

**Computer Science
Poster Session
Information Session**
(CPSC 099)

CS Poster Session — What?

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- Make a poster about one of your previous projects

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- Display your poster in the department
- Talk about your poster and your project with students and faculty

CS Poster Session — Why?

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- Communicating ideas is an important skill
- Swarthmore senior comprehensive graduation requirement

CS Poster Session — How?

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- ⑥ Print poster

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- ③ Prepare poster
- ④ Prepare talk
- ⑤ Practice talk
- ⑥ Print poster
- ⑦ Upload poster PDF
- ⑧ Attend poster session

Selecting a Poster Topic

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- CPSC 041 Algorithms
- CPSC 043 Networks
- CPSC 044 Databases
- CPSC 045 Operating Systems
- CPSC 046 Theory
- CPSC 049 Probabilistic Methods
- CPSC 056 Animation
- CPSC 063 Artificial Intelligence
- CPSC 065 NLP
- CPSC 066 Machine Learning
- CPSC 068 Bioinformatics
- CPSC 071 Software Engineering
- CPSC 073 Programming Languages
- CPSC 075 Compilers
- CPSC 077 Social Computing
- CPSC 081 Adaptive Robotics
- CPSC 087 Parallel and Distributed
- CPSC 088 Security and Privacy
- CPSC 089 Cloud Systems
- CPSC 091 Special Topics

Selecting a Poster Topic

- A multi-week lab assignment in an upper-level CS course
- A summer research project with a Swarthmore CS professor
- A project from a project-based course cross-listed with CS

Preparing Your Poster

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- Poster size: 35 inches tall, 48 inches wide (landscape)

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- Poster alone should convey the general idea of your project
- Poster should include materials you will use during your talk

Preparing Your Talk

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- Six to seven minutes

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- Six to seven minutes (no, seriously)

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- Practice!

Preparing Your Talk

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- Should include:
 - ◇ Introduction to the projects
 - ◇ Brief description of important background
 - ◇ What you did
 - ◇ What you learned
 - ◇ Future work (what you would do next)

Printing Your Poster

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- Print landscape on normal paper first and edit

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- Sign up on poster printing schedule

Printing Your Poster

- Print landscape on normal paper first and edit
- Sign up on poster printing schedule
- Print during your time slot

Example Poster



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



SPACEEXES

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 1995).

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 new 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 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 deltaps (double chins) and were isenargic 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 Mariana 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. 1962. Project STS-XX: Guinea Pigs. Leaked internal memo.
Sekula, S.R., D. Lutzak, and N. M. Naumov. 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. 1995. Elastane Purchases Accelerate Weight Gain In Case-control Study. *Journal of Obesity*. 2:23-40.



Example Poster

Title, formatted in sentence case (Not Title Case and NOT ALL CAPS), that hints at an interesting issue and/or methodology, doesn't spill onto a third line (ideally), and isn't hot pink

Colin Purrington

666 Teipai Street, Posterville, PA 19801, USA

Introduction

Congratulations, a reader was mildly intrigued by your title. Now you have 2-3 sentences to hook him/her into reading more by describing what your question was and why the answer might be of general interest. Gratuitous background information will cause them to walk away (if you're standing next to your poster, that can be awkward).

Typography research has shown that body text is easier to read if you use a serif font such as Times. But non-serif fonts are great for title, headings, figure legends, etc. Research also shows that fully justified text (this paragraph) is slightly harder to read even though it looks really cool.



Figure 1. A photograph in your introduction can help lure people to your otherwise non-photogenic research. If it's not your image, ask a photographer for permission to use, and cite him/her.

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 organisms (ideal specimen), research gurney, photo flip book, or a short movie (attach an ad on smartphones with Vidéos).



Figure 2. How 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

Boskoff, D.J., E.M. Byrne, and R.M. Brigham. 1996. Lunar collection influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 138:413-417.

Boskoff, 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.

Results

The overall layout in this area should be visually compelling, with clear cues on how a reader should travel through the components. Be creative. You might want a large map with inset graphs, or have questions on left with answers and supporting graphs on right. Be sure to separate figures from other figures by generous use of white space. When figures are too cramped, viewers get confused about which figures to read first and which legend goes with which figure.

If you can add small drawings or icons to your figures, those visual cues can be precious aids in orienting viewers. And use colored arrows or callouts to focus attention on important parts of graphs. You can even put text annotations next to arrows to tell reader what's going on that's interesting in relation to the how the hypothesis is being evaluated. E.g., "This outlier was most likely caused by contamination when I sneezed into tube." Also, don't be afraid of using colored connector lines to show how one part of a figure relates to another figure. Those tips might induce gaps for published manuscript, but posters can be more personal and thus better guide viewers.

Figures are preferred but tables are sometimes unavoidable, like death. But go to great efforts to make it look professional. Look in a respected journal and emulate the layout, line types, line thickness, text alignment, etc., exactly. Again, use colored text or arrows to draw attention to important parts of the table. Paragraph format is fine, but so are bullet lists of results:

- 9 out of 12 brunoisemized rats survived
- Brunoisemized rats ate less
- Control rats completed maze faster, on average, than rats without brains

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.evolutionandsociety.org/statements.html>>. Accessed 2005 Aug 9.

Do treatments differ in their effects?



Figure 3. Legends can briefly describe the experiment, answer the question, and even include statistics if you so choose (look like a manuscript figure legend).

Do As and Bs respond differently to X?



Figure 4. Label elements instead of relying on annoying keys that are default on most software. Add pictures of A and B if they are actually things (e.g., icons of rat with, without brain).

Are mediums of treatment A and D different?



Figure 5. Don't be tempted to reduce font size in figure legends, axes labels, etc. This is because viewers are probably most interested in reading your figures and legends.

Conclusions

Conclusions should not be dry restatements of your results. You want to guide the reader through what you have concluded from results, and you need to state why those conclusions are interesting (i.e., don't assume reader will guess). These first several sentences should refer back to the burning issue mentioned in the introduction. If you didn't mention a burning issue in the introduction, fix that.

A good conclusion will also explain how your conclusions fit into the literature on the topic. E.g., how exactly does your research add to what is already published on the topic? It's important to be humble and generous in this section, partly because authors of previous literature may still be alive and even attending the conference. You can also display your appreciation of others' input by citing conversations you have had (with peers/colleagues).

Finally, you want to tell readers who have lasted this long what might be done next and who should do it. E.g., are you currently taking the next logical step, or should another person with different skills follow up on your amazing result? It's OK to put a bit of personality into this ending because viewers expect posters to be personal (and if you're not actually standing there to convey your enthusiasm, your poster text should be doing that for you).

If you have a graphical way to express the next step of your hypothesis, by all means include it in this section. For example, you might make a graph with hypothetical data that shows an expected result in a future experiment. That's something you normally don't show in a traditional manuscript, but it's usually fine for a poster.

If you're curious, this poster has 683 words. Aim for 500 words. If you are above 1000 words, your poster will be annoyingly long to everyone except your collaborators.

A well-designed poster retains plenty of white space separating edges of text boxes, graphics, and tables. You also want space between your text and edge of box. Without white space a poster will look cramped and uninviting.

Acknowledgments

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

Further information

More tips (and templates) can be found at "Designing conference posters".

<http://colinpurrington.com/isp/poster-design>

Questions?

Similar information at:

<https://www.swarthmore.edu/computer-science/senior-poster-session-class-2026>.

