

# **Giving a science research talk**

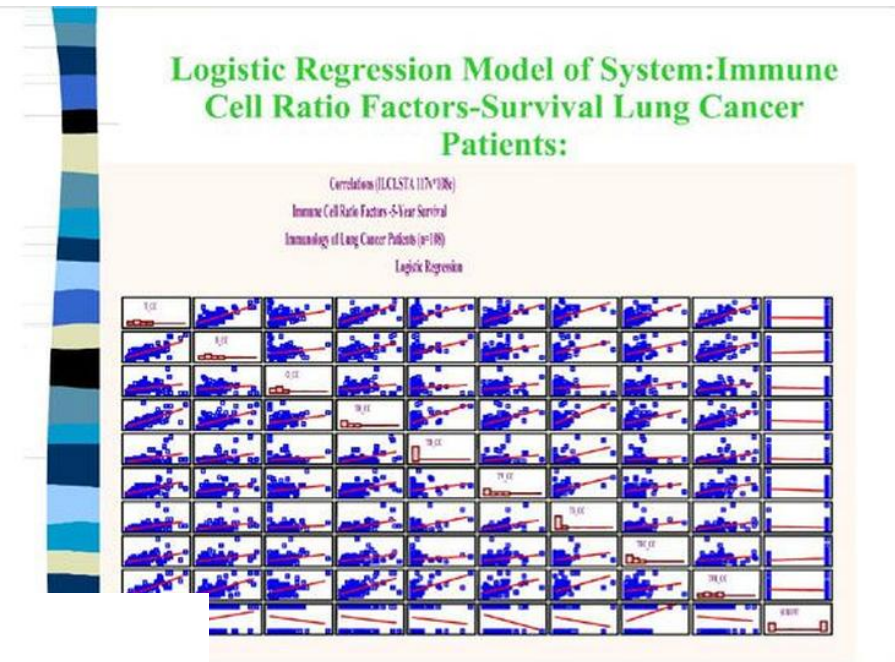
## **How to (and to not) leave your audience behind**

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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!



$$\begin{aligned}
 \nabla^2 c &= \kappa^2 c, \\
 \partial c_a / \partial t &= [J_a^1 \alpha(c, c_a) + J_a(c_a) \beta(c, c_a)] R \\
 &\quad + D_a \nabla^2 c_a - k c_i c_a \\
 \partial c_i / \partial t &= D_i \nabla^2 c_i - k_a c_i c_a + J_i(c, c_a) \beta(c, c_a) R \\
 \partial R / \partial t &= [D_{\text{cell}} - (\lambda + \lambda_2 \gamma(c, c_a)) R] \nabla^2 R \\
 &\quad - \lambda_2 \partial \gamma / \partial c_a R^2 \nabla^2 c_a - \lambda_2 \partial \gamma / \partial c R^2 \nabla^2 c \\
 &\quad + r R (R_{\text{eq}} - R) - k_{23} \gamma(c, c_a) R.
 \end{aligned}$$

# **Plan for this talk**

**Things to think about beforehand**

**Creating slides**

**Organizing talk**

**Giving your talk**

# Plan for this talk

## Things to think about beforehand

Creating slides

Organizing talk

Giving your talk



# Don't wing it



Plan your talk



Define your goals



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?**

# Plan for this talk

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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

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

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

X = position

Alpha = ...

Sigma = ...

Theta = ...

k<sub>b</sub> = Boltzman constant

T = temperature

Z = redshift

Beta = D.E. dep. On redshift

Omega\_Lambda = D.E.

energy density .....

**Do you refer to it later?**

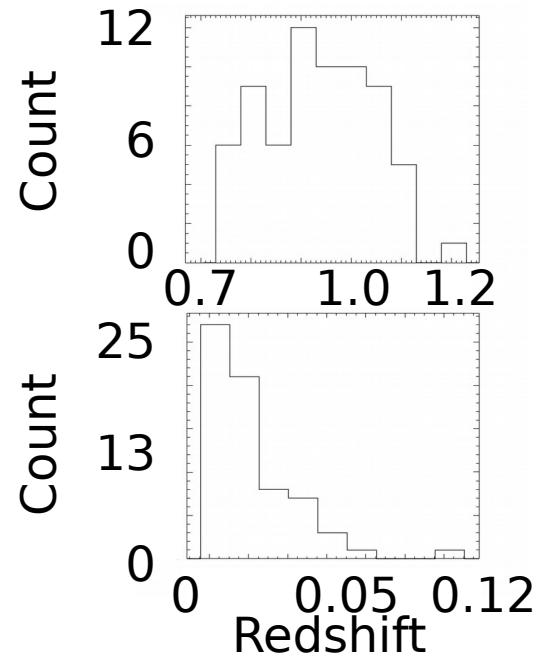
**What variables / terms are actually important?**

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

# Graphs and plots

(Nobili & Goobar 2008)

Time-Binned State for B band

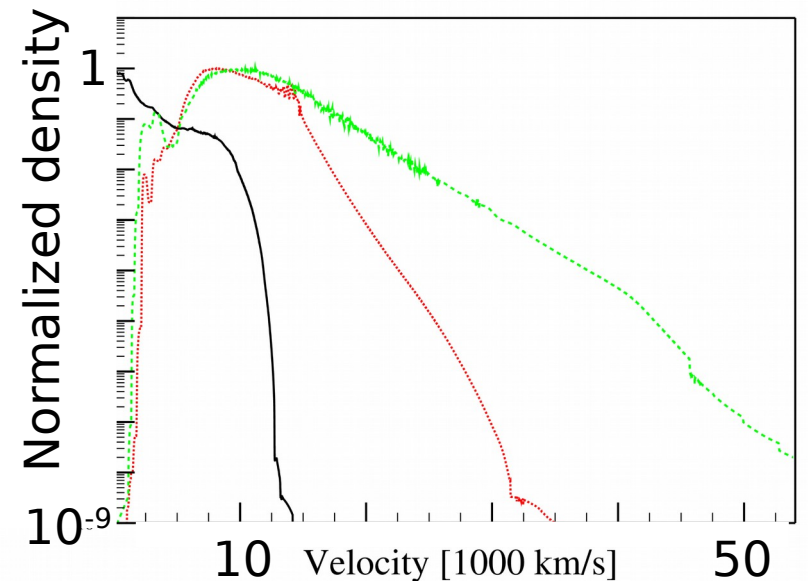


**Make sure that axes are legible**

**16-20 pt text for axes**

**Use easy to understand axis labels**

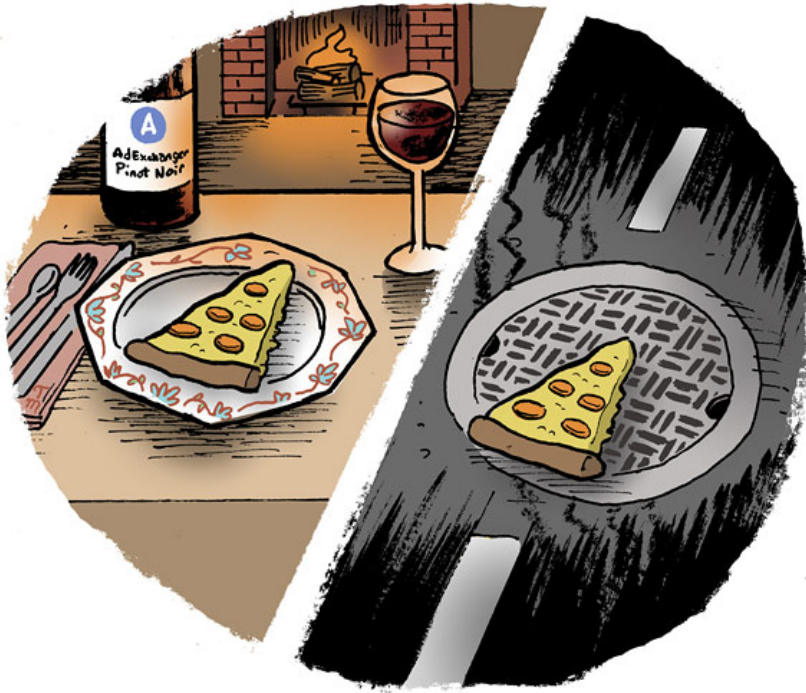
**Use line style & thickness in addition to color**



(Mulligan & Wheeler in prep)



# Videos & Images



**Context Matters**



Just because you can  
doesn't mean you should.

# Plan for this talk

Things to think about beforehand

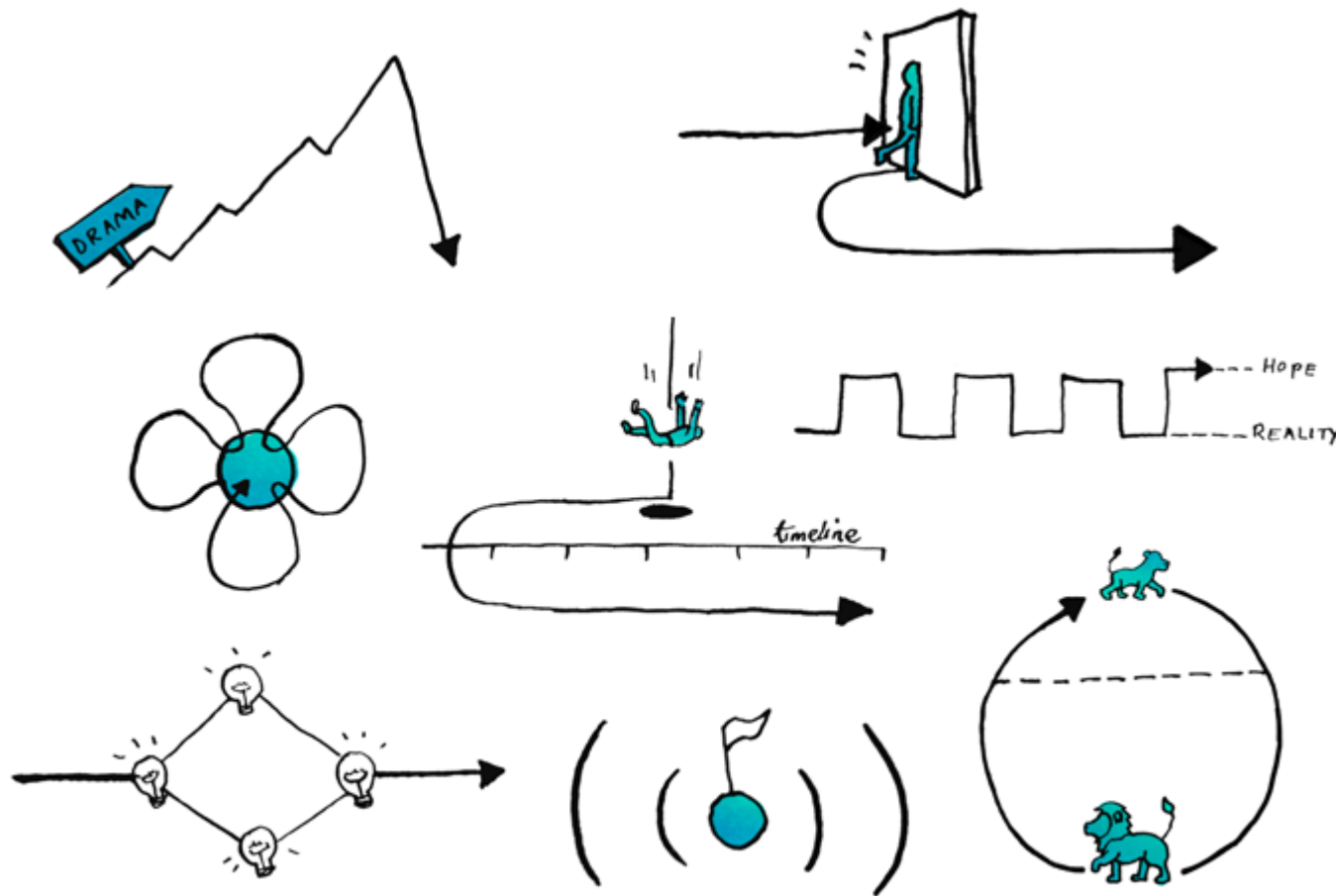
Creating slides

**Organizing talk**

Giving your talk



# Tell a story

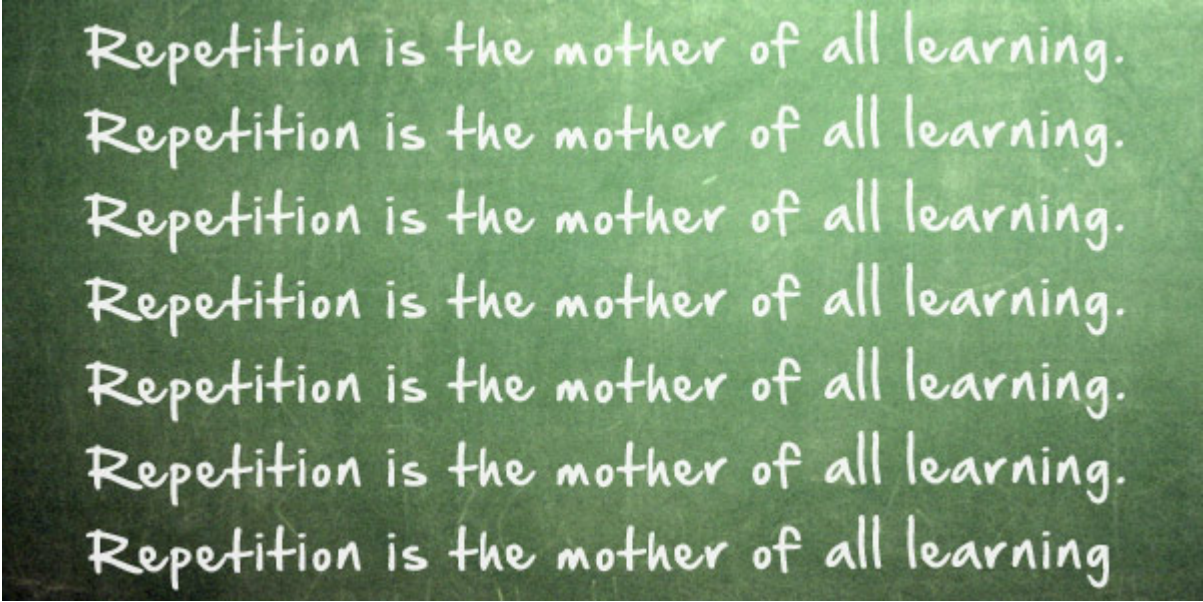


**Narrative techniques help guide the brain**

**Provide framework that can help understanding and highlight important points**

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

# Be repetitive



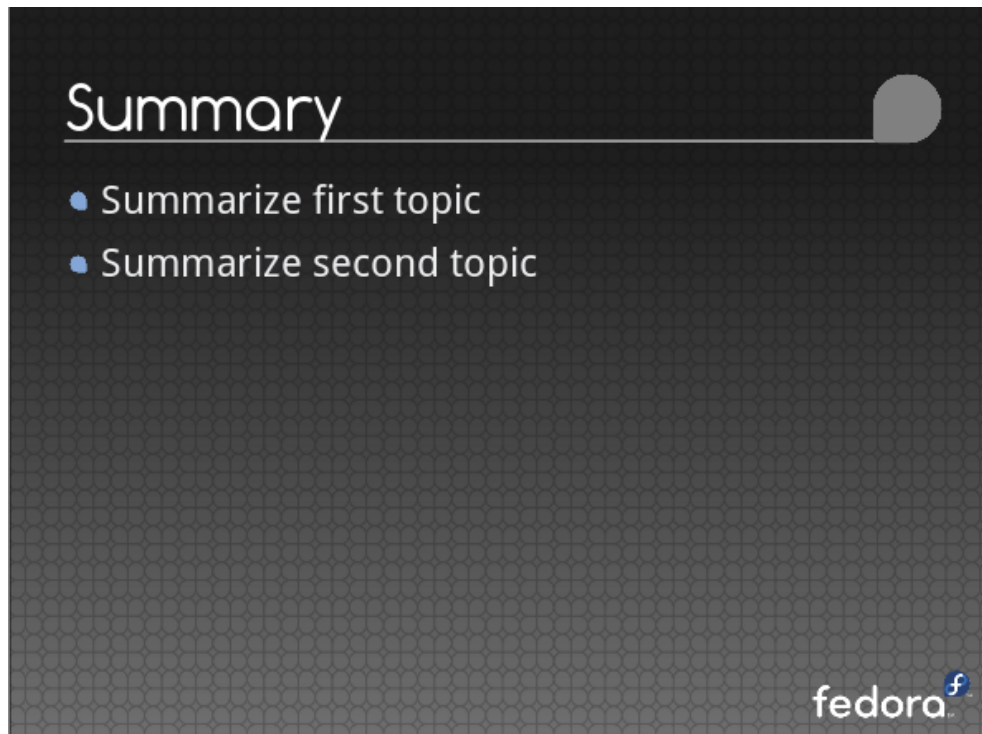
Repetition is the mother of all learning.  
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**Reinforces concepts**

**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

Things to think about beforehand

Creating slides

Organizing talk

**Giving your talk**

# Be aware of your nervous tics

## Verbal ticks?

"So"

## Kinetic ticks?

Pacing, gripping podium /  
etc.,

## Best method

record yourself and watch  
the video

## Check out Rice U. ComCoach

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





# 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