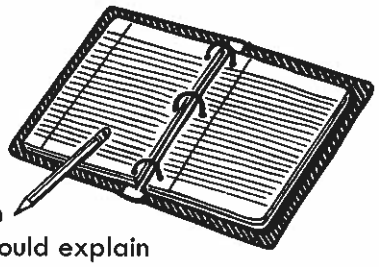
WHAT IS A RESEARCH ABSTRACT?



An abstract is a brief (usually <250 words), one-paragraph summary of your research project. Ideally, your abstract should explain WHAT research you did, WHY you did it, HOW you did it, WHAT results you obtained, WHAT your results mean, and WHY your results are significant.

Specifically, your abstract should contain:

• **An introduction.** The opening sentence(s) of an abstract should do three things:

1) Introduce your overall topic of research ("the big picture")

2) Give readers the 'background knowledge' they need to understand your project

3) Help readers understand why you decided to pursue this line of investigation (i.e. *What information suggested that you should perform these particular experiments? Was there a model that needed to be tested? A question that needed to be answered? Did existing data prompt you to investigate something further?)*

• **A statement of hypothesis or purpose.** This section of the abstract should explain the goal of your project and/or describe any hypotheses or models that you tested

• **A brief description of your experimental approach.** The idea is to let people know what approach you used to tackle your problem or test your hypothesis -- not to describe your experimental procedures in detail (technical details belong in a materials/methods section – not in an abstract!).

• **A concise description/summary of the most important results that you obtained.** This part of the abstract needs to be especially clear and straightforward, so aim to describe what you saw/found in the simplest (& shortest) way possible.

• **A conclusion.** The conclusion of an abstract should explain why your experimental results are significant and/or how your results fit into the bigger picture. (It is also acceptable to discuss future directions in the conclusion). The idea is to help people understand why your research is worthwhile & why they should care about your work!

***Remember than an abstract should be a 'stand alone' document – i.e. someone should not have to refer to your poster (or anything else!) in order to understand it.**

COMMON PROBLEMS & HOW TO AVOID THEM…

Problem: Abstract gets rejected or cut because it is longer than the allowable word limit.

Fix-it strategy #1: Find out how long your abstract is supposed to be before you begin writing! If you are preparing an abstract for a scientific conference, you should be able to find this information in the 'abstract submission guidelines' on the conference website. If you are preparing an abstract for a journal article, consult the 'author guidelines' section of the journal's website.

Fix-it strategy #2: Although the maximum allowable length of an abstract will vary (depending on where the abstract is being published), the fact that the length of an abstract is restricted means that you cannot afford to include unnecessary words, irrelevant information, or too much experimental detail. Decide what information needs to be included before you begin writing (try making a quick outline) and then write that information in the clearest, shortest way possible – get straight to the point!! For example: A sentence like this: "We found that _____." is much better than a sentence like this: "Over the last few months, the results of experiments performed in our laboratory have shown that _____."

Problem: You want to present your research at a scientific conference, but you don't have any results yet.

Fix it strategy: If you don't have any results, you can still present your work at a conference. When you write your abstract, just emphasize what you are planning to do, why, and how (instead of emphasizing your results). You can conclude your abstract by explaining why your experiments are worthwhile and/or how your planned experiments relate to the big picture.

Problem: People have a tendency to exaggerate the significance of their results.

Fix-it strategy: While it is tempting to make your results sound as impressive as possible, you should try to avoid overstating the significance of your experimental results. For example: Don't say that your results PROVE something if you really mean that your results "*suggest*" something, or "*are consistent with*" something. After all, there's a big difference between saying something like, "In this study, *we prove* that there is life on Mars" and saying, "Our results suggest that life on Mars *is possible*."

Problem: Abstract contains detailed information about experimental procedures/methods.

Fix-it strategy: When you describe your experimental approach, stick to the basics (i.e. what your approach is or what general method(s) you are using to tackle your research problem). You want to give your readers a sense of what you are doing, but you don't want them to get bogged down in the details. So…..Save the details of your experimental procedures for the Materials/Methods section of your poster or paper – and leave them out of your abstract!

Problem: It's not possible to understand the abstract without referring to something else (for example: another paper, a figure, a table).
Fix-it strategy: Since an abstract is designed to be a 'stand alone' document, it must make sense on its own! For this reason, you SHOULD include all relevant information in the abstract itself – and you should NOT include references to figures, table, or other published articles.

Problem: Abstract contains too much technical jargon.

Fix-it strategy: Since the purpose of presenting your work at a conference is to share your research with others, it's critical that you write your abstract in such a way that other people can understand it. For this reason, you should think about who will be reading your abstract before you begin to write it. If you are going to be presenting your work to scientists from all different fields (this is usually the case at undergraduate science conferences!!), it is important for you to remember that most of the people who read your abstract will NOT be familiar with your field of research. If you fail to provide enough background information – or if you use terms/technical jargon that people outside your field will not be familiar with – no one will be able to understand your abstract!! You can avoid this problem by tailoring your abstract to your audience (i.e. by writing it in such a way that people attending the conference or reading the paper can understand it).

Problem: The abstract lacks an introduction.

Fix-it strategy: If you want people to understand your research project and appreciate its importance, you can't just 'jump right in' & start discussing your experiments and your results in the opening sentences of your abstract -- you need to put your experiments in context by providing some background information & introducing your research problem.

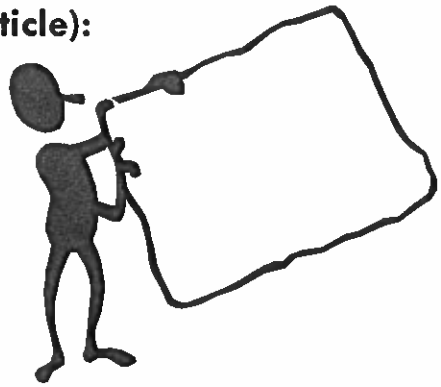
Problem: People who read your abstract have no idea why your results are important/why they should care about your work.

Fix-it strategy: You can avoid this problem by making sure your abstract contains an introduction (where you explain why you chose to investigate this particular research problem) AND a conclusion (where you explain why your results are significant and/or why this type of research is valuable).

Problem: Abstract is confusing, hard to read, or uninteresting.

Fix-it strategy: Since people often decide whether to read a paper or view a poster (at a conference) based on the abstract alone, it's important for your abstract to 'make a good first impression'! A well-written abstract needs to be clear, scientifically accurate, and concise; it should also capture people's attention by explaining why the project is interesting & worthwhile.

A few notes about preparing an abstract for a scientific conference (vs. writing an abstract for a research article):



- You do NOT have to have a complete story or 'perfect results' to present your work at a research conference. It is perfectly acceptable to discuss planned experiments, work-in-progress, and/or preliminary results in your abstract – as long as you do it in a truthful way!! For example: If you did an experiment once, and you won't have time to repeat the experiment to verify your results before it's time to submit your abstract, it's fine to present those results as long as you say that they are preliminary (e.g. "Preliminary results suggest that the N-terminus of TIS11 contains a functional nuclear localization signal" instead of "The N-terminus of TIS11 contains a functional nuclear localization signal").

- Since there is not enough time for someone to look at ALL of the posters at a research conference, people who attend research conferences have to pick and choose which posters to visit. In many cases, people decide which posters to visit based on the abstracts (i.e. they skim through all of the abstracts, pick the ones that sound the most promising, and visit the posters that go along with those abstracts). For this reason, it's important for you to make your abstract as appealing & easy to read as possible! You can do this by explaining things as clearly as possible, by presenting the relevant information in a logical way, and by helping people understand why your research is interesting & important (e.g. instead of just saying what your results are, explain what your results mean and why they are significant.).

- If you want people at the conference to understand what you have done, you need to describe your research in a way that they can understand. To do this, you need to think about who will be reading your abstract before you begin writing (*Will people at the conference know a lot about your field of research? A little? Nothing?*) -- and then tailor the abstract to your 'audience'. For example: If you are preparing an abstract for a 'general' research conference (where scientists from all different fields will be presenting their work), you will need to do an 'extra-good' job of introducing your project and explaining the relevant background information since most people at the conference will NOT be familiar with your specific field of research.