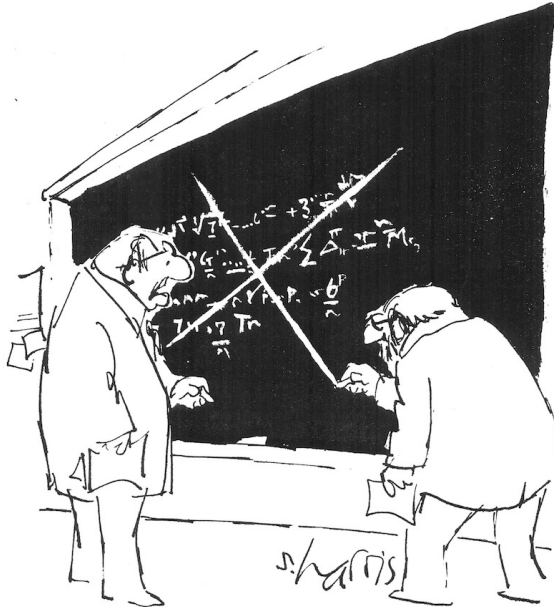


# The Review Process

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"THAT'S IT? THAT'S PEER REVIEW?"

# Outline



The review process

Structuring reviews

Poster design

# From last time ...



## Publication procedure:

1. Scientific work according to proper methods
2. Document your methods and results in paper
3. Submit paper to a relevant conference (or journal)
4. Receive reviews and revise your papers accordingly
5. Re-submit revised paper
6. Publication

## Also from last time ...



1. Do your scientific work
2. Write a paper on it by November 28
3. Read your fellow students' papers and write reviews by December 6
4. Receive the reviews and revise your papers accordingly
5. SEMCON December 20
6. Exam in January - poster, paper AND reviews!

# Timeline



- ▶ November 28: Submit draft papers to your fellow groups
- ▶ December 6: Return reviews to authors
- ▶ December 15: Submit poster file to printer
- ▶ December 15: Submit title and 400-word abstract of revised paper
- ▶ December 18: Upload project to Digital Exam (article+worksheets)
- ▶ December 20: SEMCON
- ▶ Exam in January - poster, paper AND reviews!

# Timeline



# Why Should You be a Reviewer?



Moral obligation (Kant's categorical imperative):

- ▶ When you wish your papers to be reviewed, you should also be willing to do reviews yourself

Give yourself insight in 'hot' subjects:

- ▶ You see papers possibly several years before their publication (although you can not use this directly in your own research)

Broaden your mind:

- ▶ Most likely, you will be reading papers that are slightly outside your main field. This might give 'bridging' ideas



# Are You an Appropriate Reviewer?



When you receive a manuscript, ask yourself immediately:

- ▶ Are you reasonably familiar with the subject?
- ▶ Do you know the references that provide the background?

If you know some parts of the subject, you might restrict attention to these parts, but this should be mentioned in the review (or in comments to the editor)

If you are not familiar with the subject at all, you should return the manuscript immediately, possibly with suggestions for better qualified reviewers.

# What Are the Objectives of Your Review?



The objectives of a peer reviewer is mainly to determine:

- ▶ novelty
- ▶ correctness
- ▶ significance

of the manuscript submitted.

# How is Novelty Determined



A manuscript is not publishable if its results are already published, but

- ▶ this only concerns *research* papers; survey or overview papers has the 'opposite' objective
- ▶ usually, the author and/or reviewer can be held responsible only for results published in peer reviewed journals and conference proceedings, and not for e.g. doctoral dissertations published several years prior to present manuscript
- ▶ it is fair to judge the paper relative to papers published at submission time

# How is Correctness Determined



Standards of correctness vary highly within different fields of science; hence the assessment on correctness should be carried out relative to the scientific tradition in the relevant field/journal/conference.

For 'theorem/proof' papers:

- check the proof!

For papers with simulation studies:

- check if data are provided that facilitate reproduction of results

It is usually not expected from the reviewer to redo the simulations.

For papers based on experimental studies:

- check if data are provided that allow experiments to be reproduced

It might be necessary to assess correctness of references!

# How is Significance Determined



On one hand consider

- ▶ Does the paper contain original concepts?
- ▶ Does the paper contain creative concepts?
- ▶ Does the paper contain unusual concepts?

On the other hand consider

- ▶ Are the results just minor extensions of existing results?
- ▶ Do you anticipate that the results could lead to further research and/or applications?

As a rule of thumb, it is dangerous to reject a paper for lack of significance only, if there are no hard, objective arguments for this.

# Be Specific and Helpful



Substantiate your claims in a useful way! Whenever possible, you should provide examples for your claims, to demonstrate to the editor that you are impartial and objective.

If you claim lack of clarity:

- ▶ give example of unclear paragraphs in the manuscript

If you claim lack of rigor:

- ▶ give examples for technical improvements

If you claim lack of novelty:

- ▶ provide references that overlap with the manuscript

If you claim lack of correctness:

- ▶ find a counter example!

As a reviewer you are anonymous. The peer reviewing system relies on the assumptions that you:

- ▶ do not use the results in your own research (before publication)
- ▶ do not disclose the results to other colleagues
- ▶ resist any temptation to push a *unjustified* reference to your own work on the author(s)

If you wish to use or cite the results before publication, you have to reveal your identity to the authors and ask their permission after the review process has been completed. The authors are not obliged to accept your plea.

# Be Objective and Fair



You are anonymous, but you should

- ▶ formulate criticism as you would to the authors' face
- ▶ only exert criticism to a standard you fulfill in your own work (Kant)
- ▶ respect different points of view on how to approach a class of problems!

In practice, a review will often convey all the weak points of a paper. However, the review will be received by an author who struggled to present her/his research result in the hope that it would be well received and appreciated. To that end, you could also consider to include positive comments!



# Beware of Conflicts of Interest



A reviewer is supposed to be impartial. This can be compromised when:

- ▶ a reviewer is assessing the work of competitors
- ▶ a reviewer is assessing the work of former students or close colleagues

Obviously, if you find yourself in a potential conflict of interests, where you might not be able to be objective, you should return the manuscript. Many researchers in active fields experience to receive papers for review that presents the very results they were pursuing themselves. Needless to say, this should NOT influence the assessment.

# Outline



The review process

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Poster design

# Structure of reviews



**Overall assessment:** In this part (typically one or two paragraphs) you can give an overview of what you considered strong and weak points, and what you considered to be the main message(s).

**General comments:** Here you can give comments on the structural level, either with respect to contents or paper structure. You can use a numbering scheme, e.g.:

GC1: ...

GC2: ...

**Specific comments:** This part typically would contain rather detailed comments, such as minor mistakes, missing explanation of terminology, etc., often referring to specific lines in the paper. Again, it could be a good idea to use a numbering scheme:

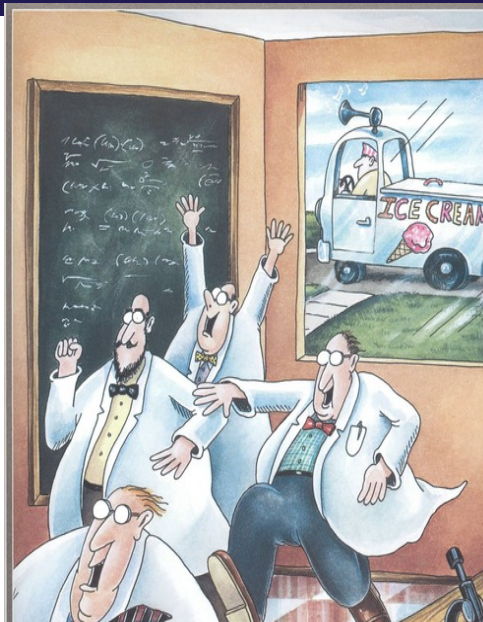
SC1: ...

SC2: ...

If a revision report is required or in place:

- ▶ If the editor gives specific instructions, one section should be dedicated to a response to these.
- ▶ For each suggestion of the reviewers, a response must be given. A good structure is to cite the suggestion followed by your response.
- ▶ As a general rule, try to follow the advice of the reviewers as much as possible and probably a bit more . . .
- ▶ Try to argue with the reviewers only if you honestly believe that your arguments will convince the editor and the reviewers.

Time for a short break ...



# Outline



The review process

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## 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

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### Introduction

Your reader was mildly intrigued by the title, but you have exactly two sentences to hook them into reading more. So describe exactly what your interesting question is and why it really needed to be addressed. Concise background information will cause them to walk away.

Typography research has shown that text is easier to read if you use a serif font such as Times. But use a non-serif font for the title, headings, etc., to satisfy up them as different. Research has also shown that fully justified text (like this paragraph) is harder to read, so don't do this, even if it seems good and professional looking.



Figure 1: A catfish photograph can help lure people to your otherwise boring poster. Yes, I missed my life getting this shot.

### Materials and methods

Few people really want to know the gruesome details of what you've been up to, so be brief. And be visual. Use a photograph, drawing, or flow chart if possible, supplemented with only a brief overview of your procedures. If you can somehow attach an object, an iPad, etc., that can involve viewers in active way, do so. Refer to the comparison viewer (see bottom right section) for more about if you are creatively challenged.



Figure 2: Hand-drawn illustrations are preferable to computer-generated ones. Just brief or fit with an artist. I get them to help give it a photograph of you actually doing something might be nice.

### Literature cited

Roscoe, D.J., E.M. Byrne, and R.M. Bingham. 1996. Lunar condition influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 138:61-141.  
Brooks, L.B. 1980. The evolution of recombinant rates. Pages 87-105 in *The Evolution of Sex*, edited by R.E. Mieland and B.R. Levin. Summit, Sunderland, MA.  
Scott, E.C. 2002. *Evolution is Creationism: an Introduction*.

### Results

The overall layout in this arena should be visually compelling, with clear cues on how a reader should travel through the components. You might want a large map with inset graphs. Or have questions on left and answers with 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. Cramped content just looks bad, too. The big thing to remember is that a Results section on a poster does not need to look like a Results section on a manuscript, so feel free to be creative.

If you can add small drawings or icons to your figures, do so—these visual cues can be profitable aids in entering viewers. And use colored arrows or callouts to draw attention on important parts of graphs. You can even put pet annotations next to arrows to tell readers what's going on that's interesting in relation to the hypothesis test. E.g., "This outlier was most likely added by contamination when I sneezed into the tube." Also, don't be afraid of using colored connector lines to show how one part of a figure relates to another figure.

Figures are performed best tables are sometimes unavoidable, like death. If you must include one, go to great efforts to make it look professional. Look at a repeated journal and emulate the layout, line type, line thickness, text alignment, etc., exactly. A table looks best when it is first composed within Microsoft Word, then inserted as an Object. 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 brachistochrone cars survived
- Brachistochrone rate is less
- Control rate comprised more fuel, on average, than rate without brakes

This sample results section is way too wordy, in case you were wondering.

### De treatments differ in their effects?



Figure 3: Legends can describe the experiment, answer the question, and even include statistics if you so choose (unless a manuscript figure legend). And be brief.

### De As and Bs respond differently to X?



Figure 4: Label elements instead of relying on annoying legends that are difficult on most software. Add pictures of A and B if they are actually things (e.g., types of cater and legumes, flowers).

### Are medians of treatment A and B different?



Figure 5: For the love of God, don't be tempted to reduce font size in figure legends, axes labels, etc. Your viewers are probably most interested in reading your figures and legends.

### Conclusions

Conclusions should not be mere reminders of your results—that would be boring. You want to guide the reader through what you have considered from the results, and you need to make the first several sentences understandable on their own and interesting. Because many conference attendees will not read this section first. If you don't hook them, they'll walk. These first several sentences should refer back, explicitly, to the boring issue mentioned in the introduction. (If you didn't mention a boring issue in the introduction, go back and 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, so assume that authors of previous literature may be at the conference, and further assume they are capable and influential. You can also draw upon less formal types of content such as conversations you have had with smart and important people (God, personal communication).

Finally, you want to tell readers who have lasted this long what needs to be done next, and who should do it. E.g., are you taking the next logical step, or should another researcher follow up on your amazing result? It's OK to get 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 should be doing that for you.

If you have a graphical way to express the next iteration of your hypothesis, by all means include it. For example, you might make a graph of hypothetical data that shows an expected result in a future experiment. That's something you could do in a traditional manuscript, but it's totally fine for a poster.

If you're curious, this poster has 876 words (just look in File Properties to get this statistic). At the 500 words, if you are above 500 words, your poster will be avoided.

### Acknowledgments

We thank 1. God for laboratory assistance. Mary Jones for smile, and Beth Brooks for greenhouse care. Funding for this project was provided by the Department of Theology. [If you want to clutter your poster with annoying logos, shrink them down so that they can fit inside this area without something too much. Note that people's titles are omitted. -info are TMI.]

### Further information

More tips can be found on "Designing conference posters," at <http://colinpurrington.com/posterdesign>. That's something you could do in a traditional manuscript, but it's totally fine for a poster.

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# Elements on a poster



- ▶ (Short) title and authors
- ▶ An introduction to your burning question
- ▶ An overview of your novel approach
- ▶ Your amazing results in graphical form
- ▶ Some insightful discussion of aforementioned results
- ▶ A *brief* listing of important literature
- ▶ A *brief* acknowledgement of the tremendous assistance and financial support conned from others





# Readability!



- ▶ Not too much text
- ▶ Follow the IMRAD structure
- ▶ Consistent color scheme
- ▶ Use figures as much as possible
- ▶ Print the poster in A4; you should be able to read it at arm's length

# Bad example




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

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**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 intentions 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 10 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 — in space would be a lasting cure.

**INTRODUCTION:**  
The current obesity epidemic started in the early 1990s 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 millions 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, intra-orbital travel options for normal consumers, and potential travelers are also creating new ways to play 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 pig" of space research, too, so they seemed like the obvious choice. Studies on humans are of course desirable, but we feel that current study we 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  $0.0000 \pm 0.0002$  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 ( $p < 0.0005$ ). Males and females gained a similar amount of weight on Earth (no mean 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 dwells (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 Pills, and the High Fructose Sugar Association. Transport flights were funded by SHAC-063, the consortium of views descended from in-space wealthy space-flight startups. I am also grateful for comments on early drafts by Malana Athletic Club, Corpus Christi, USA. Finally, sincere thanks to the Guy Foundation for generously donating animal care after the conclusion of the study.

**LITERATURE CITED:**  
NASA. 1982. Project STS-XX. Guinea Pigs. Leaked internal memo.  
Sokulu, S.R., D. D. Lukac, and N. M. Naumovic. 2006. The Fetus Gained 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.

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# Horrible posters are?



- ▶ unorganized
- ▶ cluttered
- ▶ extremely confusing to those outside your field of study
- ▶ filled with superfluous text
- ▶ picture-less
- ▶ embarrassing to your colleagues, your university, and yourselves.

<http://http://justinlmatthews.com/posterhelp/posterguide/>

# Presenting the poster



- ▶ Do not chew tobacco; do not chew gum
- ▶ Keep your hands out of your pockets
- ▶ Do not wear Axe Body Spray
- ▶ Do not wear sunglasses indoors
- ▶ Do not refer to notes when explaining your poster
- ▶ Speak to your viewers as you explain your poster. I.e., do not talk to your poster
- ▶ Avoid vagueness such as “this figure shows our main result.” Explain your points concisely and in the necessary detail

<http://colinpurrington.com/tips/academic/posterdesign>

# And the final word on SEMCON



- ▶ Two presentation sessions run in parallel in the morning
- ▶ You will have **15 minutes** for the presentation followed by 5 minutes for questions
- ▶ Send your presentations in PDF or PowerPoint by email to Tatiana the day before SEMCON - state the name of the presenter
- ▶ Similarly, there will be two parallel poster sessions in the afternoon
- ▶ Poster speeches must be given in **three minutes**

... And remember!

