CONFERENCE PROPOSALS AND PRESENTATIONS IN THE SCIENCES

Graduate Writing Center, UCLA

Outline

- **Writing the abstract**
- **Preparing your talk**
- **Giving the presentation**

WRITING THE ABSTRACT

Types of abstracts

Informative/heading

- Condenses the paper
- Most journal articles

Indicative/descriptive

- Table of contents or a road map
- Reviews, conference reports, etc.

A good abstract will help your talk be selected and ensure people will show up!

Writing the abstract

Do's

- Write it last (after the paper has been written)
- Make it clear and simple
- Focus on key points
- Follow the paper's general format

Don'ts

- Exceed length specified by the organizers (generally 200-250 words)
- Use more than one paragraph
- Use literature references
- Use tables or figures
- Use long terms or abbreviations
- Copy and paste the abstract from your paper and submit it

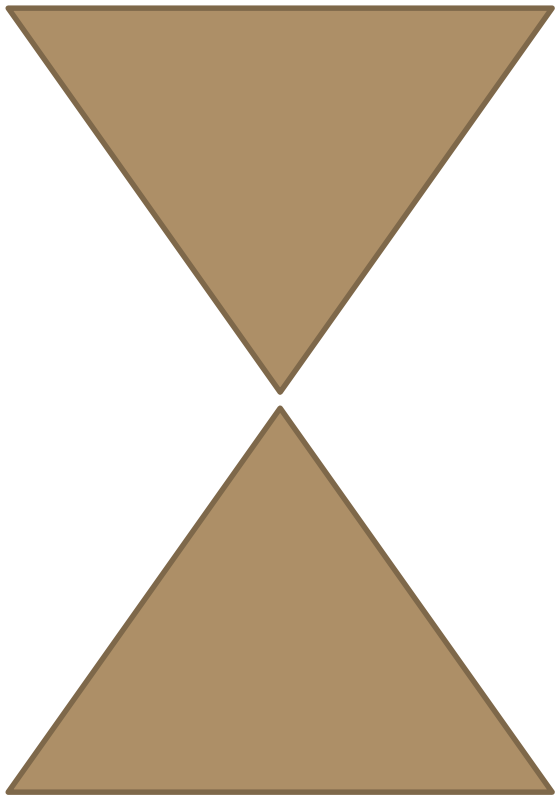
Follow the IMRAD format

Introduction

Methods

Results

Discussion



Set up the state of the field

What is the gap and how do you fill it?

What did you do and how did you do it?

What is the main conclusion from your work?

How will this change the field?

Adapted from Lauren Slone's NSF GRFP workshop Fall 2014

“L-Ascorbate, commonly known as vitamin C, serves as an antioxidant and cofactor essential for many biological processes. Distinct ascorbate biosynthetic pathways have been established for animals and plants, but little is known about the presence or synthesis of this molecule in invertebrate species. We have investigated ascorbate metabolism in the nematode *Caenorhabditis elegans*, where this molecule would be expected to play roles in oxidative stress resistance and as cofactor in collagen and neurotransmitter synthesis. Using high-performance liquid chromatography and gas-chromatography mass spectrometry, we determined that ascorbate is present at low amounts in the egg stage, L1 larvae, and mixed animal populations, with the egg stage containing the highest concentrations. Incubating *C. elegans* with precursor molecules necessary for ascorbate synthesis in plants and animals did not significantly alter ascorbate levels. Furthermore, bioinformatic analyses did not support the presence in *C. elegans* of either the plant or the animal biosynthetic pathway. However, we observed the complete ^{13}C-labeling of ascorbate when *C. elegans* was grown with ^{13}C-labeled *Escherichia coli* as a food source. These results support the hypothesis that ascorbate biosynthesis in invertebrates may proceed by a novel pathway and lay the foundation for a broader understanding of its biological role.”

Patananan A. N. *et al. Arch. Biochem. Biophys.* 2015

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“Compact elliptical galaxies form a rare class of stellar system (~30 presently known) characterized by high stellar densities and small sizes and often harboring metal-rich stars. They were thought to form through tidal stripping of massive progenitors, until two isolated objects were discovered where massive galaxies performing the stripping could not be identified. By mining astronomical survey data, we have now found 195 compact elliptical galaxies in all types of environment. They all share similar dynamical and stellar population properties. Dynamical analysis for nonisolated galaxies demonstrates the feasibility of their ejection from host clusters and groups by three-body encounters, which is in agreement with numerical simulations. Hence, isolated compact elliptical and isolated quiescent dwarf galaxies are tidally stripped systems that ran away from their hosts.”

Chilingarian, I. & Zolotukhin, I. *Science* 2015

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The abstract is the beginning of your preparation

General Conference vs. Subfield specific Conference

- Who is my audience?
- What is my research question?
- What key ideas in my article relate to the conference topic?
- What results in my article should I highlight to emphasize those key ideas?
- What will my audience find significant or groundbreaking about my article/results?

PREPARING YOUR TALK

What can you expect for your presentation?

Function

- Most conference talks in the sciences present a published article
- Some graduate student-focused conferences may also have talks that present work in progress
- Often to disseminate or showcase your work
- Conferences are also an opportunity to network

What can you expect for your presentation?

Structure

- 10-20 minutes are typical for conferences
  - 10 minutes with 5 minutes for questions
- Occasionally 45 minute talks
  - Invited or degree progress talks
- Once you have a story, it should be easy to expand as needed to the talk limits

The 10 Minute Talk: Structure

- Title Slide (00:15 min)
- Introduction and Background (4:00 min)
- Results and Methods (4:00 min)
- Discussion, Conclusions, Future (1:30 min)
- Acknowledgements (00:15 min)

Slide adapted from Scott Arno and Carole Yue from The 10-minute Conference Presentation Workshop Winter 2013

Alternatively, you can adapt a 20 minute talk structure in half

- 20 minute talk:
  - Title
    - 2 min, 1 slide
  - Introducti
    - 5 min, 4
  - Materials
    - 3 min, 2
  - Results
    - 7 min, 5 slides
  - Conclusions
    - 2 min, 2 slides
  - Acknowledgements
    - 1 min, 1 slide

If you have this amount of slides for a 10 minute talk, you are in trouble

Adapted from http://colinpurrington.com/tips/science-talks

Do’s and Don’ts- Slides

Do’s

- Be mindful of the audience
- Create clear slides with a simple layout
- Use large figures and diagrams
- Use as few words as possible
- Minimize the slides you use

Don’ts

- Overwhelm or ignore the skill level of the audience
- Be disorganized
- Use small text or difficult to read colors
- Have long bulleted lists
- Use too much animation

Slide Design

Aesthetics

- Avoid distracting backgrounds with difficult to read font colors
- Be aware of what is appropriate in your field in terms of designs and templates
- Typically want a dark background with light text or a light background with dark text
- As an example, something like the template of this PowerPoint would be appropriate

Color Coordination

Limit the number of color regions on any one slide to a maximum of 4
Be consistent with color choice
Select colors for audience meaning (eg, red-and-white stop sign)
Consider the cultural significance of colors
Text color should complement, and be distinguishable from, the color background (eg, white or pale text, use dark background; black or blue text, use lighter background)
If colors are graded, moving from light to dark, the intensity should increase from the top to the bottom of the slide
Consider the psychologic effects of color. Bright colors project energy and pastels are more delicate. Blues and greens are “cool,” reds and oranges, “hot.” White is perceived as more cheerful than black
Avoid red and green. These colors cannot be distinguished by color-blind individuals and can be difficult to see for non–color-blind individuals

Collins, J. *Radiographics* 2004

Aesthetics: Font Size

- This is 16 pt. font
- This is 18 pt. font.
- This is 20 pt
- This is 2
- This is 32 pt. font.
- This is 44 pt. font

Bad

Sans serif fonts (Arial, Helvetica, Calibri) are easier to read from a computer screen

Good

Let's not be dramatic

Slide adapted from Scott Arno and Carole Yue from The 10-minute Conference Presentation Workshop Winter 2013

Font size also depends on room size

No. of Seats	Heading (points)	Main Text (points)
>200	42	36
50 < Seats < 200	36	28
<50	32	24

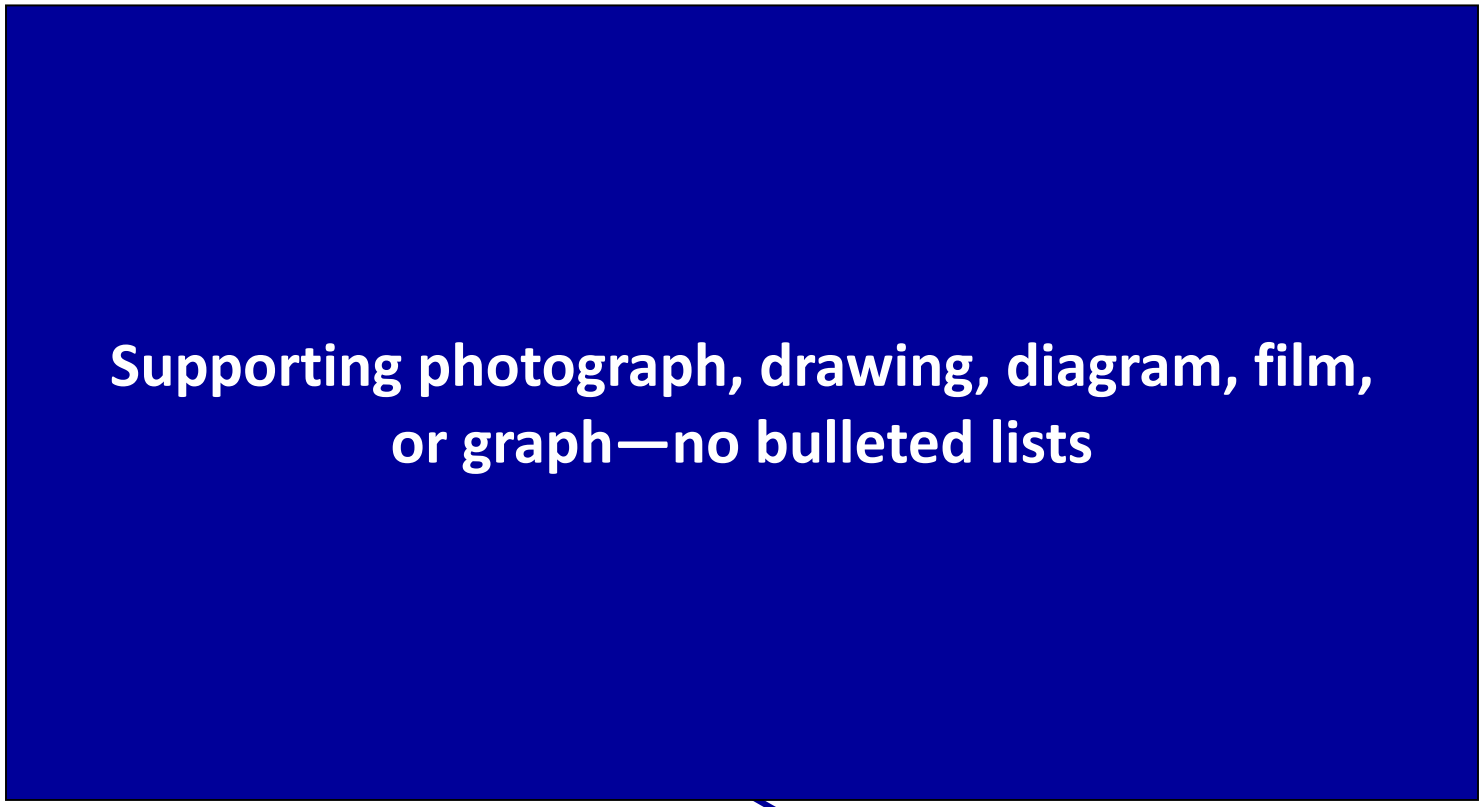
Collins, J. *Radiographics* 2004

Organizing content

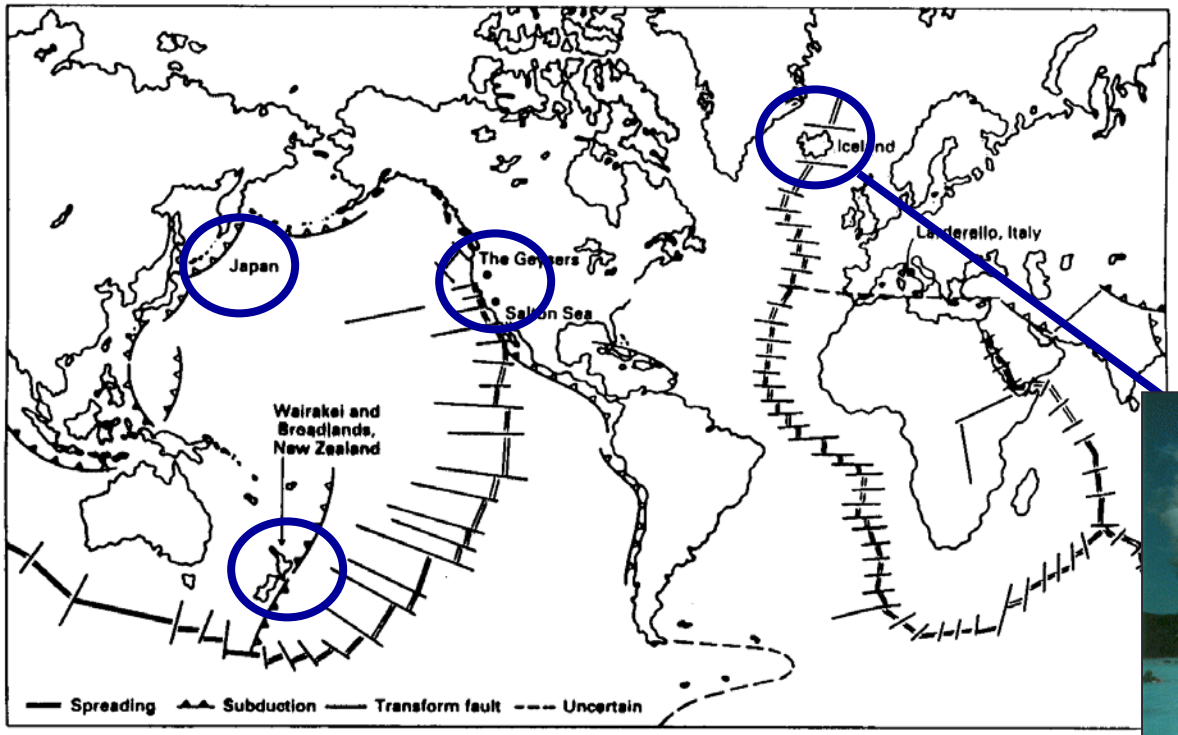
Assertion-evidence structure

- This helps avoid long boring bulleted lists (like this one) that we often see in PowerPoint
- The title of the slide is the main message
- This is supported by visual images (graphs and figures- from your article) and NOT bullet points
- One idea PER slide

In an assertion-evidence slide, the headline is a sentence, no more than two lines, that states the slide's message



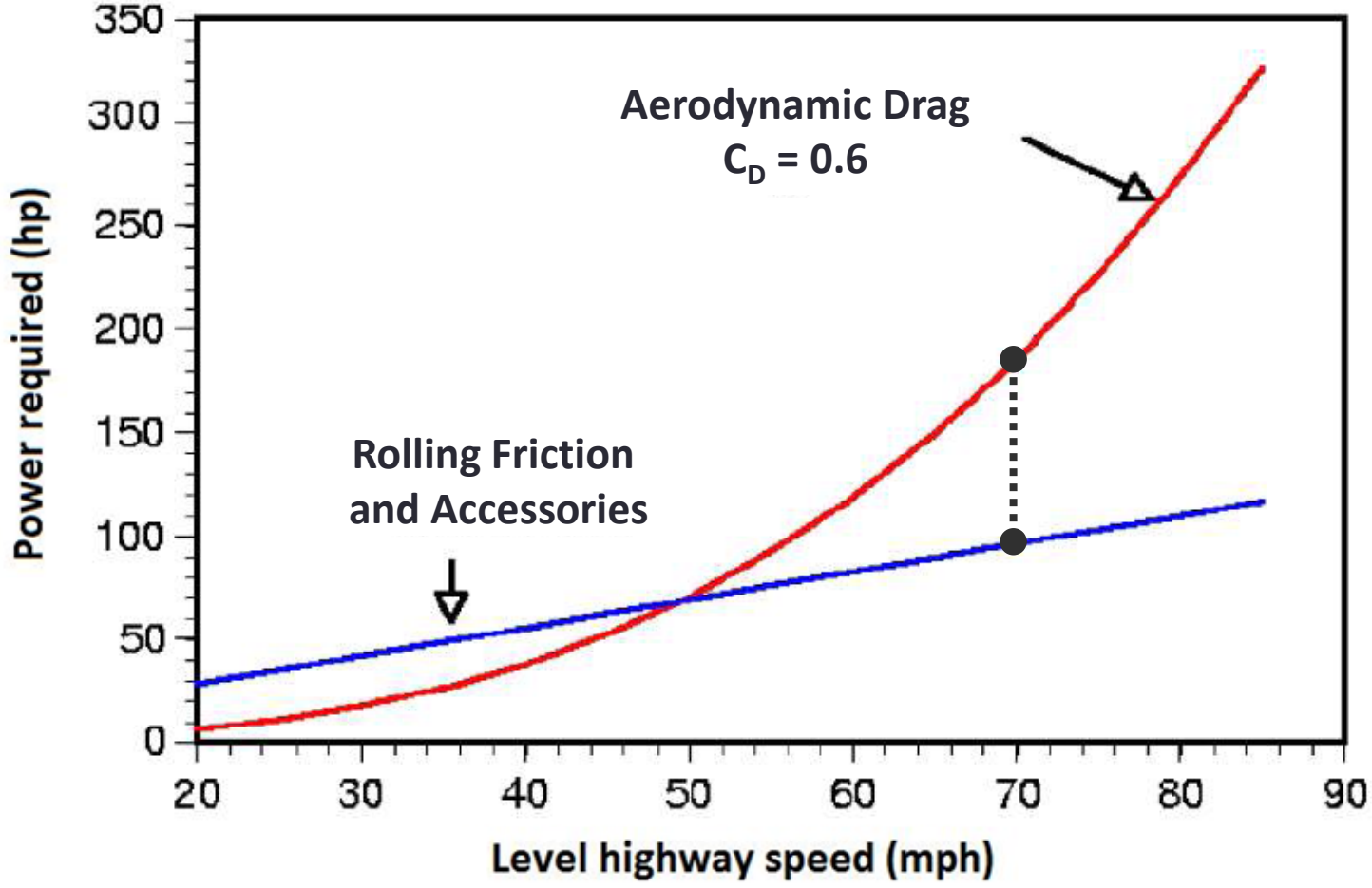
The best places to harness geothermal energy are at the plate boundaries



Iceland is almost entirely run on geothermal energy

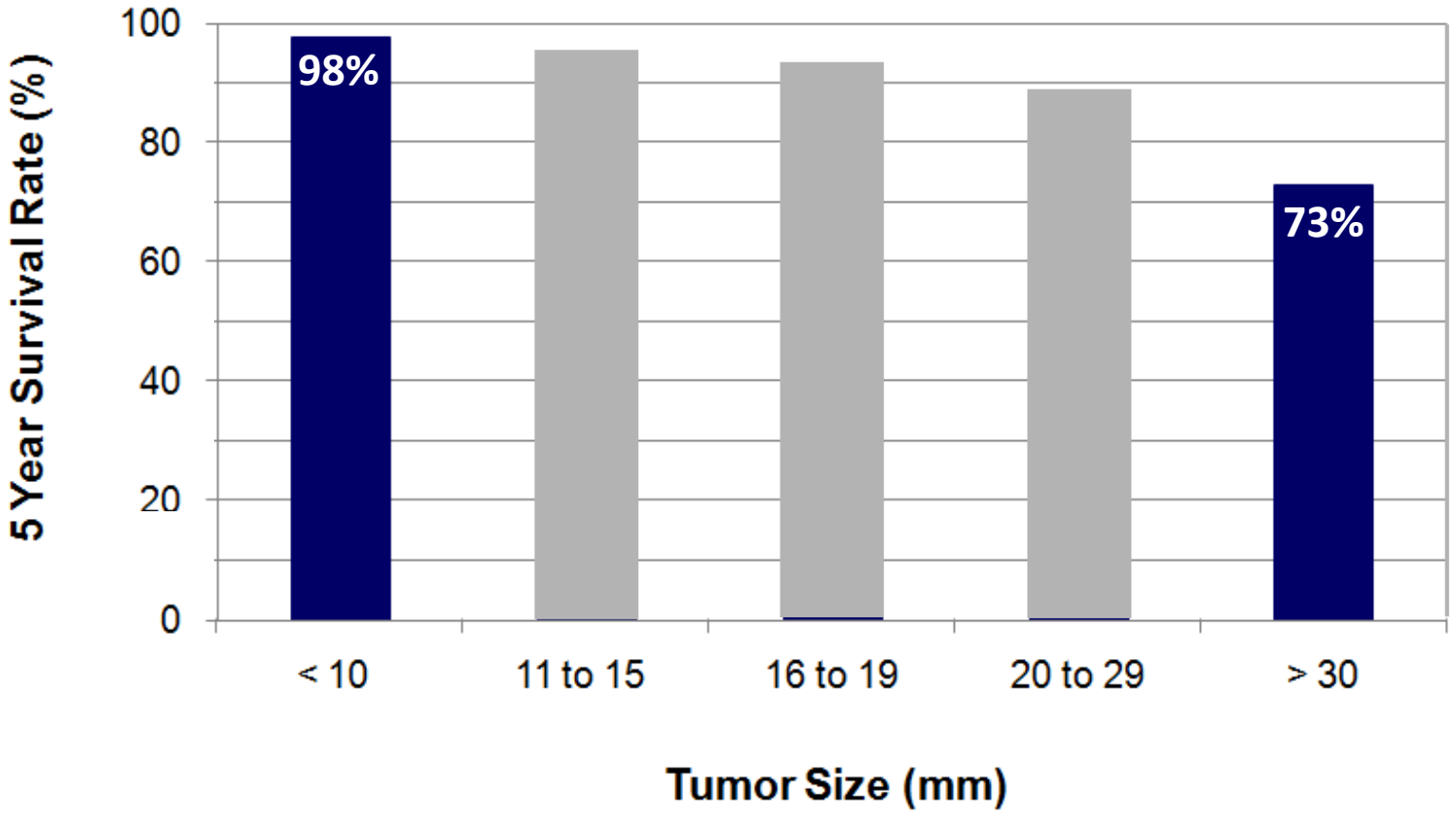
http://writing.engr.psu.edu/csp.html

At typical highway speeds, overcoming drag requires about two-thirds of a truck engine's output



- [McCallen, 2004]

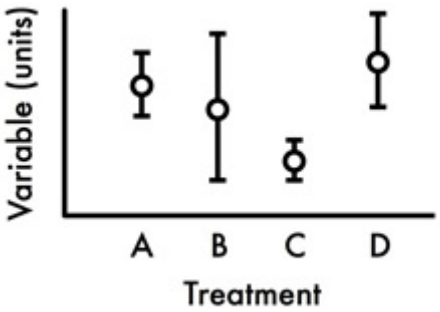
The smaller the initial cancerous tumor that is detected, the greater the survival rate of the patient



[Lai et al. 2007]

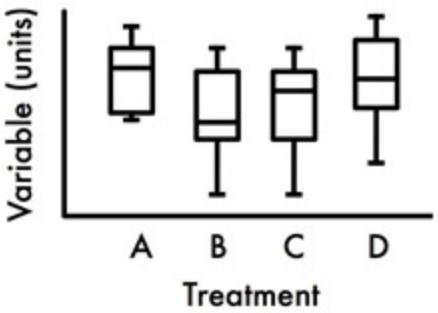
Graphs should be informative

Line plots



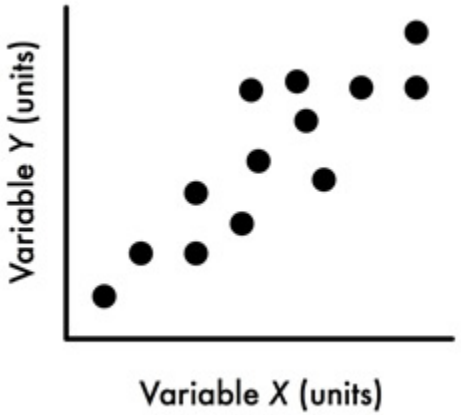
Means

Box plots



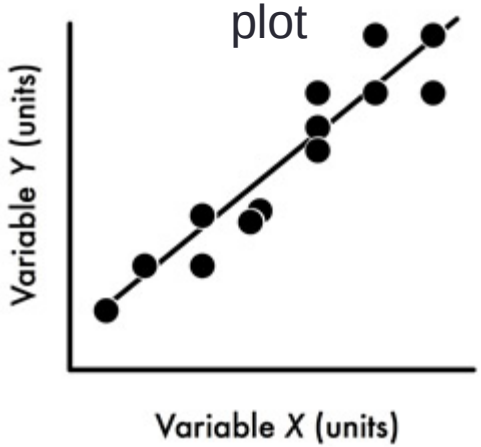
Medians

Scatterplot



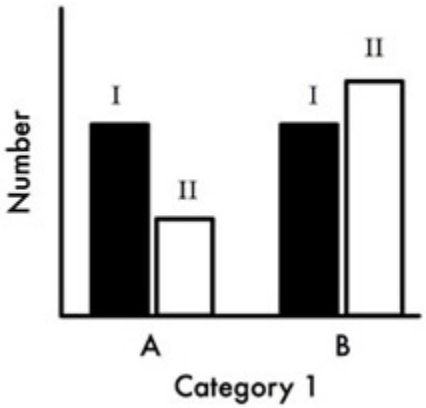
Correlation

Regression plot



Variability in second variable

Bar graph



Discrete data

http://colinpurrington.com/tips/figures

For animations, use “appear” for emphasis

Central Dogma

Jensen *Curr Opin Chem Biol.* 2004

The positives of assertion-evidence based slide

Assertion-evidence based slides constrain you to one point per slide

- You inherently cannot present your entire paper
- Focus on key points should help adhere to time constraints

This help distill your research into a few key experiments to demonstrate each result and major point

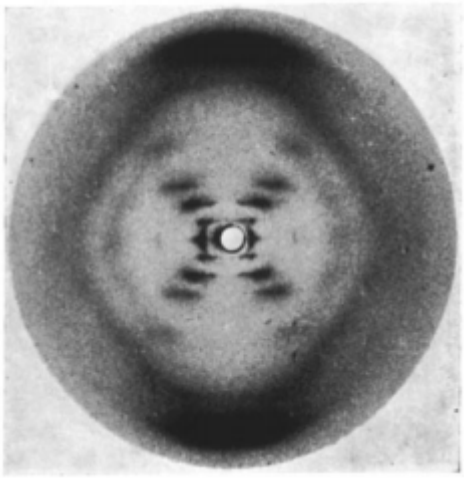
- This should keep you from having too many slides or too much information

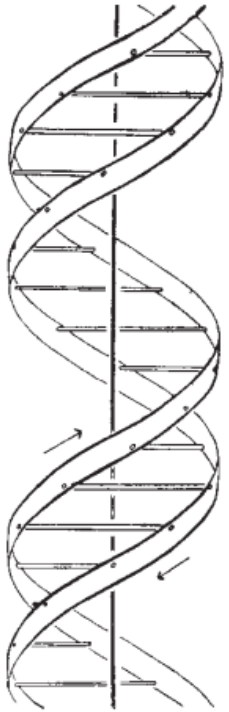
PowerPoint presentations are typically not understandable without our input

- You can focus on leading the audience to the same conclusion you made with your results throughout the talk

Even when presenting your own data, use proper attribution

DNA has a distinct helical X-ray diffraction pattern





Therefore, we propose that DNA has a double helical structure!

Franklin and Gosling *Nature* 1953

Watson and Crick *Nature* 1953

Trimming the fat

- Even with a well-structured talk, you might have too many slides or go over the time limit after you've practiced

Ensure all slides relate to the key point (or points) you are presenting

- Only give enough background and methods to understand the results presented
- Focus on the significance of the findings presented, perhaps not the entire article's significance
- Remember your audience can always read the article!

Easiest way to do this is to give a practice talk and get feedback about what seemed unnecessary

- Revise your presentation like you would an article
- Practice for flow, organization, and timing

GIVING THE PRESENTATION

Talking the talk

Be prepared, but do not memorize

- Have a script or notes of the main points
- By the time you give the presentation, you should not need the help of a script
- Remember, you are the expert

Strike a balance between rehearsed and casual

- Conversational, but still professional
- Practice to feel comfortable with the talk

Practice, practice, practice

- You will not adhere to the time limits of the presentation if you do not practice
- The more practice, the more comfortable the presentation will feel
- Try and imitate the environment you will be in (the room if you can)
  - Laser pointer, projector, microphone
- If you will be standing, don’t practice sitting
- If movement is a problem, record yourself
- Get feedback

Pitfalls when you are practicing

“I’ll show you that in a few more slides”

- This might be helpful in response to a question, but could be a sign of disorganized slides if you use it as you practice

“For the sake of time, I won’t show you that”, “For the sake of time, I’ll rush through this very important experiment”

- Your story might be too large or unfocused
- You might be falling into the trap of wanting to show all your data
- Focus on the story you are telling and not the entire article you wrote

“Sorry”

- Unless you accidentally turn off the PowerPoint slides, cause a power outage, and create feedback on every mic in the room, there is no reason to apologize for your work

- Don’t just practice, adapt your slides, pacing, projection, pitch, tone, and presentation with every rehearsal

On the day of…

- Dress appropriately
- Arrive early to test your presentation with the projector system
- Bring multiple copies of your presentation (flash drive, email, Google drive, CD, etc.)
- If presenting on your own laptop, turn off Wi-Fi and make sure your desktop background is appropriate

Do’s and Don’ts in the moment

Do’s

- Speak clearly
- Vary tone and pitch
- Remember to breathe
- Look at your audience
- Be confident and comfortable
- When fielding questions, repeat it and answer
- Say “I don’t know” if you have to

Don’ts

- Rush through your figures or slides
- Use notes or read your slides
- Mumble or yell
- Go crazy with the laser pointer
- Skip your major conclusions or thoughts on the work

For a longer talk,

- Rules for a 10 minute talk still apply

Organization is key

- If you don’t think of a 10 minute talk as a sprint, 45 minutes should not feel like a marathon

This doesn’t mean you can try to explain everything you work on in 45 minutes

- Try to focus on one solid story and key point
- Elaborate and expand on what you already have instead of adding information

Resources

UCLA GWC

Michael Alley (Penn State) *The Craft of Scientific Presentations*

- Assertion-evidence technique
- http://writing.engr.psu.edu/csp.html

Colin Purrington

- http://colinpurrington.com/tips/science-talks

TED talks

- 5-20 minutes long
- Not for content, but on how to present comfortably to an audience as an expert

References

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