Scientific writing

Lecture 5:
Delivering your research in the conference

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Winter 2017

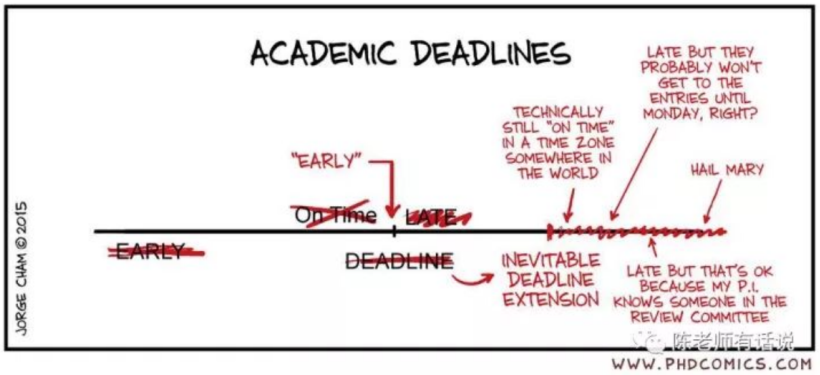
https://www.ncsu.edu/project/posters/index.html
http://www.kmeverson.org/academic-poster-design.html
http://colinpurrington.com/tips/poster-design

浙江大學 ZHEJIANG UNIVERSITY

Attending an academic conference

和导师一起赶文章死线（Dead-line）的十大注意事项

原创 2017-11-25 陈怡然 陈老师有话说



图片来源：www.phdcomics.com

今年电子设计自动化领域和计算机体系结构领域的两大顶级会议DAC和ISCA的截稿日期放在了学校感恩节假期的前一天晚上（11月21日），加上之前一周截稿的CVPR和某个会议，结果组里的老师和同学都赶死线（deadline）赶了个天昏地暗。随着截止日期日益临近，陈老师的脾气也一天坏似一天。

把文章交上去之后，回想整个过程，觉得还是有必要写一篇文章对各位曾经、正在、或未来将会赶死线的博士生同学们说几句有关如何提高和导师一起赶文章死线效率的

1. 请提早开始
2. 一定要列提纲和试验计划
3. 请多花点时间给文章取个好名字
4. 熟悉你的写作工具和template
5. 不要把匆匆而就的第一稿给导师
6. 用reviewer的视角去写文章
7. 不要不加思索地接受导师的revision
8. 不要照抄，保留所有推导和实验细节
9. 保持随时待命和反应的状态
10. 改到最后一分钟！

An abstract is a succinct description of your work.

It should ...

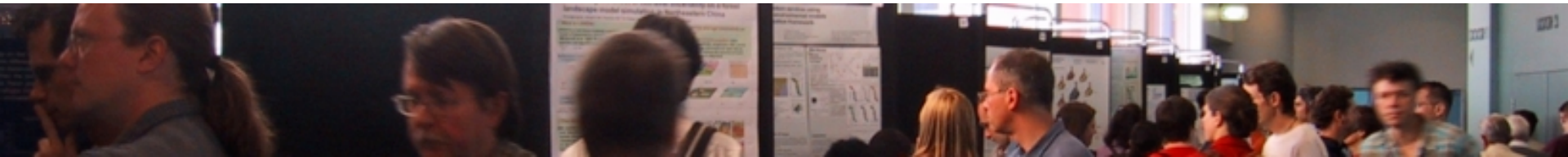
- Explain why your work is important - set the context and pre-empt the question "So what?"
- Describe the objective(s) of your work. What are you adding to current knowledge?
- Briefly explain the methods. Unless the research is about methods, this should not be a major focus of your abstract (or your poster).
- Succinctly state results, conclusions, and recommendations. This is what most people want to know. Do not say "We present the results of our study and recommendations for action" - tell them what you found and recommend!

DO NOT recommend including an abstract on poster or in oral presentation

Academic Poster Presentations

- Advantages:
  - Meeting organization
  - Two-way dialogue
  - Networking for young scientists
  - Visual communication
  - For audience: easy control; questions; enough time to absorb
  - For presenter: interested audience; hung at home institution
- Disadvantages:
  - Time-intensive to design
  - Not all types of research easily adopt graphical format (theoretical or mathematics-based)
  - Difficult to transport
  - Maybe less formal or professional

A poster is a good place to sell the science



Audience:

- Specialists only
- Wide-ranging discipline
- Very general audience

Locations:

Convention center
Ball room
Street fair
Baloney
…

Bad Poster

PIGS IN SPACE: EFFECT OF ZERO GRAVITY AND AD LIBITUM FEEDING ON WEIGHT GAIN IN CAVIA PORCELLUS

Colin B. Purrington
6673 College Avenue, Swarthmore, PA 19081 USA

ABSTRACT:

One ignored benefit of space travel is a potential elimination of obesity, a chronic problem for a growing majority in many parts of the world. In theory, when an individual is in a condition of zero gravity, weight is eliminated. Indeed, in space one could conceivably follow ad libitum feeding and never even gain an gram, and the only side effect would be the need to upgrade one's stretchy pants("exercise pants"). But because many diet schemes start as very good theories only to be found to be rather harmful, we tested our predictions with a long-term experiment in a colony of Guinea pigs (Cavia porcellus) maintained on the International Space Station. Individuals were housed separately and given unlimited amounts of high-calorie food pellets. Fresh fruits and vegetables were not available in space so were not offered. Every 30 days, each Guinea pig was weighed. After 5 years, we found that individuals, on average, weighed nothing. In addition to weighing nothing, no weight appeared to be gained over the duration of the protocol. If space continues to be gravity-free, and we believe that assumption is sound, we believe that sending the overweight — and those at risk for overweight — to space would be a lasting cure.

INTRODUCTION:

The current obesity epidemic started in the early 1960s with the invention and proliferation of elastane and related stretchy fibers, which released wearers from the rigid constraints of clothes and permitted monthly weight gain without the need to buy new outfits. Indeed, exercise today for hundreds of million people involve only the act of wearing stretchy pants in public, presumably because the constrictive pressure forces fat molecules to adopt a more compact tertiary structure (Xavier 1965).

Luckily, at the same time that fabrics became stretchy, the race to the moon between the United States and Russia yielded a useful fact: gravity in outer space is minimal to nonexistent. When gravity is zero, objects cease to have weight. Indeed, early astronauts and cosmonauts had to secure themselves to their ships with seat belts and sticky boots. The potential application to weight loss was noted immediately, but at the time travel to space was prohibitively expensive and thus the issue was not seriously pursued. Now, however, multiple companies are developing cheap extra-orbital travel options for normal consumers, and potential travelers are also creating news ways to pay for products and services that they cannot actually afford. Together, these factors open the possibility that moving to space could cure overweight syndrome quickly and permanently for a large number of humans.

We studied this potential by following weight gain in Guinea pigs, known on Earth as fond of ad libitum feeding. Guinea pigs were long envisioned to be the "Guinea pigs" of space research, too, so they seemed like the obvious choice. Studies on humans are of course desirable, but we feel this current study will be critical in acquiring the attention of granting agencies.

MATERIALS AND METHODS:

One hundred male and one hundred female Guinea pigs (Cavia porcellus) were transported to the International Space Laboratory in 2010. Each pig was housed separately and deprived of exercise wheels and fresh fruits and vegetables for 48 months. Each month, pigs were individually weighed by duct-taping them to an electronic balance sensitive to 0.0001 grams. Back on Earth, an identical cohort was similarly maintained and weighed. Data was analyzed by statistics.

RESULTS:

Mean weight of pigs in space was 0.0000 +/- 0.0002 g. Some individuals weighed less than zero, some more, but these variations were due to reaction to the duct tape, we believe, which caused them to be alarmed push briefly against the force plate in the balance. Individuals on the Earth, the control cohort, gained about 240 g/month ($p = 0.0002$). Males and females gained a similar amount of weight on Earth (no main of effect of sex), and size at any point during the study was related to starting size (which was used as a covariate in the ANCOVA). Both Earth and space pigs developed substantial dewlaps (double chins) and were lethargic at the conclusion of the study.

CONCLUSIONS:

Our view that weight and weight gain would be zero in space was confirmed. Although we have not replicated this experiment on larger animals or primates, we are confident that our result would be mirrored in other model organisms. We are currently in the process of obtaining necessary human trial permissions, and should have our planned experiment initiated within 80 years, pending expedited review by local and Federal IRBs.

ACKNOWLEDGEMENTS:

I am grateful for generous support from the National Research Foundation, Black Hole Diet Plans, and the High Fructose Sugar Association. Transport flights were funded by SPACE-EXES, the consortium of wives divorced from insanely wealthy space-flight startups. I am also grateful for comments on early drafts by Mañana Athletic Club, Corpus Christi, USA. Finally, sincere thanks to the Cuy Foundation for generously donating animal care after the conclusion of the study.

LITERATURE CITED:

NASA. 1982. Project STS-XX: Guinea Pigs. Leaked internal memo.

Sekulić, S.R., D. D. Lukač, and N. M. Naumović. 2005. The Fetus Cannot Exercise Like An Astronaut: Gravity Loading Is Necessary For The Physiological Development During Second Half Of Pregnancy. Medical Hypotheses. 64:221-228

Xavier, M. 1965. Elastane Purchases Accelerate Weight Gain In Case-control Study. Journal of Obesity. 2:23-40.

http://colinpurrington.com/tips/poster-design

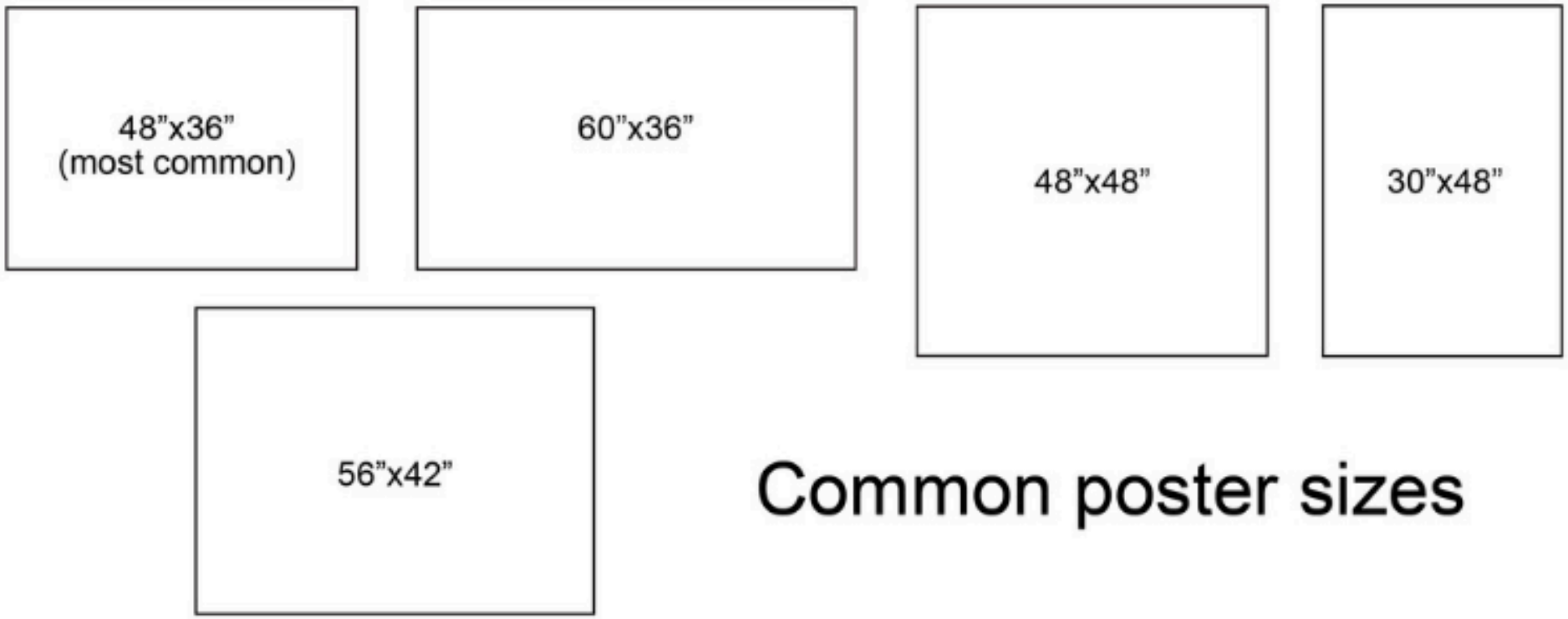
A winning poster

- Bold graphics
- Plenty of white space
- Limited text
- Look catchy from 10m away
- Visual aid

Organizing your poster

1. Poster size

Read the conference presenter guidelines



2. Poster contents

- Title, author(s), and affiliation(s)
- Abstract (include only if required)
- Introduction
  - Objective/Hypothesis/Aims/Questions
- Materials and methods
- Results
- Conclusions
- Acknowledgements
- Reference (often required, but can be scale down very small in size)
- Contact Information (business card)

Materials and methods

Few people, if any, really want to know the gruesome details of what you've been up to, so be brief. Use lightly-annotated photographs, drawings, or flow charts to visually convey your *general* experimental approach. To better engage viewers in your protocol or system, try attaching actual objects such as study organism (dead specimen), research gizmo, photo flip book, or a short movie (attach an old smartphone with Velcro).

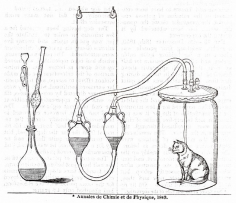


Figure 2. Hire an artist to illustrate the important step in your protocol. A photograph of you actually doing something might be nice, too. [image by John Snow 1853]

Literature cited

Bender, D.J., E.M Bayne, and R.M. Brigham. 1996. Lunar condition influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 136:413-417.

Brooks, L.D. 1988. The evolution of recombination rates. Pages 87-105 in *The Evolution of Sex,* edited by R.E. Michod and B.R. Levin. Sinauer, Sunderland, MA.

Scott, E.C. 2005. *Evolution vs. Creationism: an Introduction*. University of California Press, Berkeley.

Society for the Study of Evolution. 2005. Statement on teaching evolution. < http://www.evolutionsociety.org/statements.html >. Accessed 2005 Aug 9.

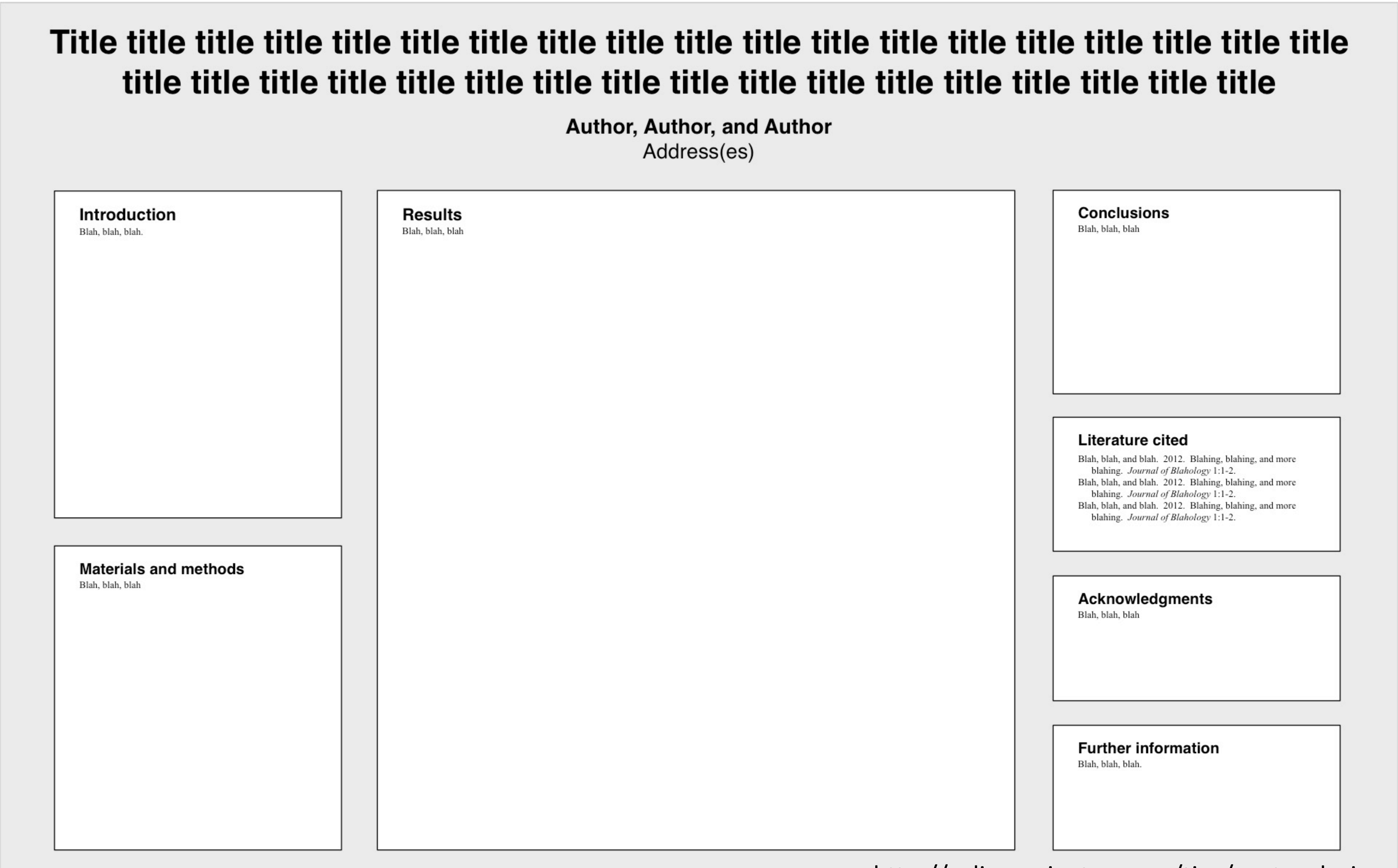
Acknowledgments

We thank I. Güor for laboratory assistance, Mary Juana for seeds, and Herb Isside for greenhouse care. Funding for this project was provided by the Department of Thinkology. Note that people's titles are omitted (titles are TMI).

3. Storyboarding

- Sketch your poster with a pencil and paper
- NO DATA
- Provides the first, rough visualization of contents

4. Transfer to electronic template



http://colinpurrington.com/tips/poster-design

Title title

Author, Author, and Author
Address(es)

Introduction

Replace the "blah, blah, blah" with your own "blah, blah, blah."

Materials and methods

Blah, blah, blah

Results

Blah, blah, blah

Conclusions

Blah, blah, blah

Further information

Literature cited

Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.
Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.
Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.
Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.
Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.
Blah, blah, and blah. 2012. Blahing, blahing, and more blahing. *Journal of Blahology* 1:1-2.

Acknowledgments

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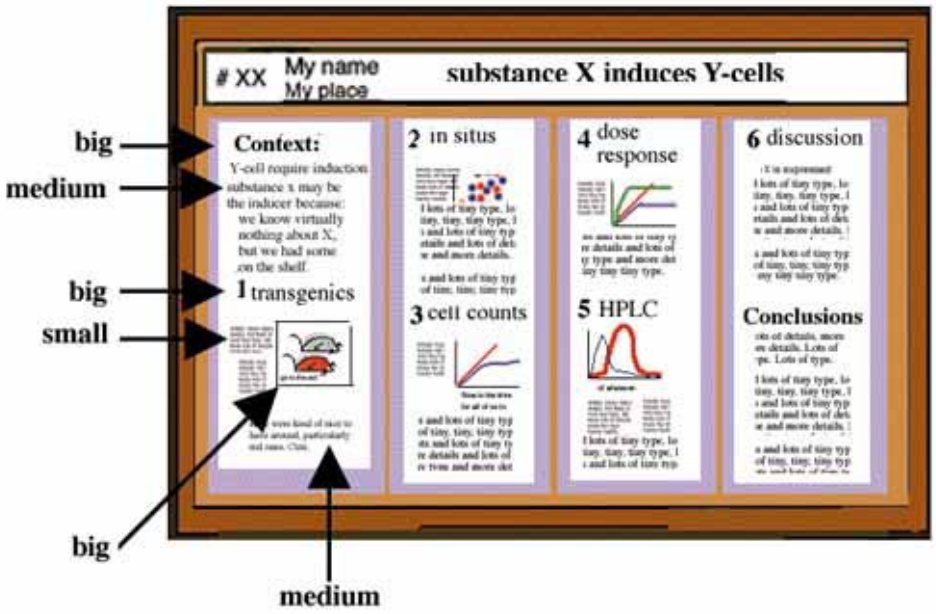
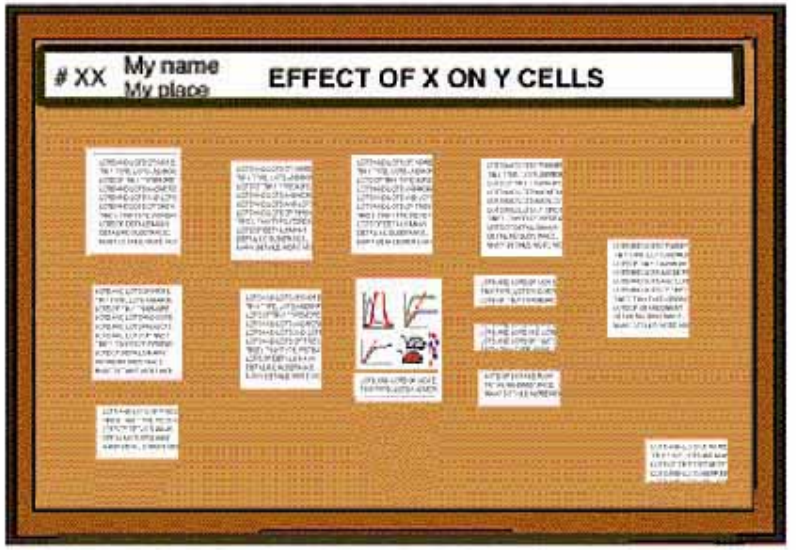
http://colinpurrington.com/tips/poster-design

Visual Grammar





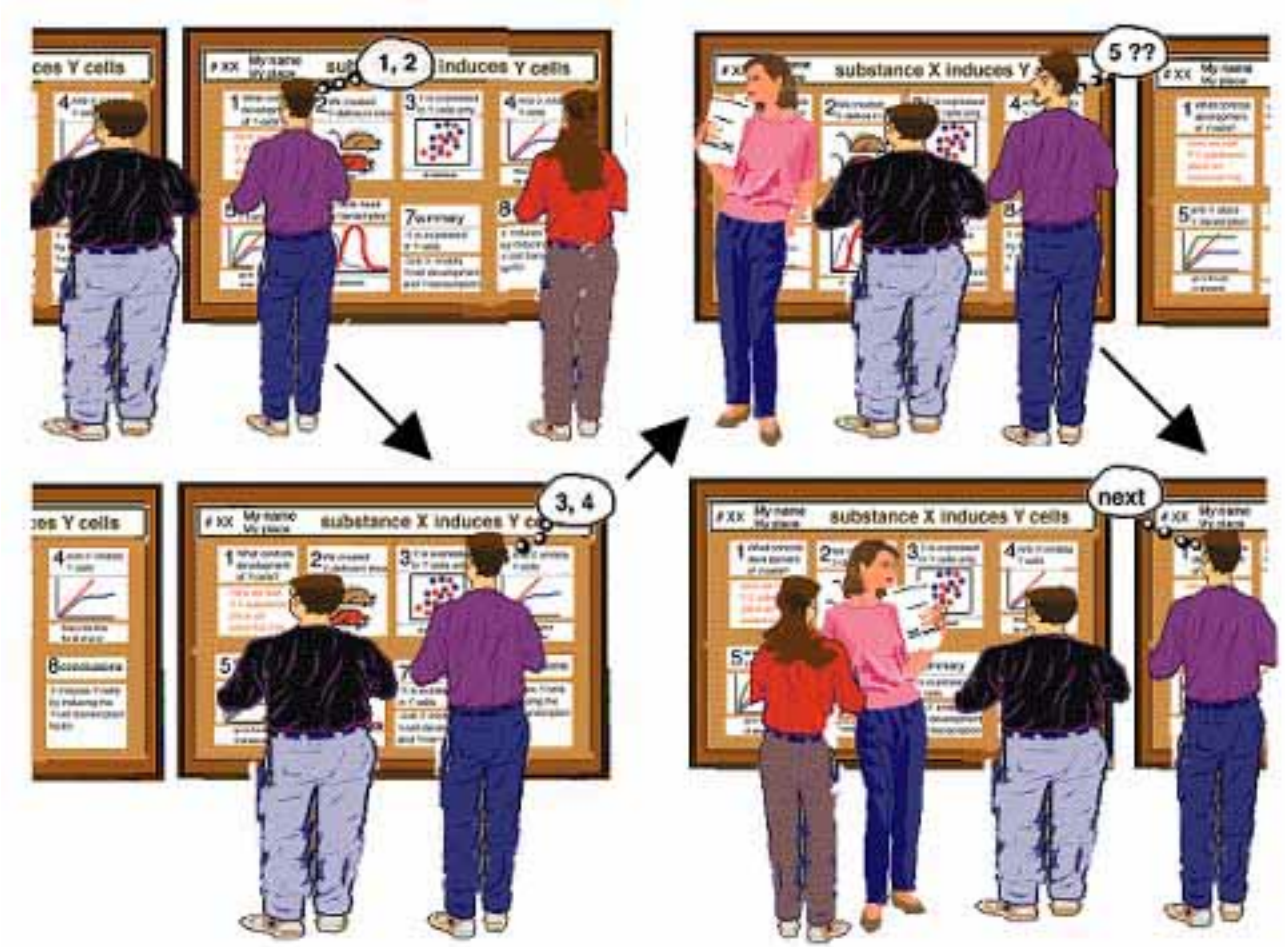
Do this…

Not this…

Use a graphic hierarchy that visually reflects the relative importance of elements

- BIG – medium – small
- No need to write down every detail
- Simple figures and graphs
- Large enough to be visible from 1 m away
- Use headings intelligently

Use a columnar format



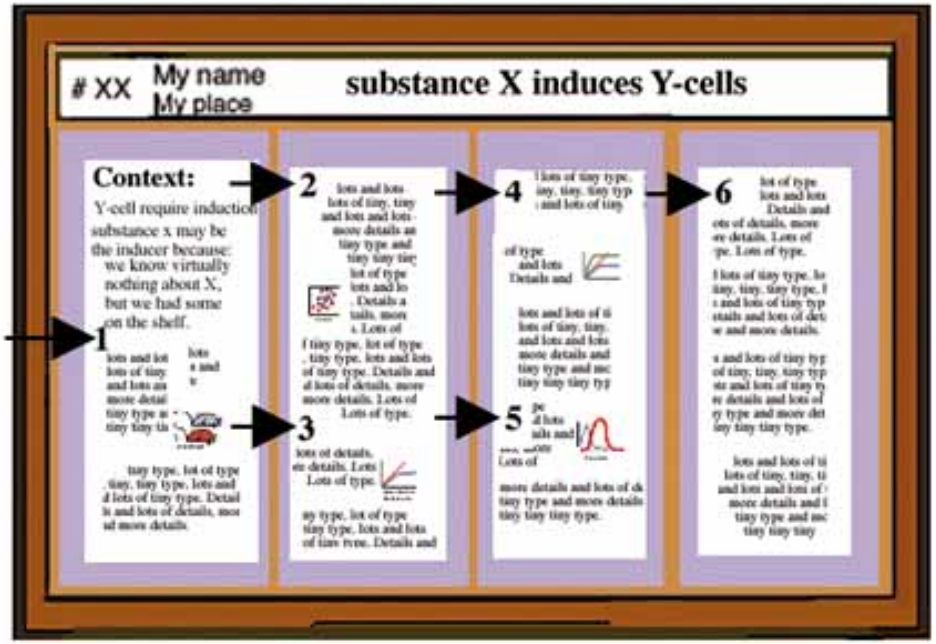
Do this…

Not this…

Viewers can read all of a column before they move to the next column

Reader tend to read top to bottom and left to right, “reader gravity” by Wheildon (1995)

Use organizational cues



Do this…

Use numbers, letters, or arrows to help guide viewers

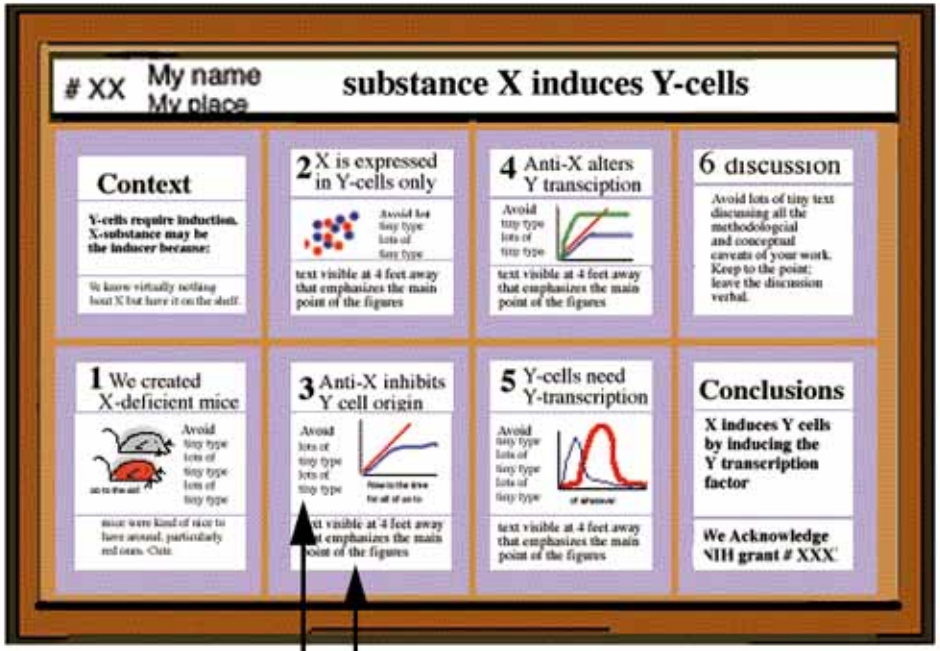
Not this…

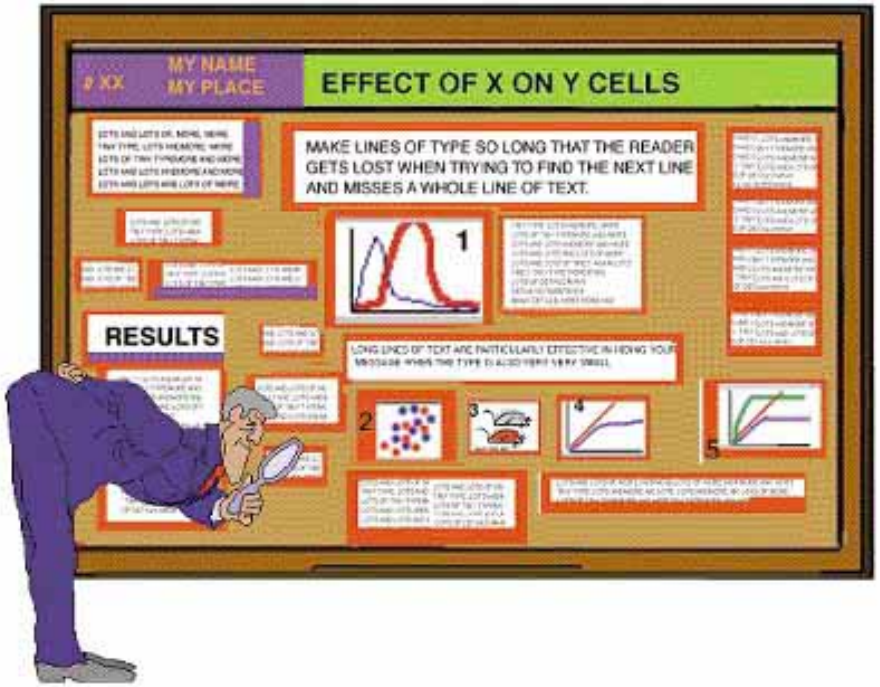
In a “unique” manner

Avoid helping viewers figure out where to start or where to go next

Let viewers guess the sequence

Text





Do this…

- Be consistent
- Make text simple, direct, and large enough to read
- Title and major headings (2m); all others (1m)
- Avoid long lines of text
- **Say NO to word art**

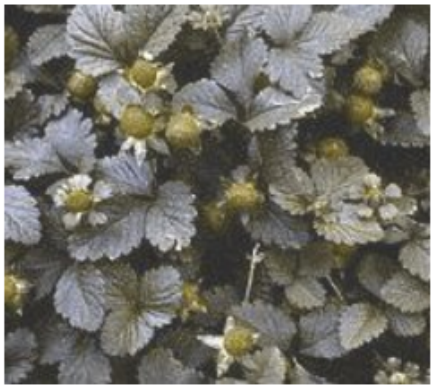
Oxidative phosphorylation

Color

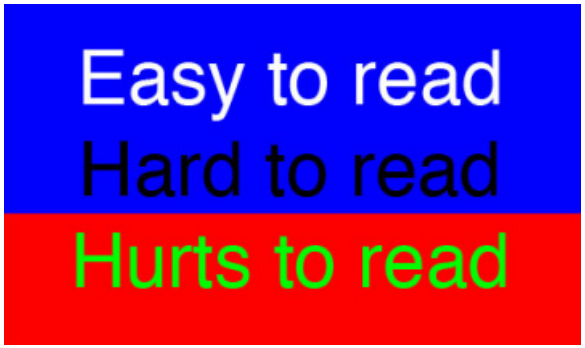
Use color to attract attention, organize, and emphasize – but don't overdo it!

- Recommend black type on a light, muted background color
- Bright colors and complementary color pairs strain eyes
- Consider color blindness

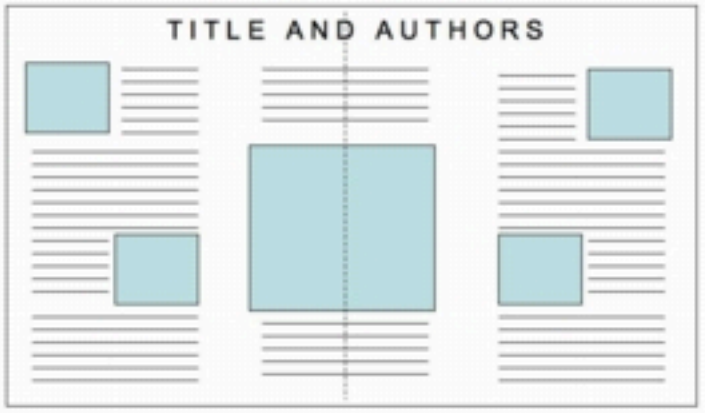
Mock strawberries as they appear to a person with full-color vision.



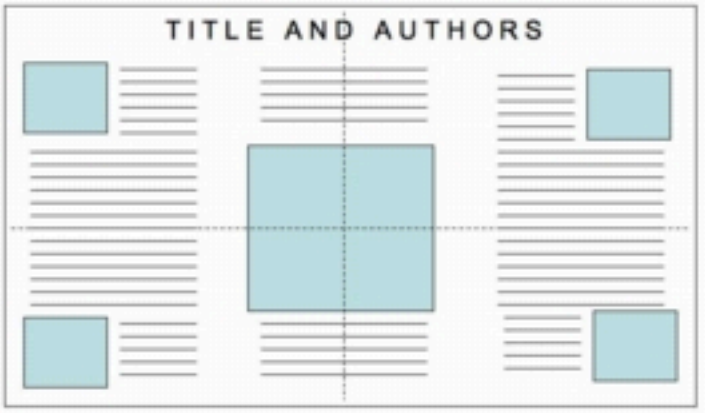
Mock strawberries as they appear to a person who cannot tell red from green.



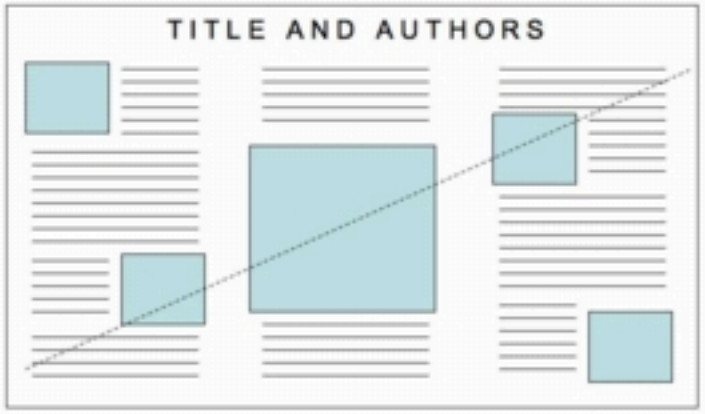
Balance and white space



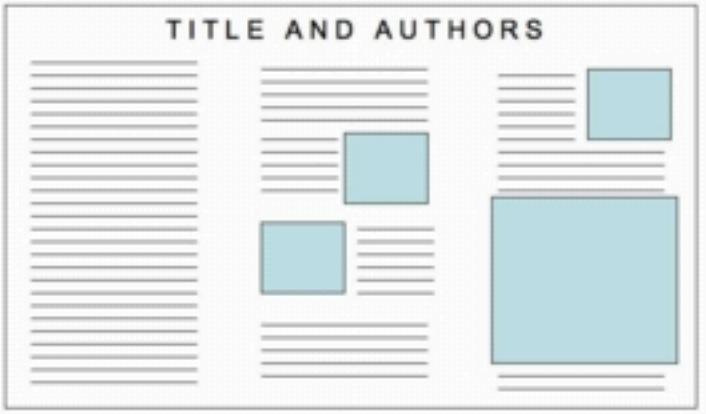
Horizontal Symmetry



Horizontal & Vertical Symmetry



Diagonal Symmetry



Asymmetry
(text-heavy on left, image-heavy on right)

Contents

- Stay focused on your message, and keep it simple!
- Ask yourself which details are absolutely essential for conveying your message
- Omit anything that is not essential
- Edit text carefully – simplify verbiage, reduce sentence complexity, use bullets

What is the one thing you want your audience to learn?

Example title:

~~*The Effect of X on Y*~~

Substance X induces Y-cells

Headings (title, section titles, figure captions)

- **Summarize** Use headings as opportunities to summarize your work in large letters. A hurried reader should be able to get the main points from the headings alone.
- **Organize** Good headings are part of the visual grammar that helps move readers through your poster.
- **Be Hierarchical** The more important the point, the larger the type.
- **Be Bold** Make the strongest statements your research allows.

Headings convey the message

Can Suburban Greenways Provide High Quality Bird Habitat?

George R. Hess :: NC State University :: Department of Forestry & Environmental Resources :: Raleigh NC 27695-8002 USA :: george_hess@ncsu.edu
Christopher E. Moorman, Jamie H. Mason, Kristen E. Sinclair, Salina K. Kohut :: NC State University :: Department of Forestry & Environmental Resources
www4.ncsu.edu/~grhess/GreenwaysForWildlife

Birds of Conservation Concern in Decline

- Many bird species of conservation concern – including neotropical migrants, insectivores, and forest-interior specialists – decline with increasing human development
- Greenways might mitigate this effect
- Habitat patch size, vegetation composition & structure, and landscape context are key factors
- Standards are lacking for designing and managing suburban greenways as high quality habitat

Objective: Greenways for the Birds

- Determine how development-sensitive forest birds are affected by
  - forested corridor width
  - adjacent development intensity
  - vegetation composition & structure
- Develop recommendations for greenway designers and planners

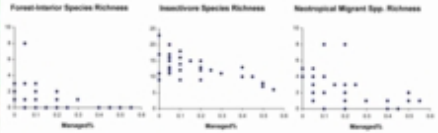
Study Design & Independent Variables

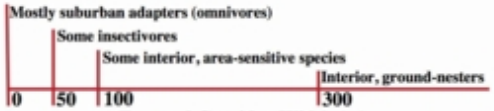
- Sampled 34 - 300m corridors in Raleigh & Cary, NC, USA
- Sampled range of
  - Forested corridor widths (20 – 1,200m)
  - Adjacent density (low density residential – office/commercial)
- Additional measures
  - Vegetation composition & structure in corridor
  - Land cover in 300m x 300m adjacent to corridor (context)

- Measured richness & abundance of
  - Breeding birds
  - Neotropical migrant birds during stopovers
  - Mammal nest predators

Breeding Birds of Concern More Common in Wider Greenways with Less Managed Area Surrounded by More Forest Canopy

- 8-minute, 50m point counts at center of corridor
- Revisited 4 times during breeding season



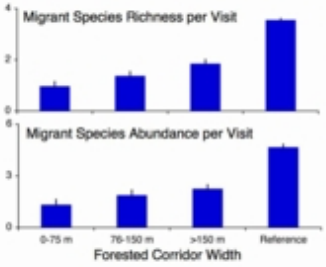


Significant Predictors for Breeder Abundance

Greenway:	*Adjacent Landscape:*
(–) Managed Area	(+) Canopy Cover
(+)Shrub Cover	(–) Building Density
	(–) Bare Earth

Spring Neotropical Migrant Stopovers More Common in Wider Greenways with More, Taller Hardwood Trees

- 200m x 25m transects along one side of greenway path
- Revisited sites for two spring seasons and one fall season
- Width *not* significant, but trend consistent with other findings



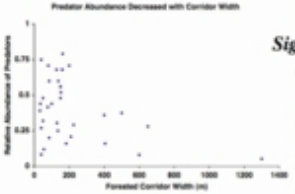
Significant Predictors for Spring Migrant Abundance

Greenway:
(+) % Hardwoods
(+) Canopy Height

Adjacent Landscape:
(–) Bare Earth

Nest Predators Less Common in Wider Greenways with Narrower Paths

- Five baited scent stations along each greenway segment
- Observed for 5 nights each



Significant Predictors for Predator Abundance

Greenway:	*Adjacent Landscape:*
(–) Corridor width	(–) Building density
(+) Trail width	
(+) Mature forest	
(+) Ground cover	
(–) Vine cover	

Greenways for Development-Sensitive Forest Birds Might Conflict with Intense Recreational Use

People & Managers Prefer …

- Good for walking, running, cycling, strollers, wheelchairs
- Easier to maintain, especially with higher intensity use

Forest Birds Prefer …

- Narrow path avoids splitting forested corridor
- Discourages heavy human use
- Fewer nest predators

Potential Solution: Wide Corridor, Trail Near Edge

- Make corridors at least 50m wide; wider is better
- Don't split forested corridor
  - Keep trails as narrow as possible
  - Avoid wide grassy areas along trails within forested corridor
  - Locate trails near the edge of forested corridors

Figures or Tables

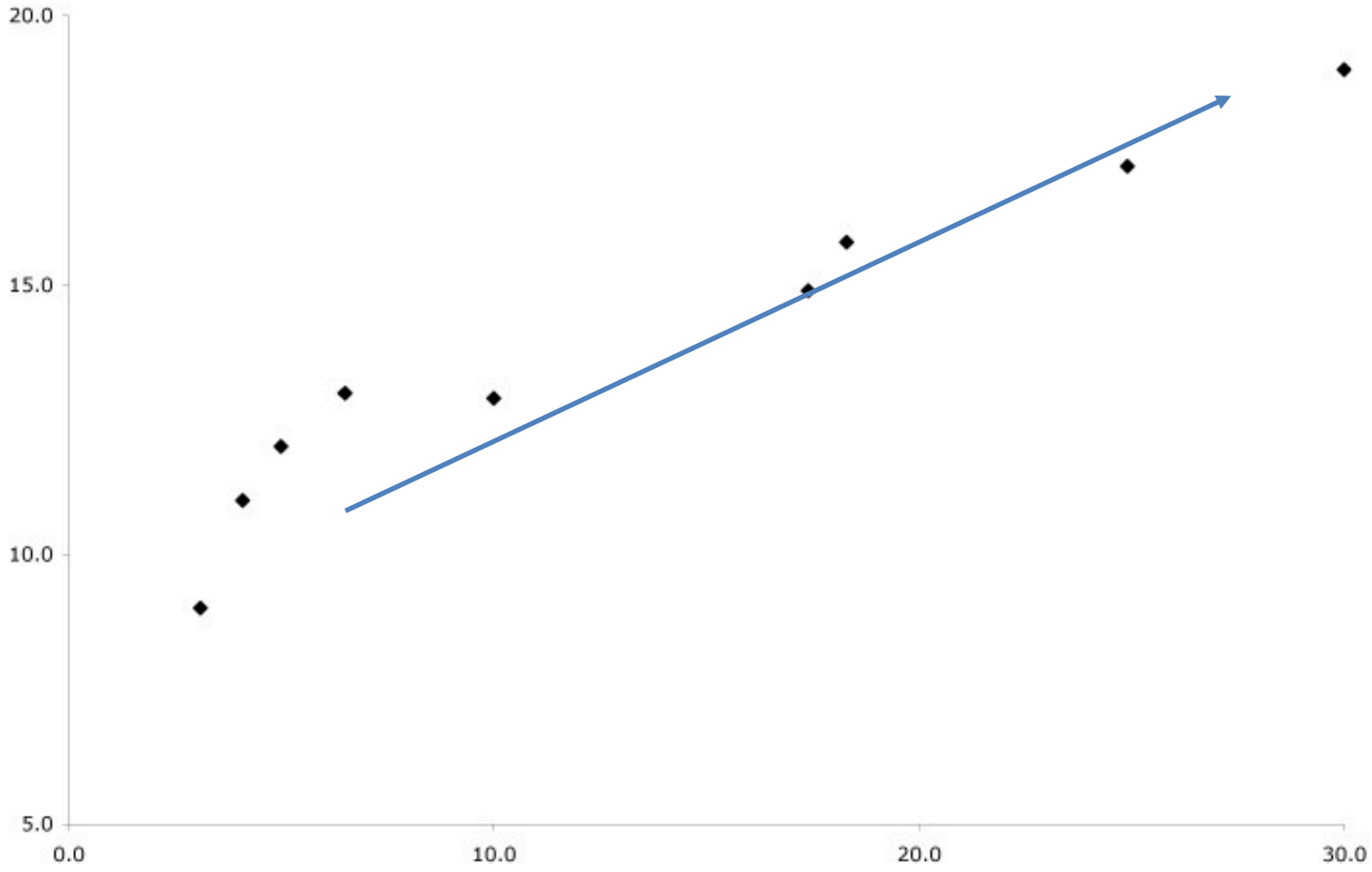
4.1	11.0
17.4	14.9
6.5	13.0
30.0	19.0
18.3	15.8
5.0	12.0
24.9	17.2
10.0	12.9
3.1	9.0

Table 1

3.1	9.0
4.1	11.0
5.0	12.0
6.5	13.0
10.0	12.9
17.4	14.9
18.3	15.8
24.9	17.2
30.0	19.0

Table 2

Figures or Tables



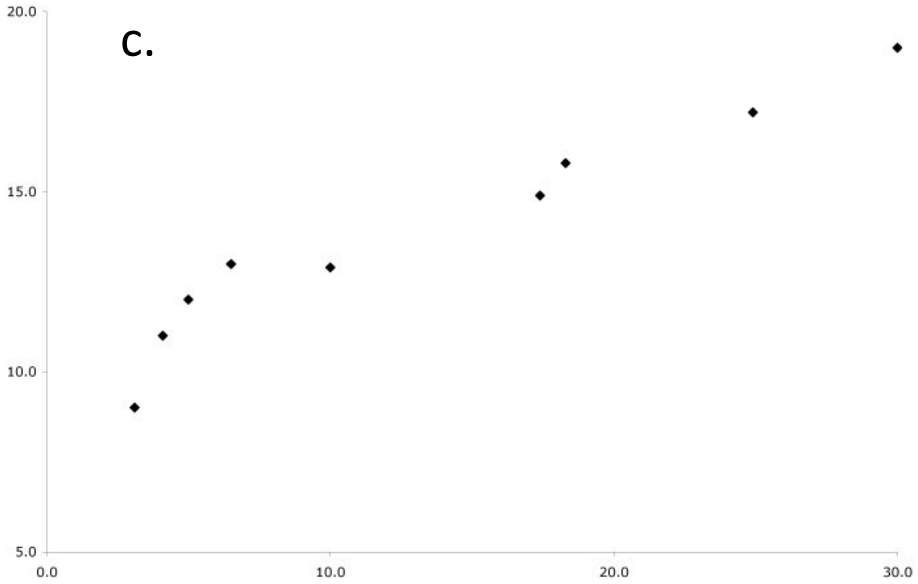
a.

4.1	11.0
17.4	14.9
6.5	13.0
30.0	19.0
18.3	15.8
5.0	12.0
24.9	17.2
10.0	12.9
3.1	9.0

b.

3.1	9.0
4.1	11.0
5.0	12.0
6.5	13.0
10.0	12.9
17.4	14.9
18.3	15.8
24.9	17.2
30.0	19.0

c.



a. List of unsorted numbers

Virtually impossible to see the patterns

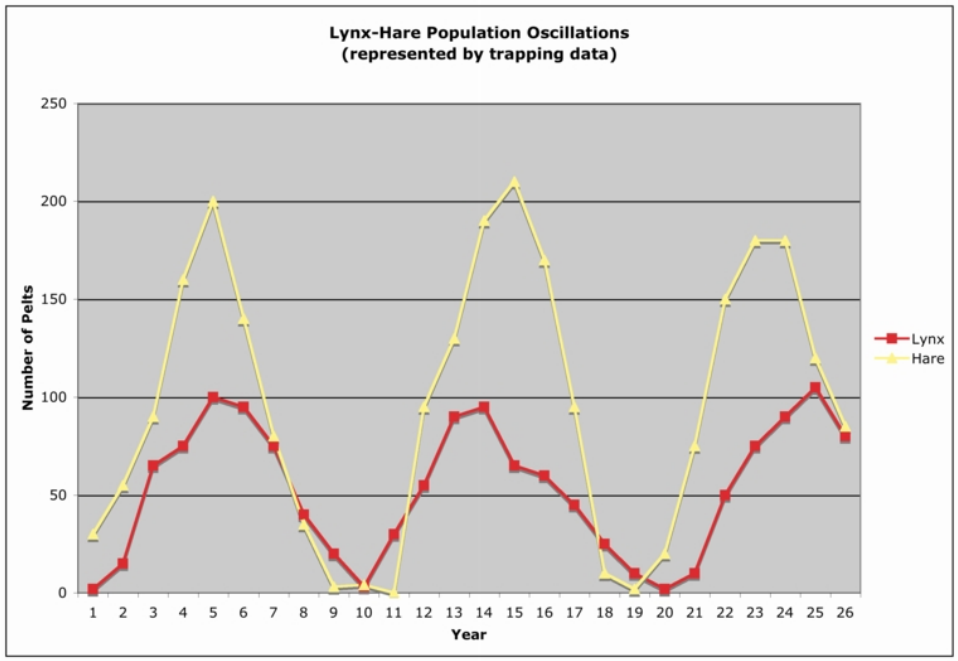
b. Sorted numbers

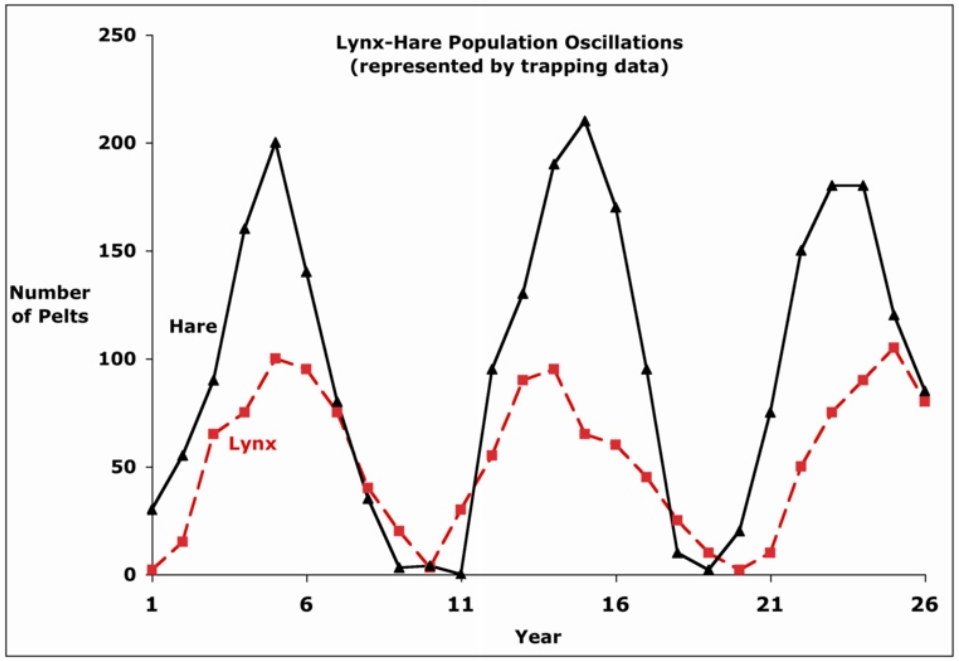
Some readers might have seen the relationship if look carefully

c. Scatter plot

Almost everyone can see the basic relationship very quickly

Keep graphics clean and simple





- Gray background: no information
- Grid lines: pattern matters, not exact values
- X-axis (axis scales): too fine
- Y-axis (label): tilt
- Legend: takes space; label lines
- Line types: use color and line type to differentiate

Relationship comes through LOUD and CLEAR

Presenting your poster

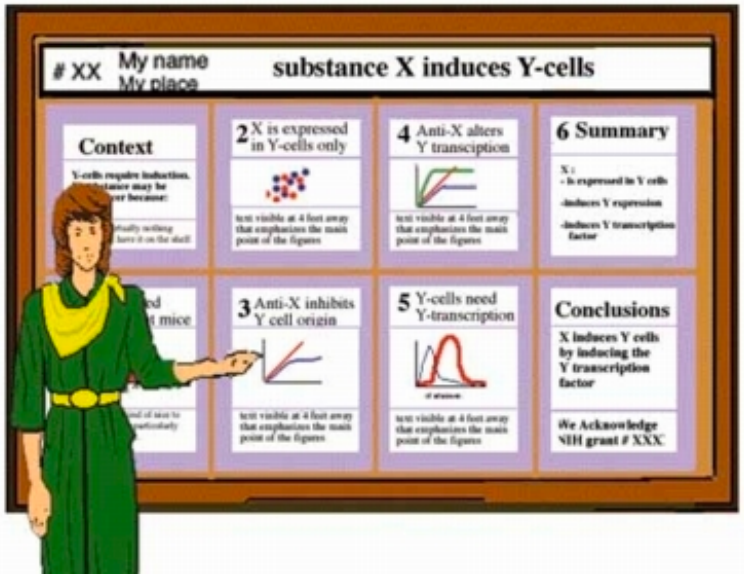
a hot, loud, congested room with really bad lighting

Spiel （推销商品用的）长串的套话

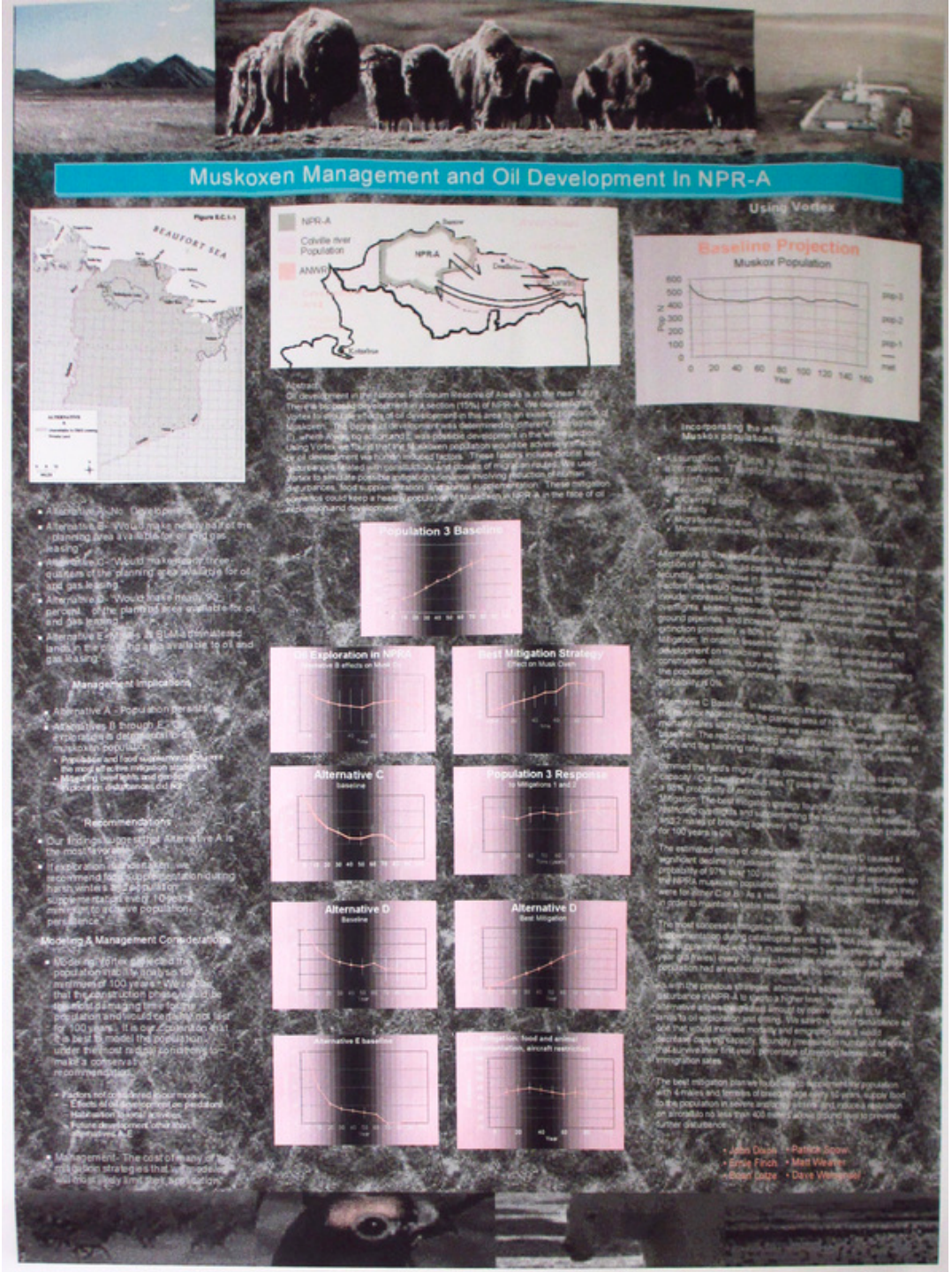
- A typical poster visitor appreciates a 2-sentence overview of why your research is interesting and relevant.
- Keep it general, and make it clear to the visitor why you find the topic interesting.
- Use your poster as a visual aid – don't read it!
- Compare: this figure shows our main result vs. We found that anti-X inhibits Y cell origin then stop the growth after xxx, as you can see in this blue line.
- Thank your viewers for visiting.

Prepare 0.5-, 2-, & 5- minute tours of your poster

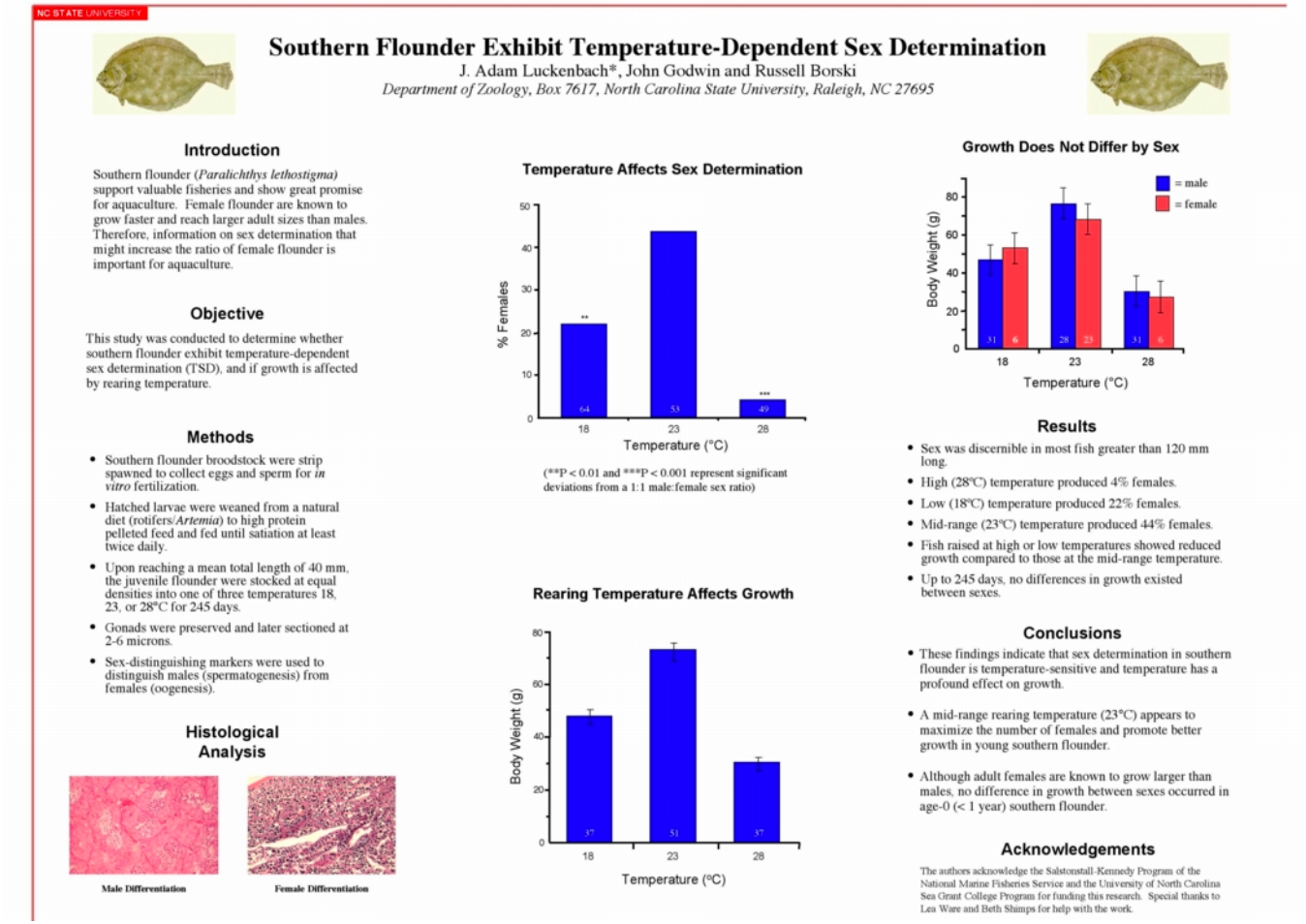
- ✓ If they have stayed more than 4 minutes, you have **succeeded**.
- ✓ If they say, "This is really interesting–I'll definitely come back later," you have **failed**.



Bad Poster


Muskoxen Management and Oil Development In NPR-A
Using Vortex
Baseline Projection
Muskox Population
Population 3 Baseline
Alternative C
Baseline
Alternative D
Baseline
Alternative D
Best Mitigation
Management Implications
Recommendations
Modeling & Management Considerations

This poster was presented a the annual Zoology Department Symposium for graduate students at North Carolina State University. It won the award for best poster presentation at the symposium.



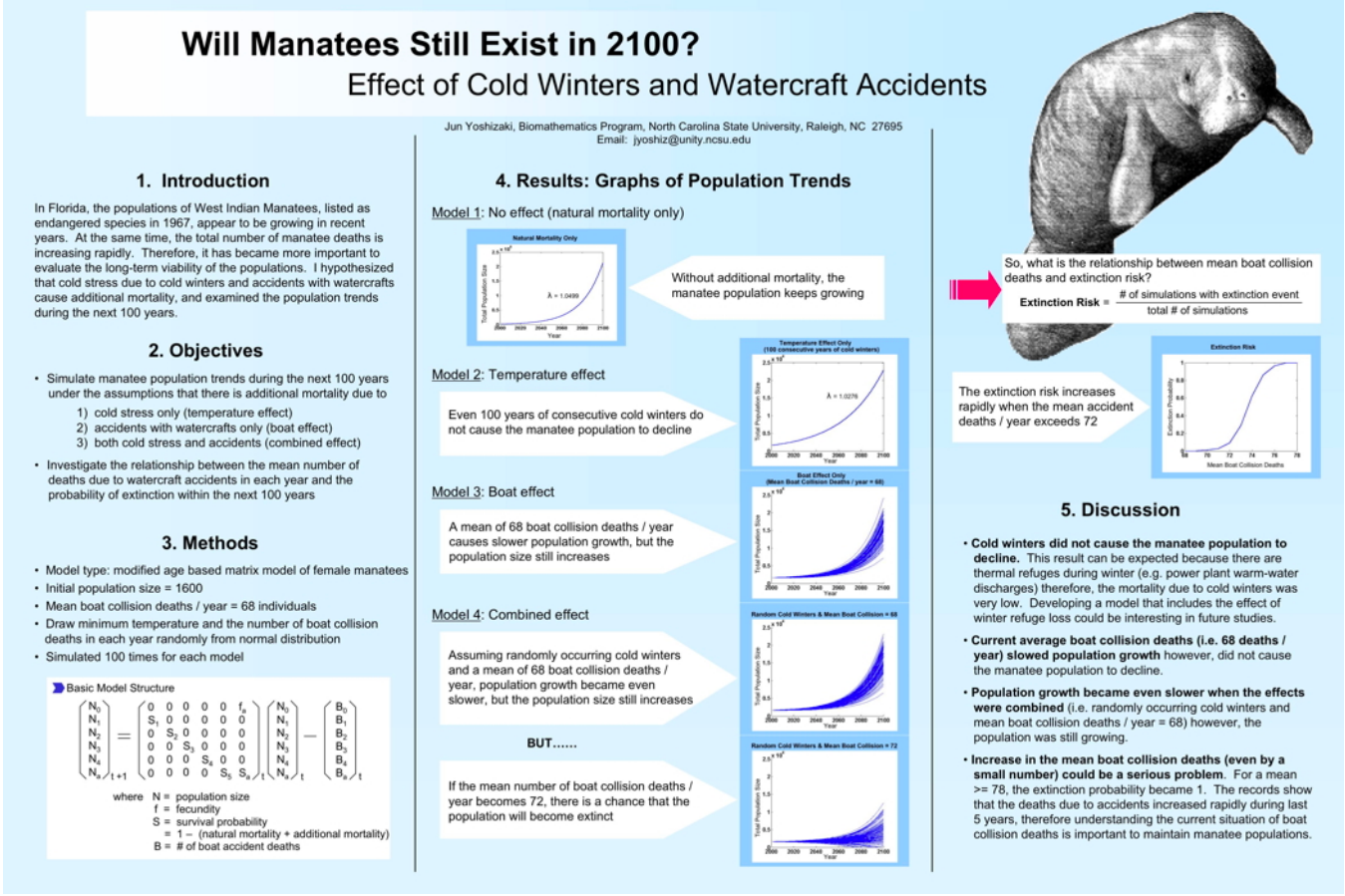
Positive Points

- The title conveys the main message instantly.
- Context and objectives are made clear.
- Methods are concise.
- Graphs are interpreted by their titles. One can read the titles and trust the authors, or examine the graphs in more detail.
- Results and conclusions are concise and relate back to objectives.
- Color scheme is very simple and pleasing.
- Font is large enough everywhere, including figures.

Negative Points

- Results and conclusions do not relate back to context (Introduction). It would be nice to see a statement of how the findings relate to aquaculture.
- Some viewers have noted that the title could me more direct: "Water Temperature Determines Sex of Southern Flounder"
- Title font is on the small side - could be larger.
- Some viewers have felt there is too much white space between the columns. It could be reduced somewhat, but not too much. Doing so would also allow fonts to be made a little larger.

This poster was created and first presented during a graduate biomathematics course at North Carolina State University. It was thereafter presented at several other venues focused on biological conservation.



Positive Points

- The title asks a provocative question, and the subtitle defines the focus of inquiry.
- Succinct introduction of issues, leading to clear objectives.
- Methods are concise.
- Graphs are interpreted by their short text boxes - helps viewers move through poster more quickly.
- Results and conclusions are concise and relate back to objectives.
- Vertical lines and numbered headings make flow clear.
- Results are centerpiece of poster and heavily graphic.
- Main points in "Discussion" are bolded, obvious, and articulated clearly.

Negative Points

- Author information should be larger.
- Large image of manatee is low-resolution and heavily pixelated on full-size poster.
- Graph fonts are too small.
- Introduction could be improved by bulleting.
- Bullets are too far from text. This is a poor MicroSoft default - move them closer.
- Better name for Section 5 would be "Conclusions."

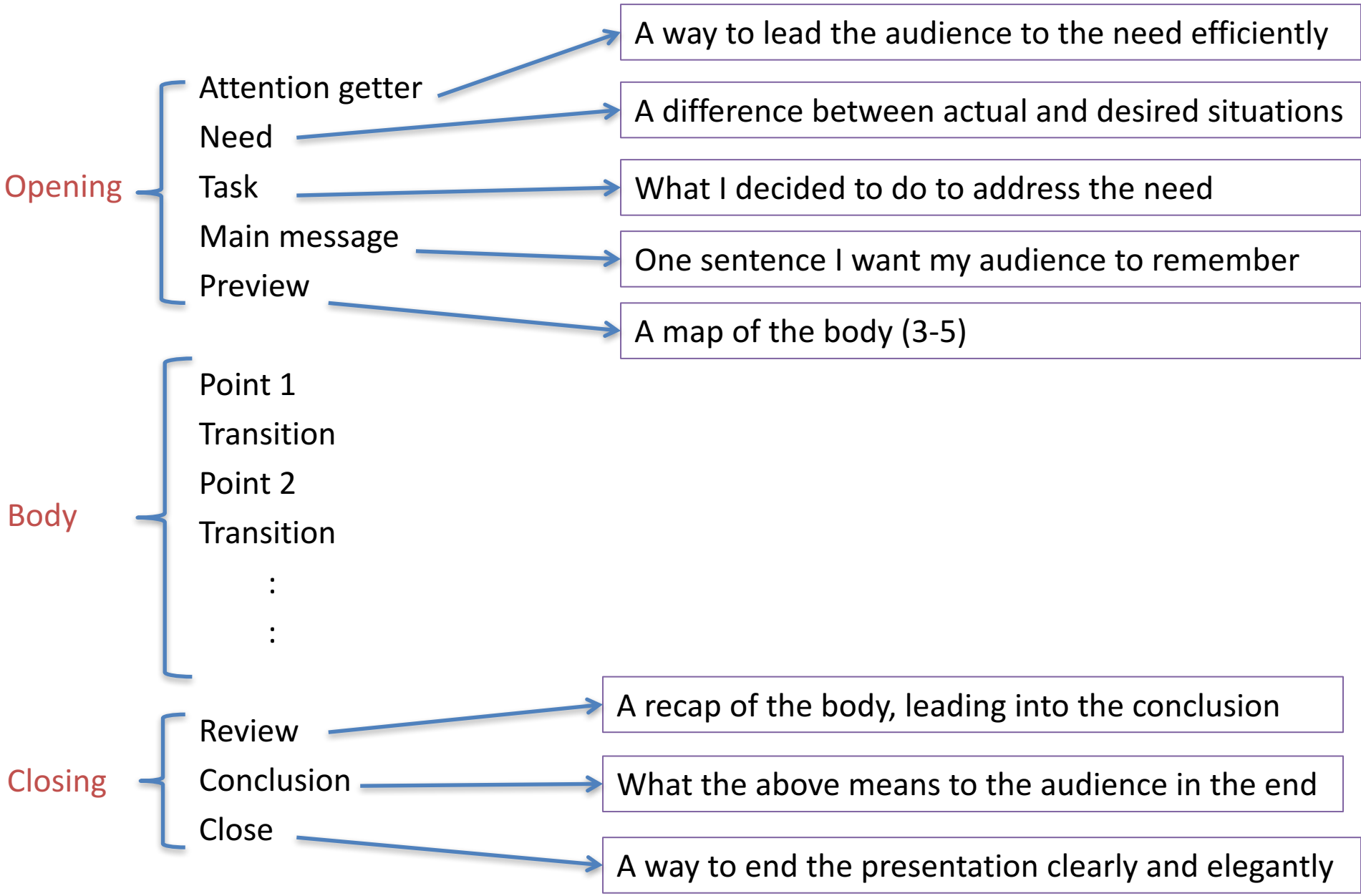
Oral presentations

- Like scientific papers:
  - Convince the audience that research is important, valid and relevant to them
  - Emphasize the motivation and the outcome.
- Differ from papers:
  - More localized in space and time
  - Impose a sequence
  - Include some level of interaction

Tips

- Prepare
  - In advance
  - Find your main message first
  - Structuring: opening, body, closing
  - Possible questions
- Practice
  - Practice
  - Practice
  - And practice…

Structure


Opening
Attention getter
Need
Task
Main message
Preview
A way to lead the audience to the need efficiently
A difference between actual and desired situations
What I decided to do to address the need
One sentence I want my audience to remember
A map of the body (3-5)
Body
Point 1
Transition
Point 2
Transition
:
:
Closing
Review
Conclusion
Close
A recap of the body, leading into the conclusion
What the above means to the audience in the end
A way to end the presentation clearly and elegantly

Automated alignment procedure for stitching with a focused ion beam

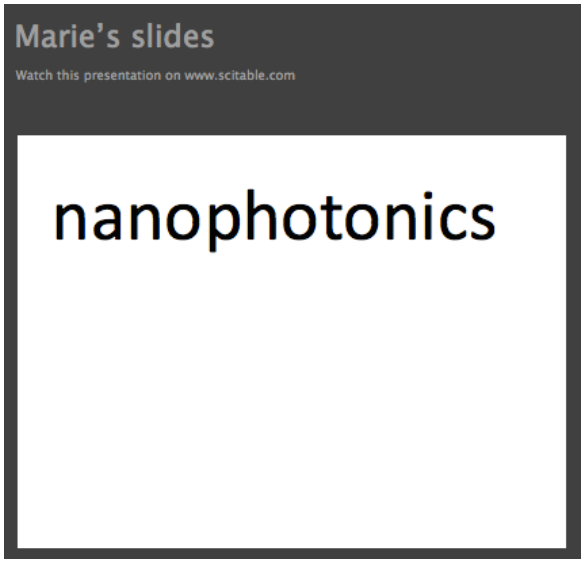
Marie Verbist

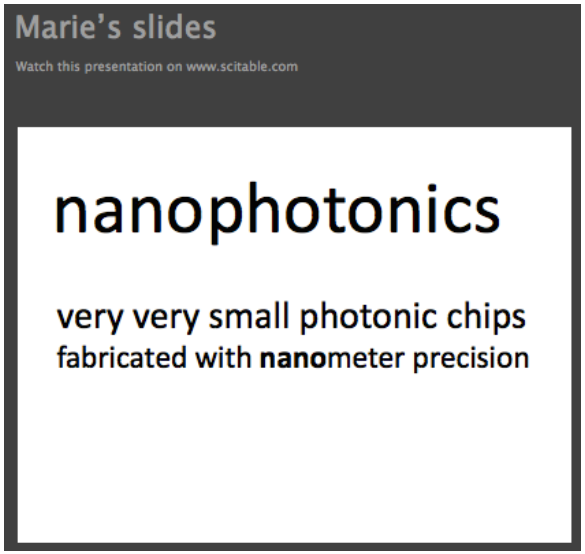
17 June 2010

Attention getter

Starts from something the audience is familiar with

I'm sure in your own field of research you have already noticed that things seem to go *nano*. We've seen a lot about nanomaterials in the presentations this morning, but I'm sure you've also heard about nanomedicine, nanorobotics, nanomechanics… even Apple has an iPod called *nano*.

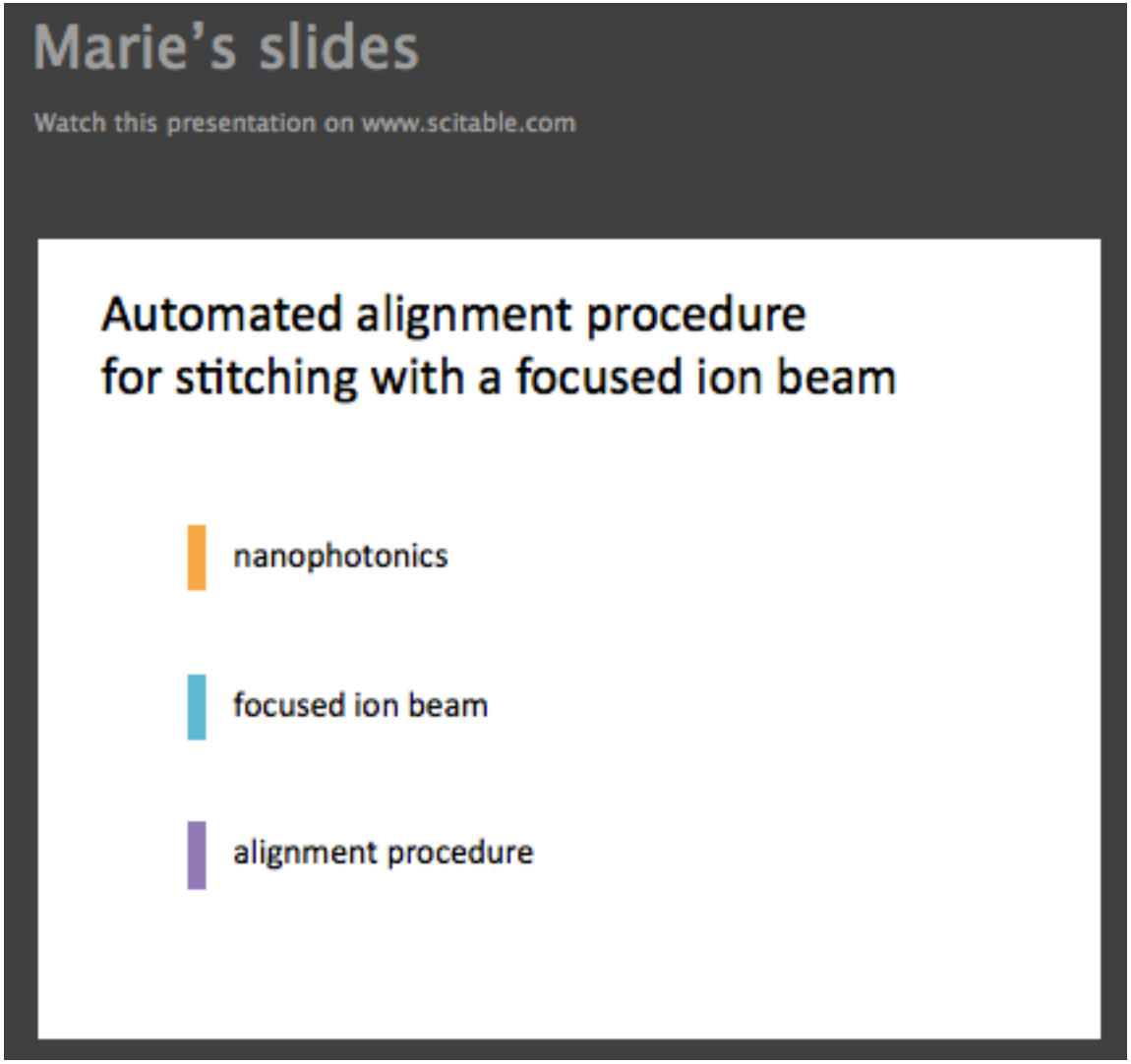




Need

Focuses progressively on the exact problem

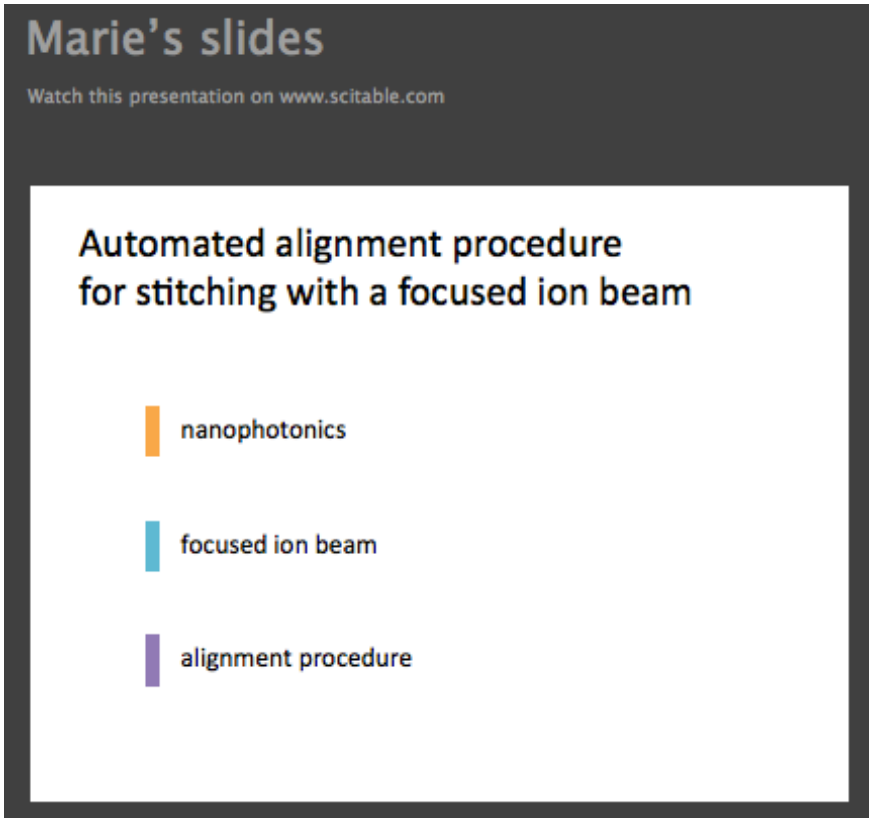
My field of research is photonics, and this is everything that has anything to do with light. And the *nano* in *nanophotonics* indicates that we are working with light on a very small scale: we make very, very small photonics chips. We can imagine the structures on this chip are still larger than nanometers in size. So why do we call it *nano*photonics? Well, they have to be fabricated with nanometer precision. In my research group, we have an amazing fabrication tool: it has a very high resolution, but only over a very small area.



Task

Main message

What we decided to do was to make an alignment procedure that allows us to use this resolution over the entire photonic chip.



Preview

Shows the logic of the structure

Before I can talk about this alignment procedure,

1. I'd like to introduce nanophotonics to you and
2. I'll talk about the focused ion beam, which is the amazing fabrication tool that I just mentioned.
3. And then, in the third part I will explain to you how we developed the alignment procedure.

Finally, I'll be able to show you in conclusion the waveguides that we made by focused ion beam stitching.

(Transition to body)

So first, let's talk about nanophotonics.

Body

Text:
Simple and clear
Bullet style

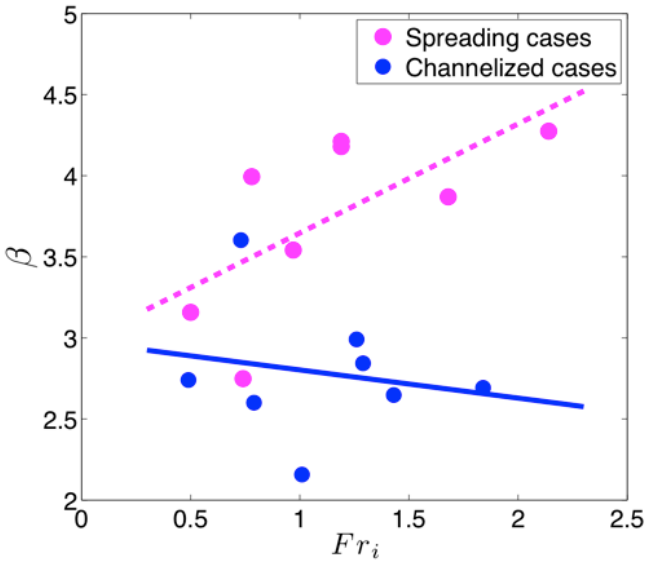
- Introduction
  - Motivation
  - Hypothesis
- Method and Materials (Drawings)
  - Clear and concise
- Results (Figures)
  - Use figures to illustrate your main results
  - Walk through each figure: describe axes, point out patterns, and your interpretation
  - Each figure should has its own title, no caption!
- Discussion (Drawings)
  - Integrate your results, link back to hypothesis
  - The relevance of your findings to published work

Example: Same figure

In presentation

Plume density changes

Buoyancy anomaly: $\beta = \frac{\Delta\rho_0}{\Delta\rho} = \frac{\rho_a - \rho_i}{\rho_a - \rho_p},$



More mixing (entrainment)

Less mixing (entrainment)

In paper

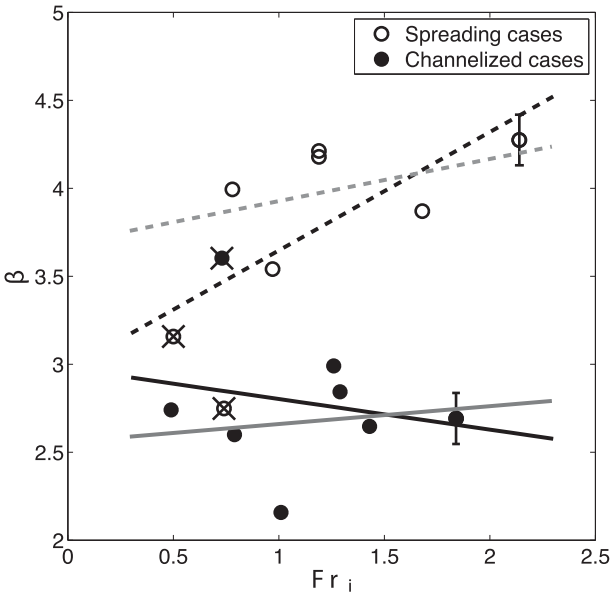


FIG. 7. Buoyancy anomaly β vs Fr_i for spreading (open circles) and channelized (filled circles) runs. The averaged error bars for each configuration are plotted at the highest Fr_i points. Black dashed (solid) line is the linear fits to the spreading (channelized) run. Cross symbols highlight three points (SP5, SP6, and CH1) with opposite result comparing to other runs. Shaded dashed line and shaded solid line are the linear fits without three anomalous points to the spreading and channelized runs, respectively. Two low Fr_i spreading runs (SP5 and SP6) have mismatched density and velocity profiles (Fig. 6). They are not within the same range as the other points in their group, and may reflect a different mixing regime. The reason for anomalous result of the low Fr_i channelized run (CH1) is unclear.

Overview of the Yale School of Medicine

- Founded in 1810, the Yale School of Medicine is a world-renowned center for biomedical research, education and advanced health care.
- The School is viewed internationally as a leader in biological and medical research.
- The Yale School of Medicine has over 900 faculty members and consists of 9 basic science department and 17 clinical departments.
- The School of Medicine consistently rank among the handful of leading recipients of research funding from the National Institutes of Health and other organizations supporting the biomedical sciences.

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