



Undergraduate Research Journal  
UC San Diego Division of Biological Sciences

## WHAT IS A SCIENTIFIC REVIEW PAPER?

A scientific review presents an argument about or analysis of a topic using primary, recent research as evidence. It is not merely a broad summary of recent research on a topic; the authors synthesize various research papers to communicate and discuss a point or question with their audience.

The overall goal of a scientific review is to analyze the current understanding of a topic using various other research papers rather than the authors' own experimental data.

"Review articles, including meta-analyses, are critical evaluations of material that has already been published. By organizing, integrating, and evaluating previously published material, the author of a review article considers the progress of current research toward clarifying a problem. In a sense, a review article is tutorial in that the author

- defines and clarifies the problem;
- summarizes previous investigations in order to inform the reader of the state of current research;
- identifies relations, contradictions, gaps, and inconsistencies in the literature; and suggests the next step or steps in solving the problem" APA (2001, 7).

### Eligibility

Scientific review papers must pertain to biological research and can be submitted by any UCSD undergraduate.

### How to Choose a Topic

First and foremost, your topic should be something that you are interested in learning more about. To get started, you can look through science journals such as *Nature*, *Scientific American*, and our very own *Saltman Quarterly* and *Under the Scope*.

Once you have found a general topic of interest, narrow it down to a specific aspect of the topic so you can write a concise scientific review. Choosing too broad of a topic (such as breast cancer, stem cells, etc.) can make it hard to synthesize all the current research being done and will make your scientific review paper too long and vague.

Formulate an argument or hypothesis that will be the focus of the paper and start researching for primary research papers to use as evidence to support that argument. Also look for any controversial arguments about the topic or any recent breakthroughs in that field. Make sure to keep detailed record of any sources you plan to cite in the paper to avoid plagiarism (and also make sure that your source comes from a credited research journal).

## Writing the Paper

### 1. Introduction

This should be a short explanation of the general topic of the scientific review. The introduction should also provide background on the topic.

### 2. Body

Synthesize the most important results from recent research about the topic and use these results to further discuss your argument. Explain to the reader how all of this culminates in our general understanding of the topic. This would also be the place to discuss controversies. Use figures from your sources (again, make sure to cite these sources) to help with your discussion. For organizing the paper, it is helpful to label the different sections of your paper. Make sure the topic headings clearly and concisely state what the main concept is.

### 3. Conclusion

Summarize your main points while pointing out their significance in the field. You can also suggest ideas and questions for future research to further understanding of this topic.

### 4. Literature Cited

It is of vital importance that you cite your sources throughout the paper, not only to avoid plagiarism, but also so people interested in that specific point or experiment can follow the reference to the original research paper. Have the Literature Cited at the end of the paper in Turabian style (see below “Citations” section).

Citations: In-text citations must appear as footnotes (superscripts that are included just outside of the period). They must be listed in numerical order, as they appear in the text.

In other words, the first reference made should be <sup>1</sup>, the second <sup>2</sup>, the third <sup>3</sup>,...

The full citations must be listed at the end of the text under the “References” heading.

Citations for each reference must abide by the following Turabian style format:

- All authors should be included unless there are more than five, in which case only the first author should be given, followed by “et al.”.
- Authors should be listed last name first, followed by a comma and initials of given names and middle names.
- Titles of cited articles should be in normal text, while the title of books should be in italics. Journal names are also italicized and abbreviated (with periods) according to common usage.
- Only the first word of the article title is capitalized, unless referring to a proper noun. The article title ends in a period.
- Volume numbers appear in bold, followed by a comma and the range of pages in the journal in which the article was published. The year of publication follows in parentheses and ends in a period.
- Book citations required the publisher and city of publication (e.g., John Wiley & Sons, Hoboken, NJ, 2003).

An example of a proper citation:

- Kaplan, D.H. et al. Demonstration of an interferon  $\gamma$ -dependent tumor surveillance system in immunocompetent mice. Proc. Natl. Acad. Sci. USA 95, 7556-7561 (1998).

For proper citation of other reference types, authors should adhere to the Turabian citation style (<http://www.libs.uga.edu/ref/turabian2009.pdf>).

### **Images and Figures**

In addition to including images at the end of the manuscript's text file, submit each image as a separate TIFF or EPS (encapsulated postscript) file, preferably from Adobe PhotoShop or Illustrator software.

- All images are preferred in CMYK color mode.
- Images should have a MINIMUM resolution of 300 dpi at the desired print size.
- A resolution of 600 dpi or higher is strongly preferred when possible.
- Figures containing graphs are strongly preferred as vector art (EPS).

While there is no specific limitation to the number of figures than an author may submit, published manuscripts typically have 4-7 figures in print.

### **Requirements**

- A maximum of 2 people can co-write a scientific review paper together.
- The recommended length is 2000-4000 words, single spaced, in 12-point font.
- Drafts of the scientific review paper *must* be submitted by the deadline (TBA) in order to be considered for publication. Once accepted, it will go through a process of peer editing and faculty review before being published.
- When submitting your drafts, attach the file as a Word Document and name it "LASTNAME\_Scientific Review Draft #"

### **Checklist for Submission**

The following is a checklist solely for the author's convenience to ensure that all necessary components of scientific review paper submission have been properly completed.

- ☐ Sign and submit Author Agreement form
- ☐ Sign and submit Graphics Permission Statement
- ☐ Send review (text + embedded figures) to the submission form on the website.
- ☐ Send each figure as a separate TIFF or EPS file to the submission form on the website.

### **Sample Scientific Review Papers**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4003223/>

[http://www.niaid.nih.gov/about/Directors/documents/fauci\\_nature\\_med\\_commentary.pdf](http://www.niaid.nih.gov/about/Directors/documents/fauci_nature_med_commentary.pdf)

<http://jcs.biologists.org/content/113/1/5.full.pdf+html>