

What to put in a conference poster

Here are some rough guidelines on what to include in each section of a scientific poster and how to pitch that content. The word-count guesses are for a poster that is approximately 3 x 4'. ***The size of your poster should be at a maximum of 48 inches (119 centimeters) wide and 36 inches (84 centimeters) tall. Materials to affix the posters will be provided. You must stay within these poster parameters.

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

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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 sans-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 neat.

Figure 1. A photograph in your introduction can help lure people to your otherwise non-photogenic research. If it's not your image, ask 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 organism (dead specimens), research games, photo flip book, or a short movie (embed an old smartphone with Videos).

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 2015)

Literature cited

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

Reade, D.J., J.M. Byrne, and K.M. Brigham. 1996. Lunar condition influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 138:411-417.

Brooks, L.D. 1988. The evolution of recombinant sites. Pages 87-105 in *The Evolution of Sex*, edited by R.E. Michod and B.B. 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 priceless 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. These tips might induce gasps 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 a 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 bulleted lists of results:

- 9 out of 12 brain-combusted rats survived
- Brain-combusted rats are less
- Control rats completed maze faster, on average, than rats without brains

Do treatments differ in their effects?

Figure 3. Legends can be briefly describe the experiment, answer the question, and even include statistics. If you're chosen (or like a manuscript figure legend).

Do As and Bs respond differently to X?

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

Are medians of treatment A and B different?

Figure 5. Don't be tempted to reduce font size in figure legends, axis labels, etc. This is because viewers are probably more 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. I.e., 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 contributions you have had (with percentages).

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 totally 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 L. Guse for laboratory assistance, Mary Hunt for snacks, and Betha for greenhouse care. Funding for this project was provided by the Department of Thinking. 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/tips/poster-design>

Title [1 or 2 lines]

Should briefly convey the interesting issue, the general experimental approach, and the system (e.g., organism); needs to be catchy in order to reel in passersby who are trying to avoid boring interactions, a real danger at conferences just like in the real world. [approximately 1-2 lines] It's safe to format it to include your independent and dependent variables.

Abstract

This is not needed on your poster.

Introduction [~200 words]

Write this section to target an intelligent person who is not in your field. Assume they don't know your study organism at all, and assume they are predisposed to find your topic unimportant. E.g., if you are an astronomer, imagine a visitor who has a degree in biology or mathematics. Quickly (first sentence or two) get your viewer interested in the issue or question that drove you to take up the project in the first place. Use the absolute minimum of background information, definitions, and acronyms (all of which are boring). Place your issue in the context of published, primary literature. Pitch an interesting, novel hypothesis, then describe (briefly) the experimental approach that can test your hypothesis. Please note that "X has never been studied before" or "my mentor gave me this project" are lame reasons for doing something, even if true. Also note: unlike a manuscript for a journal, the introduction of a poster is a wonderful place to display a photograph or illustration that visually communicates some aspect of your research question. A nice image can draw people in even if you look boring or have a boring poster title.

Materials and methods [~200 words]

Briefly describe experimental equipment (avoid exhaustive detailed lists) and procedure, but not with the detail used for a manuscript. Use figures and flow charts to illustrate experimental design if possible. Include a photograph or labeled drawing of organism or setup. Mention statistical analyses that were used and how they allowed you to address hypothesis.

Results [~200 words, not counting figure legends]

First, mention whether your experiment procedure actually worked (e.g., "90% of the birds survived the brainectomy". In same paragraph, briefly

describe qualitative and descriptive results (e.g., “surviving birds appeared to be lethargic and had difficulty locating seeds”) to give a more personal tone to your poster. In second paragraph, begin presentation of data analysis that more specifically addresses your hypothesis. Refer to supporting charts or images. Provide engaging figure legends that could stand on their own (i.e., could convey some point to reader if viewer skipped all other sections, which they will do). Opt for figures over tables whenever possible. This is always the largest section (except if you have no data).

Conclusions [~200 words]

Remind the reader, without sounding like you are reminding the reader, of the major result and quickly state whether your hypothesis was supported. Try to convince the visitor why the outcome is interesting (assume they’ve skipped the Introduction). State the relevance of your findings to other published work. A relevance to real organisms in the real world. Add sentence on future directions of research.

Literature cited [~5 citations]

Follow APA format.

Acknowledgments [~40 words]

Thank individuals for specific contributions (equipment donation, statistical advice, laboratory assistance, comments on earlier versions of the poster). Mention who has provided funding. Do not list people’s titles (e.g., write Colin Purrington not Dr Purrington).

Further information [~20 words]

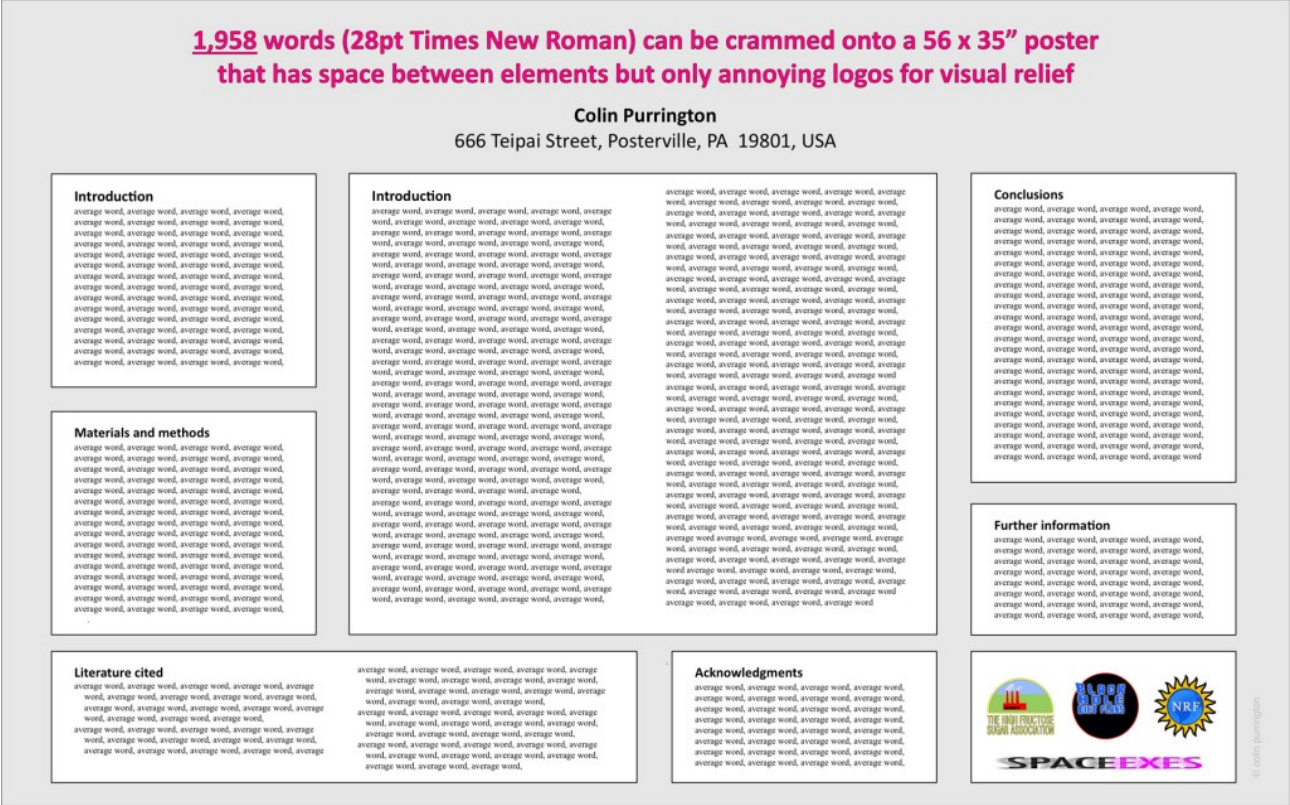
Future Research and Applications: In here please add how your experiment and results were applicable in a real world situation and how you can further continue your research if given the opportunity. (What new questions have your research created?)

It should be possible to read your poster in 5 - 10 minutes.

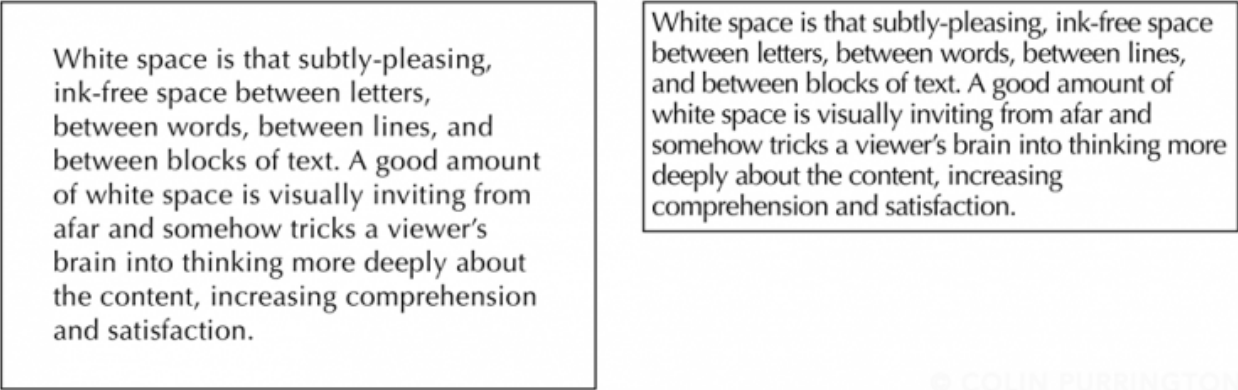
For posters, lists are preferable to text; tables are preferable to lists; and graphs are preferable to tables. Long and complex tables and complicated graphs have no place in posters.

DOs and DON'Ts of poster design

1. The number one mistake is to make a poster too wordy. Aim for 1000 words or less. That might mean 700 words in paragraph form (body text), plus 300 words in the legends of all your figures and tables. Below is an example poster that has almost 2000 words, 1000 too many.



2. The second-most common mistake is related to the first: a failure to maintain a pleasing amount of white space around text boxes and figures. A cramped poster is hard to read, and the brain simply cannot effectively process the information provided, regardless of how amazing it is.



3. Avoid titles with colons if you can: they are overused. If you absolutely must have a coloned title, just be sure it doesn't force you to spill onto a third line.

4. Format the title in sentence case so that trade names, Latin binomials, gene names, allele names, and such can be immediately recognized as such (because they are capitalized or italicized). Using title case or all caps obscures that information. NB: Older People Really Like Title Case So Many Disagree With Above Advice. SOME EVEN LOVE ALL CAPS!!!!
 1. Effect of *ken* and *barbie* knockouts on sexual preference in *Drosophila melanogaster*
 2. Effect of Ken and Barbie Knockouts on Sexual Preference in *Drosophila Melanogaster*
 3. *EFFECT OF KEN AND BARBIE KNOCKOUTS ON SEXUAL PREFERENCE IN DROSOPHILA MELANOGASTER*
5. Use a non-serif font (e.g., Helvetica) for title and headings and a serif font (e.g., Palatino) for body text. Serif-style fonts are much easier to read at smaller font sizes (that's why novels are rarely set with Helvetica and the like).
6. Do not add bullets to section headings. The use of a bolded, larger font is sufficient for demarcating sections.
7. The width of text boxes should be approximately 45-65 characters. Lines that are shorter or longer are harder to read quickly.
8. Don't vary the width of text boxes (it's visually distracting).
9. Whenever possible, use lists of sentences rather than blocks of text.
10. Use italics instead of underlining. Underlining draws too much attention to a word.
11. When using acronyms and numbers (e.g., ATP, 42) within the body of text, scale down the font size by a couple of points so that their sizes don't overpower the lowercase text. Use of "small caps" will sometimes do the trick, but this effect varies with different fonts and with different software.
12. Set line spacing manually to make sure spacing is uniform. Doing this is critical if you have used super- or sub-scripted text. If you don't, only some lines will have extra space, and that would be visually distracting.
13. Do not trust the tab button to insert the correct amount of space when

you are indenting a paragraph (the default is usually too big). Set the tab amount manually, with the ruler feature. And never, ever use spaces to create a tab-like space (it just doesn't work).

14. When you have quotations, make sure your software hasn't used the "double prime" glyph, instead of quotation marks. Double primes are the thingies used for inches (e.g., 5' 11"), and mathematical formulas/formulae.
15. Correct any errors in spacing within and between words, especially before and after *italicized* text. (See how annoying that is?!) Note that you can use a single space between sentences (the double-space convention was needed for typewriters, and we are slow to lose the habit). Use the Search/Replace feature to globally replace all double spaces with single spaces, and to locate locations where too many spaces occur between words.
16. Avoid dark backgrounds for text boxes. Dark text on white is the easiest for most people to read. Also, dark backgrounds make designing graphics much harder. It's better to just use a white background. And you save on ink, too.
17. Avoid color combinations that create problems for those with color-deficient alleles. Approximately 8% of males and 0.5% of females have some degree of color-vision deficiency ([example](#)). To test whether you've made a terrible mistake in color choice, you can run a version of your poster through the free [Vischeck](#) service, or you can download their Photoshop plug-in that does the same thing. In general, avoid using red and green together, and opt to use symbols and line patterns (e.g., dashed vs solid) instead of colors for graph elements. See the Rigden article in the Useful Literature section for an excellent overview of color deficiency conditions and how to design for them.
18. Similarly, if you have a color sensitivity mutation and don't know it, you might inadvertently design posters that are difficult for wild types (the biology terms for those with typical alleles) to interpret. You can [test your color perception online](#), by the way. White males of European

descent are especially encouraged to test themselves. No inbreeding jokes, please.

19. Complete the entire poster on a single platform. Switching from PC to Mac or Mac to PC invites disaster, sometimes in the form of lost image files or garbled graph axes. Even if you are lucky enough to transfer content across platforms, switching in this way often creates printing problems in the future.
20. Give your graphs titles or informative phrases. You wouldn't do this in a manuscript for a journal, but for posters you want to guide the visitor as much as possible.
21. If you can add miniature illustrations to any of your graphs, do it. Visual additions help attract and inform viewers much more effectively than text alone. Tables benefit from this trick as well.
22. Choose the right graph. Please see "[Watch your figures](#)" for help choosing among bar graph, line graph, etc.
23. Most graphing applications automatically give your graph an extremely annoying key that you should immediately delete. Just directly label the different graph elements with the text tool.
24. Acronyms and other shorthands for genotypes, strains, and the like are terrible for communicating with people outside of your laboratory. Use general, descriptive terms, even if they require more space, which they do.
25. Y-axis labels aligned horizontally are much, much easier to read, and should be used whenever space allows.
26. Format axis labels in sentence case (Not in Title Case and NOT IN ALL CAPS). People process sentence-case text faster.
27. Never give your graphs colored backgrounds, grid lines, or boxes. If your graphing program gives them to you automatically, *get rid of them*. (If you are friends with any of the programmers who make software that has such settings as defaults, please plead with them to revisit that decision.)
28. Never display two-dimensional data in 3-D. Three-dimensional graphs look adorable but obscure true difference among bar heights.

29. Make sure that details on graphs and photographs can be *comfortably* viewed from 6 feet away. A common mistake is to assume that axes labels, figure legends, and numbers on axes are somehow exempt from font-size guidelines. The truth is that the majority of viewers want to read *only* your figures.
30. If you include photographs, add a thin gray or black border to make them stand out against background color (even if it's white).



31. Provide the source of any image that is not yours. And only use an image (illustration, photograph, etc.) that is *fully* in the public domain. When in doubt, ask the author/photographer/illustrator for permission. Or buy it.
32. Use web graphics with caution. You need something with high-enough resolution so that it doesn't look pixelated (fuzzy) when printed. FYI, photographs imported from TIFFs often look better than JPEGs because the latter are often compressed too much (or too many times). [Gruesome details if you're interested.](#)
33. If you can't find the perfect illustration or photograph for your poster, get one made. A good image can be used in multiple posters, future talks, and even in manuscripts. There are lots of illustrators and photographers out there, and they are starving. Give them a call.
34. Don't clutter the top of your poster with logos. NO LOGOS FOR FJAS!!

35. Format your Literature cited contents carefully. References that are only haphazardly formatted mark a poster, and thus you, as unprofessional and incapable of grasping the importance of details. When asking somebody to proof your poster, specifically ask them to be critical of your citation style. Ask several people, too: no one person is going to catch all your errors. Keep your font size the same as the size of the normal body text — shrinking the font looks bad.

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