Writing Scientific Abstracts

An abstract is a brief summary of a research study. It describes the objectives of the study (i.e., what hypothesis you were testing or what research question you were attempting to answer), the methods used, the major results, their interpretation and their implications. The usual abstract represents much work, and so it is most important that it be written so as to convey as much information as possible. Abstracts often appear at the beginning of a full-length research paper, or may be published by themselves as part of the proceedings of a professional meeting.

An abstract is always short and is always written as a single paragraph (even though many abstracts strain the textbook definition of a paragraph). It is written for the same audience as the article, so it uses the same level of technical language. It always summarizes the major points of the results, and generally summarizes the major points of the materials and methods, and of the discussion. In most disciplines, it never includes bibliographic citations.

The more familiar you are with the contents of an article, the easier it is to write an abstract. If you wrote the article yourself, you obviously know what is in it, but professional abstract writers routinely make abstracts of articles they haven’t written, and you can, too. The first step is to identify the major point or points of the article. Sometimes it helps to make an outline, but that is not always necessary. When you have written down the main points, then look to see what information is crucial to lead up to those points. The research methods might be important if they are new or unusual, but if they are standard, they only need to be referred to briefly. Next, write down the conclusions that are drawn from the main points. When you are done, you will have something like this: introductory statement, including statement of the problem to be addressed (sometimes not needed) research methodology (described at length only if it is unusual) results or other main points (absolutely essential) concluding statement, telling what the results mean. Yes, this is sort of a “mini-outline”. Next, you turn it into a paragraph. Scientists have grappled for years over the appropriate way to talk about discoveries: should it be “we measured anion concentrations in the water” or “anion concentrations in the water were measured”? The first example is in the active voice and the second example is in the passive voice; modern scientific style prefers the active voice. Abstracts are often an exception, but only if the passive voice reduces the total number of letters and words. With abstracts, the bottom line is brevity: They should be as short as possible and still include the important information.

Abstracts usually have a proscribed length (usually somewhere between 200 words and one page). This makes them deceptively difficult to write, because they need to convey a lot of information in a very small space. It helps, as you write your abstract, to write it methodically, section by section, to make sure that it is complete. At this stage, don’t worry too much about any length requirements for the abstract. After the first draft of the abstract is written, check to see if it fits within any length restrictions you have been given. If it is too long (which is usually the case at this stage of writing), look it over to see where it could be made more concise. For each word or phrase, ask yourself “Is this really necessary? Is there a simpler way I can convey the same meaning?” Remove redundancies and unnecessary details, and substitute concise phrases for wordy passages. Keep editing your abstract until it falls within the length guidelines you have been given. It is always helpful to have someone else look over your abstract before you are done. They can often help pinpoint text that is confusing, wordy or redundant. Finally, make sure to spell check and proofread carefully. A sloppy abstract leaves the reader with the impression that your research might also be sloppy!
**Parts of the Abstract**

**Title:** The title should be short, but descriptive.

**Author(s) and some sort of address.**

**General topic:** The first part of the abstract introduces the study. It should describe the goals, significance and background for the study. This is usually accomplished in one or two sentences that describe the general topic to be investigated and why it is important. Sometimes this is most easily done by relating something about the state of the field and why you did the experiments.

**Specific Question or Relationship:** Write one or two sentences describing the specific question you are addressing or relationship you are investigating with this investigation.

**Method:** The second section of the abstract summarizes the methods used: how the study was designed and carried out. This usually takes about two sentences, but may be shorter or longer depending on the complexity of the study. Do not attempt to write a detailed procedure, just give a general idea of how you did it.

**Results:** Write one or two sentences explaining what you found out. Be as specific as possible. State only your major findings of the study. These should relate to the objectives that you described in the introductory section of your abstract. This section is variable in length, depending on the number and complexity of the findings, but is typically two to three sentences long.

**Conclusions:** The final part of the abstract consists of one or two sentences giving your interpretation of the results and the overall significance of the study.

**Additional Guidelines for the Preparation of a Scientific Abstract**

Verb tenses: the common practice is to express the work being described in the past tense: “The average concentration of E2 in surface waters was 35 ng/L,” and previously reported work is expressed in either the present or past tense: “E2 is known to increase the number of feminized fish in surface water.”

The abstract should be one paragraph, single-spaced, with no indent to start the paragraph.

Each professional journal or meeting will have its own guidelines for abstract preparation. Be sure to follow them carefully.