# Creating Better Poster Presentations

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Academic Commons

Jefferson
Thomas Jefferson University
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# Learning Goals

- Discuss current thinking about scientific posters
- Understand why posters are unique
- Determine characteristics of good & bad posters.
- Create your own effective posters

# Why do so many scientific posters suck?

# Example Poster #1

## 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.

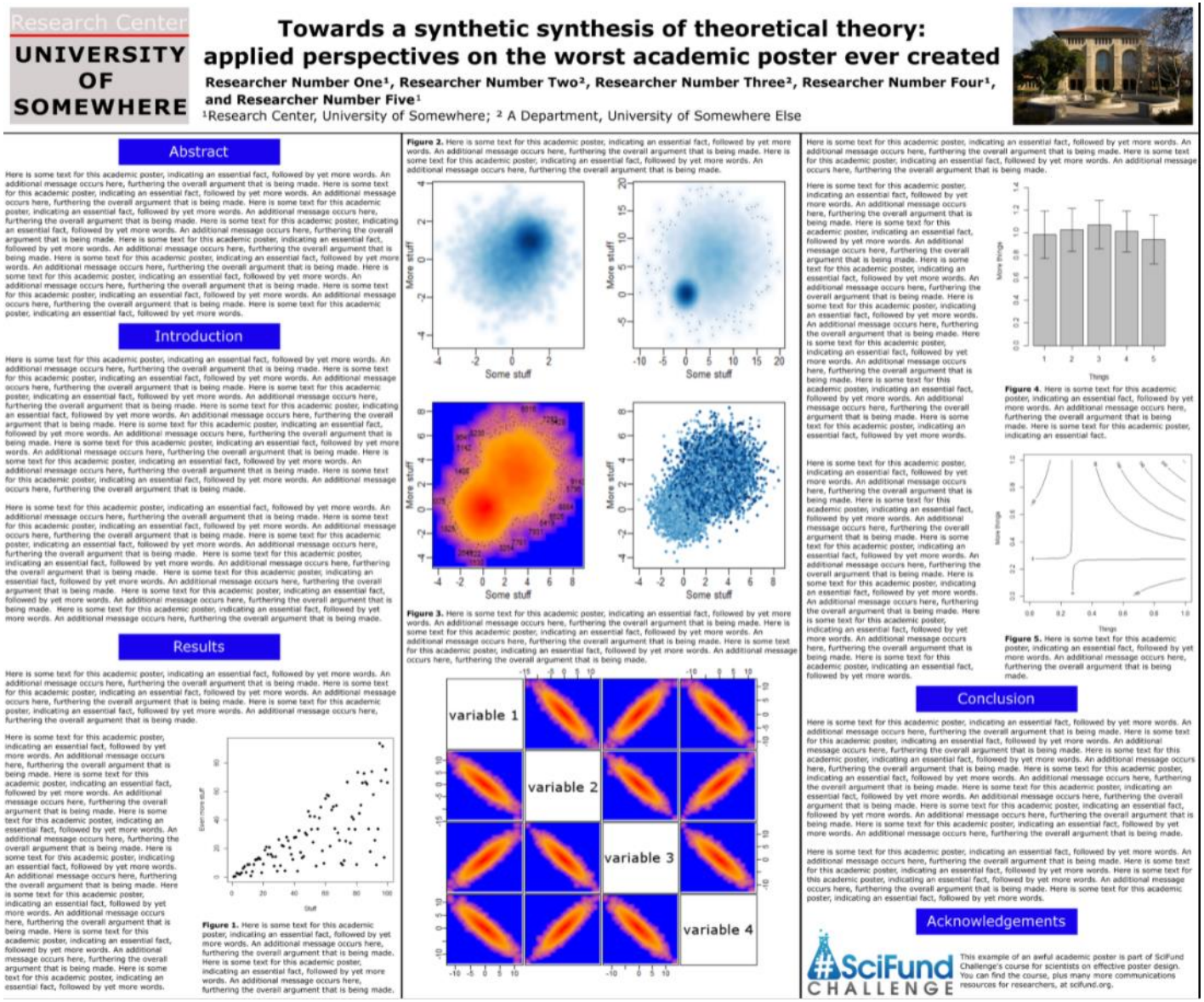
### ACKNOWLEDGEMENTS:

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.

# Example Poster #2




https://scifundchallenge.org/wp-content/uploads/2017/12/bad_poster_smallest.png

# Why do many scientific posters suck?

"….researchers often slap posters together at the last minute instead of thinking about the best ways to deliver their message and engage their audience."

Conference Presentations: Lead the Poster Parade, *Nature*, 2016, https://www.nature.com/articles/nj7614-115a


"TOO OFTEN, CONFERENCE POSTERS LOOK LIKE A SCHOLARLY JOURNAL BARFED UP ONE OF ITS PUBLICATIONS AND POSTED IT ON THE WALL"
JOURNAL
@echoechoR
creative research communications
echorivera.com

# Why posters?

## How are they special?

1) Visual Medium

2) Facilitates Discussion

*This presents some important challenges!*

# #BetterPoster template

**The relationship between disgust levels and sexual behaviors as moderated by self-perceived pathogen exposure**

Jessica K. Hlay, Graham Albert, Zeynep Senveli, Steven Arnocky, Carolyn R. Hodges-Simeon

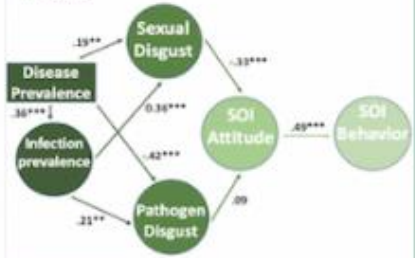
INTRO

- Behavioral Immune System
  - Works to avoid pathogen first, rather than fighting infection after
- Environmental inputs should influence disgust sensitivity

METHODS

- N = 322 ($_f$160, $_M$162)
- Perceived pathogen exposure, national disease prevalence (OurWorldInData.org), TDDS (disgust), SOI-R (sociosexuality)
- Structural Equation Modeling

RESULTS




DISCUSSION

- Further support of the Behavioral Immune System
- Disgust sensitivity is influenced by environmental inputs, specifically self-reported environmental pathogen
- Disgust is one mechanism which restricts sociosexual behavior, possibly to prevent infection

**As environmental pathogen load increases, so does sexual disgust.** This is associated with more **restricted casual sex attitudes and behaviors.**

Take a picture to download more information!

[redacted]

Other Background Info

- ↑ Environmental harshness = ↓ disgust
- ↑ Self-report health = ↓ disgust
- ↑ Sexual disgust = ↓ short-term mating strategy
- ↑ Disease threat = ↓ short-term mating, ↓ future promiscuity, ↑ long-term mating

| Predictor | Outcome | *b* | SE | *p* | *β* |
|---|---|---|---|---|---|
| Disease Prevalence | Infection Exposure | .099 | .016 | <0.001 | .36 |
| Infection Exposure | Sexual Disgust | .03 | .01 | <0.001 | .35 |
| Disease Prevalence | Sexual Disgust | .004 | .001 | .004 | .18 |
| Infection Exposure | Pathogen Disgust | .01 | .004 | .003 | .21 |
| Disease Prevalence | Pathogen Disgust | -.01 | .001 | <0.001 | -.42 |
| Pathogen Disgust | SOI Attitude | .17 | .13 | .19 | .09 |
| Sexual Disgust | SOI Attitude | -.46 | .1 | <0.001 | -.33 |
| SOI Attitude | SOI Behavior | .36 | .05 | <0.001 | .49 |

Structural Equation Model Fit Indices

$\chi^2$ [201] = 566.88, $p$ < .0001, SRMR = .12, RMSEA = .08, CFI = .88, TLI = .863

Limitations

- *Self-reported* environmental pathogen load
- Disease prevalence data at a *national level*
- mTurk participants still not necessarily representative
- What other factors influence variation in disgust sensitivity?

BOSTON UNIVERSITY

NIPISSING UNIVERSITY

#News

# #betterposter

There's a movement for better posters at science conferences. But are they really better? And how does poster push relate to the ongoing campaign for open science?

By Colleen Flaherty // June 24, 2019


YouTube/Mike Morrison

Hey science, your posters stink.

Mike Morrison, a Ph.D. candidate in organizational psychology at Michigan State University, is way too polite to say it that way. But that's the implicit message behind his #betterposter campaign for less cluttered, more user-friendly scientific conference posters.

INSIDE HIGHER ED

**There's a movement for better posters at science conferences.**

**But are they really better?**

# Brief, Basic, but Useful Poster Creation Guides from the Disciplinary Literature

## How to Design an Outstanding Poster

The Federation of European Biochemical Societies (FEBS) Journal, 2018, DOI: 10.1111/febs.14420

## Poster Creation Guidelines and Tips for Success

*Nursing*, 2017. DOI: 10.1097/01.NURSE.0000512875.68515.8e

## Successful Design and Delivery of Professional Poster

*Journal of the American Association of Nurse Practitioners*, 2017, DOI: 10.1002/2327-6924.12478

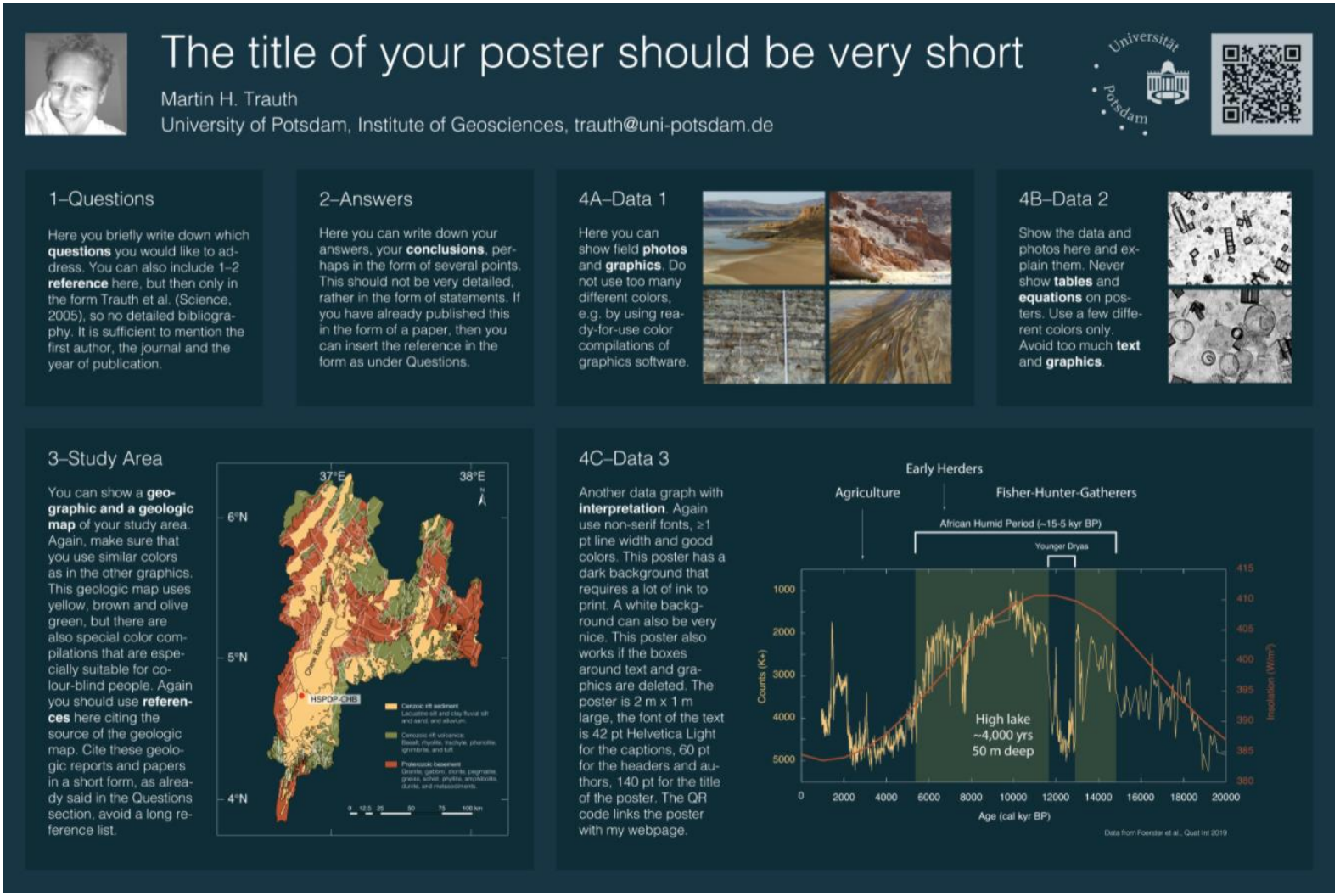
## Presentations: Billboard Sciences

*Nature*, 2012, DOI: 10.1038/nj7387-113a

## *Ten Simple Rules for a Good Poster Presentation*

*PLoS Computational Biology*, 2007, DOI: 10.1371/journal.pcbi.0030102

# Template 2




http://141.89.112.21/wp-content/uploads/2019/10/poster_template_trauth_1_vs5.png

# Template 3

DO. NOT. PUT. LOGOS. HERE.

Doing so crowds the title and visually distracts from important graphics. Put logo on your business card, not poster.

## Title pitched at general audience that provides conclusion or at least hints at something interesting

DO NOT PUT LOGOS here, either.

**Colin B. Purrington**, Department of Posterology, Hudson University

**Introduction**

Three sentences max.

**Persuade** reader you have novel, interesting question(s) and hypothesis. Resist urge to use all the white space.

**Materials and methods**

Three sentences max.

If viewer truly wants to know gruesome details, they'll ask or email you. Sometimes adding a pic is good.

**Results**

Highlight your LARGE photographs, charts, maps, or in this central arena.

Don't include every graphic you've made that relates to project. Choose one. Or two. And separate graphics with plenty of white space.

If you have just one or two simple graphics, viewers will be drawn to explore them. If you have too many or they are too complicated, they will be repelled.

Annotate graphics with arrows and callout boxes so that viewer is **visually** led through how hypothesis is addressed. The goal is to enable viewers to understand the logic behind your conclusions *without you needing to be there.*

Keep font size of all text (even graph labels) as big or bigger than in rest of poster.

**Conclusions**

Explain why outcome is interesting. Don't assume it's obvious. Three sentences max.

Maybe include a sentence about what you plan to do next.

As for Introduction, don't feel like you need to fill the entire box.

I.e., if you retain a lot of white space you will attract more viewers. Seriously.

**Literature cited**

Author, J. 2012. Article title. *Journal of Something* 1:1-2.

**Acknowledgments**

Be brief.

**Further information**

Please see https://colinpurrington.com/tips/poster-design for more templates and tips. I'm at colinpurrington@gmail.com if you have a question or comment.

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

Details varied, but every one of these posters had at least:

A) White space with no content

B) A short punchy title

C) An “introduction” box

D) Multiple useful and impactful visuals

E) Limited text. Less is more

F) Organization is clear to the reader

G) Landscape format

# Follow standard good writing practices.

- Determine your main message
- Think about your audience
- Consider why you are presenting this poster

| | | | | |
|---|---|---|---|---|
| Different parts of poster don't line up | Boxes within boxes | Zigzag reading order | More than three **typefaces** | Long-winded title |
| Gradient fills in coloured boxes | Big blocks of text | Photographic background | Unlabelled error bars on graphs | Pixelated pictures |
| More than five colours | Institutional logos bookending title | Free space | ALL CAPITALS | Text with shadows, outlines, or bevels |
| Abstract | Underlined text | Comic Sans | 3-D graphs | Checking tablet or phone during presentation |
| Tables showing data that could be in a graph | Poster does not fit on poster board | Comic Sans (it's that annoying) | Objects almost touching or overlapping | Tiny, unreadable type |

# Bad Poster Bingo


## By Zen Faulkes


**betterposters.blogspot.com**

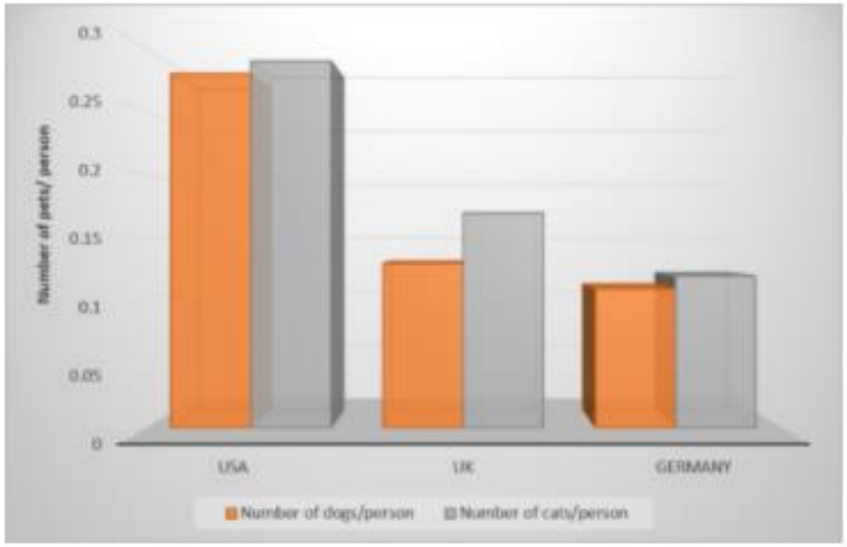
Inspired by:
*http://www.monicametzler.com/ bad-presentation-bingo/*

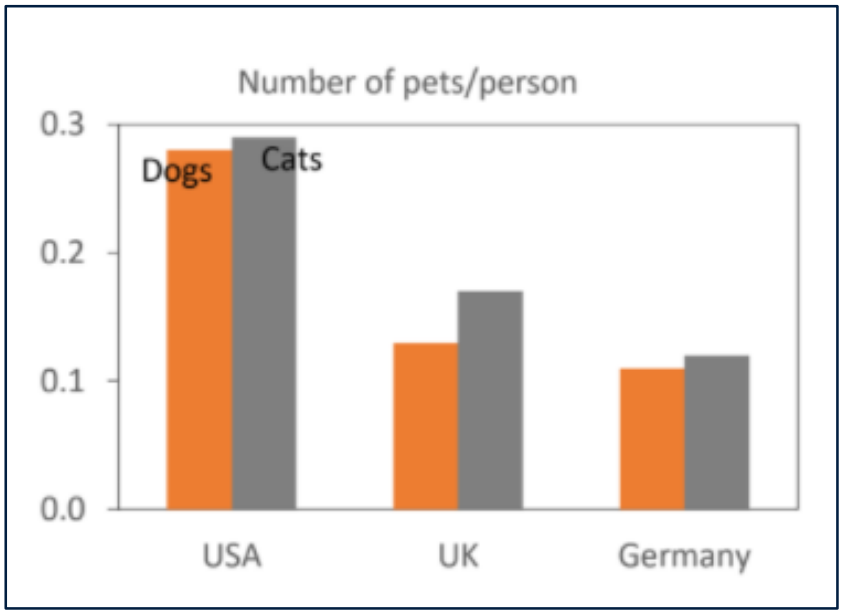
# A few good general formatting practices

- “Hierarchy” indicates significance.
- Limit both color and font choices
- Text in all capitals is hard to read
- Left aligned text is easier to read

# Images, charts, and tables

- Posters = an emphasis on the visual.
- Images should reflect the poster's main message
- Keep charts and graphs simple!




https://www.echorivera.com/blog/anna-clemens-dataviz-presentations

# Tools to make a poster with

- PowerPoint
- Adobe Illustrator
- Inkscape

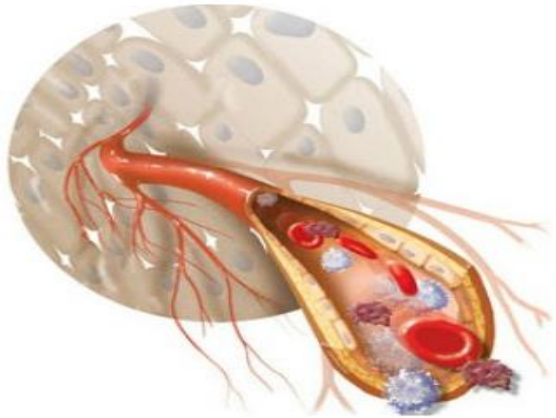
# Presentation Tips

- Don’t read your poster
- Your poster is your presentation visual, use it as such.
- Practice
- Find out details about how your poster will be displayed
- Supplement the content on your poster.
- Advertise your poster
- Think about how to transport your posters
- Dress to match your poster (#extra)

# Help from the **Academic Commons**

## Graphics & Medical Illustration

- Medical and general illustrations and schematics
- Graphic design: Brochures, invitations and programs
- Poster, title and banner design
  - Designing Your Research Poster: Tips and Best Practices
  - Jefferson research poster templates (from Creative Services)



## Office for Professional Writing, Publishing & Communication

We provide support to Center City and East Falls faculty and other members of the Jefferson community who are writing for publication or developing conference presentations. Consult the office for free assistance at any stage of the writing, publishing, or presentation development process.

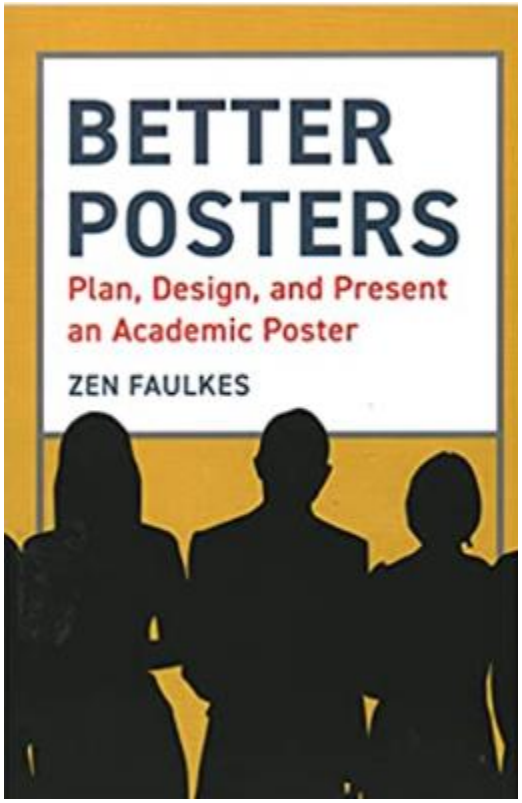
We can support you in three main ways:

- Individual Consultations
- Group Consultations
- Workshops

# Poster Templates

- Jefferson Templates: http://creative.jefferson.edu/templates/research-poster/
- Better Poster Templates: https://osf.io/6ua4k/
- Purrington's Templates: https://colinpurrington.com/tips/poster-design/
- Butter Poster: https://derekcrowe.net/butterposter

# Want more in-depth information?




#SCIFUND CHALLENGE

## ACADEMIC POSTERS

Creating posters that stand out from the crowd and get you noticed

**Part 0: Introduction**

Part 1: What You'll Need

Part 2: The Real Purpose of Your Academic Poster

Part 3: Getting Started with the Software

Part 4: Planning Your Poster Layout

# Key Takeaways

- Creating a “good” academic poster should involve careful thought and consideration of your messages and goals.
- Posters are a visual medium, and should be created according to good visual design principles.
- Posters are designed to facilitate discussion and to be part of a carefully crafted presentation.

# Assignment Details

**Option 1:** Create a first draft of an academic poster based on an article that you have written or that you found/read for a class.

**Option 2:** Find and thoroughly evaluate 2 academic posters. You could also choose to evaluate a poster that you created before this workshop.

*Pay special attention to criteria from slides 15, 16, 18, & 19.*

If you need sample articles or posters remember that the **Jefferson Digital Commons** has many you can use for this assignment. *https://jdc.jefferson.edu/*