



The Hixon Writing Center at Caltech

Communicating Research Using Posters

This handout offers students an introduction to how researchers and educators use posters to present aspects of their research at conference meetings and scientific gatherings. Students working with this writing genre as part of a course assignment may have guidelines or requirements that differ from those described here.

Introduction

Researchers use graphics- and figure-heavy posters as easy, transportable means of communicating the major messages of their work to others. At conference meetings or research gatherings, researchers will present their posters in an open-floor format to a large number of possible viewers from potentially diverse backgrounds. Posters' sizes vary by context, but 1 m² is common.



Purpose

By attracting viewers, posters foster deeper engagement with scholars' work. Posters provide a great medium for sharing a method or breakthrough, looking for collaborations, getting ideas for how to solve a problem, and networking with potential employers or colleagues. Unlike a standalone research manuscript, a poster places special visual emphasis on the motivation or objective of the work, the principle findings or results, and their significance and implications. Often, early results can be disseminated at poster sessions before being comprehensively published in a scientific journal.

Grabbing the reader's attention

Posters are often densely hung on walls or room partitions. In order to engage with the poster session audience, it is imperative to capture their attention. Likely, the first thing the audience will see is a poster's title and prominent figures. An effective title must be clear, concise, and printed largely enough to be visible from ~20 feet away. The title should capture a reader's attention by conveying the research question/motivation or the impact of the results/work in language that is easily understood by the majority of the attendees. Figures should dominate the poster's space allocation with each serving to highlight a major process or result that the presenter wishes to discuss further. Figures can also be used to help explain the complex context of the research question or illustrate potential downstream applications. Piquing a fellow attendee's curiosity will recruit them to move closer to examine the figures and read the smaller text that explains the data and applications. Making the poster easy to engage with allows the presenter to begin conversations with the audience, which ultimately fulfills the purpose of presenting a poster.

Tailoring technical content to the audience

Recognize that poster sessions can be attended by academic scientists, industry researchers, business executives, government officials, policy makers, educators, and interested members of the public. The presenter must anticipate an audience's familiarity with the research topic in order to determine how much background information and detail to provide. If the goal is to discuss a methodological breakthrough with other researchers in the same field, the poster should present more technical detail than if the goal is to educate or motivate policymakers, in which case the poster needs to emphasize motivation, significance, and impact. Poster sessions are usually held as part of a conference, although sometimes they are standalone events to showcase research at a specific center or from a specific funding source. As such, the conference or organizing body's identity will provide information about who's going to see the work. How niche is the conference, conference session, or organizing body? For instance, a poster at the IEEE International Conference on Robotics and Biomimetics would see significantly more experts in robotics than a poster presented at the International Mechanical Engineering Congress and Exposition, which serves a wider audience of mechanical engineers, electrical engineers, physicists, computer scientists, and other researchers. If it is unclear who will attend a conference or event, ask a colleague, mentor, or the event organizer.

Organizing information in an expected format

It is good poster building practice to assemble graphs, images, illustrations, or flowcharts whenever possible to help convey information. By first organizing figures and then adding supporting text, one can avoid the common mistake of putting too much information on a poster. A wall of text is daunting and may turn away a potential viewer. **Use text sparingly** and organize the information as complete sentences in **short bullet point lists** where appropriate. This makes it easy for the viewer to quickly read and process the information. Each figure cluster can be introduced using a **meaningful section header**: instead of using generic labels, write specific titles that convey the motivation or major finding directly. **Whitespace** is also a powerful tool to help frame the different sections.

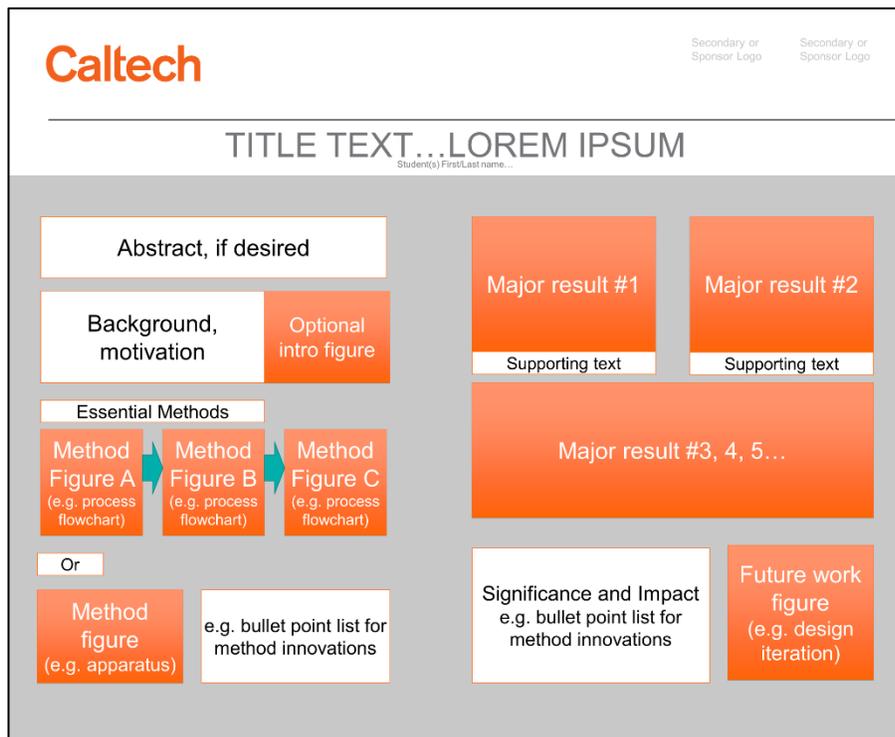


Figure 1 Example poster layout using a two-column format. Figures (orange boxes) convey the bulk of the information and take up the majority of the space. The flow of the research story is from the top right (Background), down the left column (to Methods), to the top of the right column (Results), to the bottom of the left column (Significance and Future Work).

Figures and text should be arranged to tell a story in a **left-to-right** and **top-to-bottom** format (See *Figure 1*). Posters usually begin by sharing only the essential background the audience needs to put the work in context. They clearly state the motivation, driving question, or hypothesis. This is followed by significant methods or experimental designs, but only if the methodology is essential to understanding results or is the major focus of the poster. Major results should be displayed as prominently as possible to appeal to interested viewers. Finally, including the significance and future directions helps the audience appreciate the impact of the work.

Depending on the conference's formatting guidelines, posters may be more horizontal, more vertical, or square. Most horizontal posters easily accommodate a **three-column format** whereas vertical or square posters lend themselves well to a **two-column format**. Abstracts, if included, are by convention positioned at the top-left below the title. Commonly, a list of important references or acknowledgements are included in the bottom-right corner of the poster.

Importantly, the poster's figures and text should encourage questions from the audience, allowing the presenter to speak one-to-one in further detail about their work.

Checklist

- Does the poster use a powerful and visible **title** that captures the audience's attention?
- Do the **figures** communicate the various significant aspects of the project while omitting unnecessary details? Are the figure captions short and concise?
- Does the supporting **text** succinctly convey the major findings and significance of the data or method, preferably in an **easy to read** bullet point list?
- Does the presented content match the technical expertise of the **audience**?
- Is the information presented in a linear and **logical order** that is easy to skim?

Further resources

Caltech's identity toolkit contains **poster templates**: <https://identity.caltech.edu/print/events/posters>

Caltech **poster printing**: http://www.graphicresources.caltech.edu/graphic_resources/wide_format

And for a **modern idea for redesigning scientific posters**, check out:

- NPR Article: <https://www.npr.org/sections/health-shots/2019/06/11/729314248/to-save-the-science-poster-researchers-want-to-kill-it-and-start-over>
- Video: <https://www.youtube.com/watch?v=1RwJbhkCA58>

The Hixon Writing Center website contains two annotated model posters. Visit our resources page to locate these models.

Want to talk to someone about the information in this handout or how to apply it to your own writing? Make an appointment to come into the HWC and talk with a professional or peer tutor: writing.caltech.edu/tutoring



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