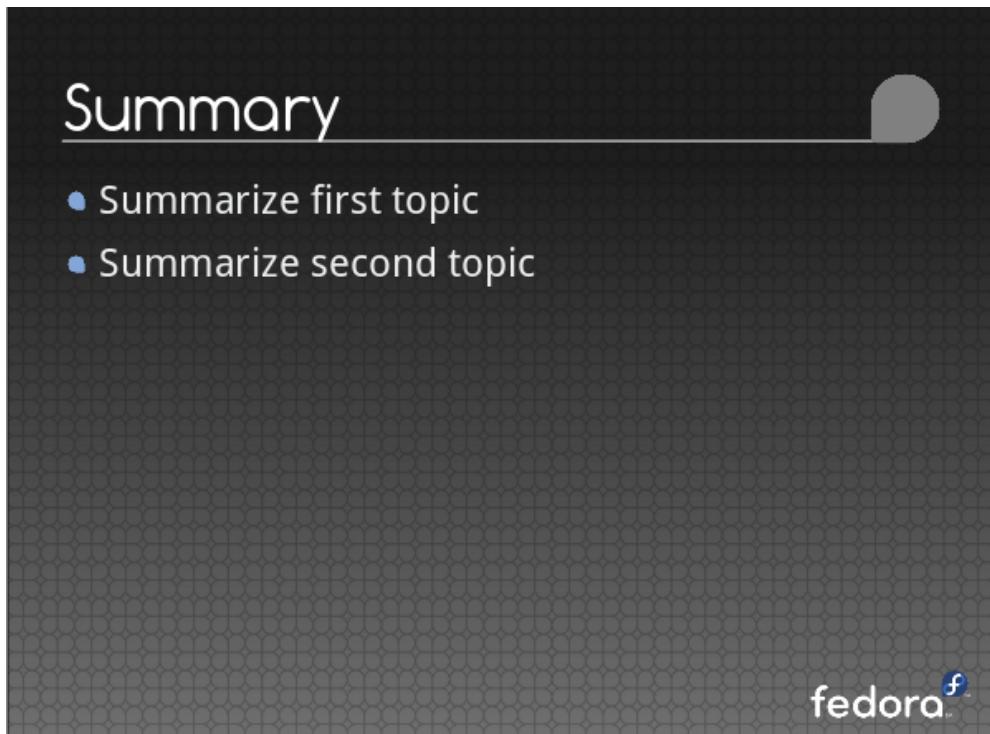
Repetition is the mother of all learning

Reinforces concepts

Helps audience if they're not fully engaged

Helps if audience isn't familiar with (sub-sub-) field

Have a summary slide



Might not have time to give verbal summary.

Emphasize main points in case audience missed them.

Reinforce main points.

What can (will) you skip?



Plan for this talk

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Giving your talk

Be aware of your nervous tics

Verbal ticks?

"So"

Kinetic tics?

Pacing, gripping podium /
etc.,

Best method

record yourself and watch
the video

Check out Rice U. ComCoach

<http://www.ruf.rice.edu/~comcoach/>



**"Of course you're allowed to have stage fright.
As soon as your talk is over."**

Practice Talks



Self

Small Group

Get critical
feedback in real-
time

Iteration

Summary

Preparation

Audience, Goals, stuff to skip

Slide Design

Use slides to emphasize / illustrate points

Make slides, equations, and graphs easy to digest

Organization

Provide a narrative

Keep reminding audience what you are talking about

Include a summary

Giving your talk

Be aware of your nervous habits