

Writing a Research Paper: A Step-by-Step Guide

If you're reading this, you're planning to write a research paper of some kind. Maybe it's for an assignment, maybe a thesis, or maybe you're working on a personal research project that you intend to publish someday. Whatever the reason, right now you're probably a little overwhelmed and unsure where to start. Not to worry, if you take the following steps one at a time you'll be done in no time at all. Keep in mind, that if you need further clarification on any of the topics discussed in this guide, you can always schedule a consultation with your UMA librarian¹.

Step 1: Come up with your **main topic**. Write up a rough thesis statement and outline for your project. This will likely evolve over the project, so don't worry about making it perfect. At this point, you just want to have something jotted down about what you want your research project to be (no particular format is required, make it as neat or messy as you'd like).

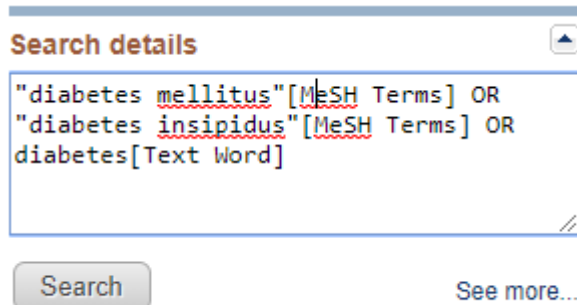
Step 2: Do some **exploratory searches**. For this step, any database will do (Google Scholar often works very well for broad searches like these). Keep your search terms broad and general about your topic, at this phase you just want to get a good overview of the type of literature already out there on your topic.

Step 3: Now it's time to start narrowing your search, to do this you need to come up with **concrete search terms** to use (these will be the words or phrases you actually use in every database you search). To do this, start by thinking of the keywords or phrases for your topic, then think of any possible synonyms or alternate spellings for those keywords (this is important, to avoid overlooking important information).

Boolean searching will come in handy for either narrowing or broadening your search. Essentially, Boolean uses the terms "and" "or" and "not" to tell the database what to include and what not to include.

Some databases also use what's called **controlled vocabularies**. For example, medical databases like PubMed and MEDLINE, use MeSH Terminology which gives an official MeSH term for anything you search. PubMed has a helpful MeSH database for figuring out specific MeSH terms: <https://www.ncbi.nlm.nih.gov/mesh>

EX: Below, is an example from the MeSH database, showing someone looking up the MeSH terms for diabetes.



The screenshot shows a search interface with a text input field containing the following query: "diabetes mellitus"[MeSH Terms] OR "diabetes insipidus"[MeSH Terms] OR diabetes[Text Word]. Below the input field is a "Search" button and a "See more..." link.

Step 4: Now you're ready to log-in to the library website and start searching. Since you have your search terms all planned out, you can use the **advanced search** to enter all of your terms. As you scan thru the results, read the abstracts available and make note of any articles that may be useful for your paper.

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Keep in mind, that if the search results aren't coming up with what you want, you can further alter your search by filtering by: "**year or publication**", "**source type**", "**place of publication**", etc. If you find you're not getting enough results, you may need to alter your search terms to be slightly broader.

Step 5: Assess your results. At this phase, read through all the relevant articles that you made note of in the last step. Evaluate them based on **Currency, Relevance, Authority, Accuracy, and Purpose** (see attached handout for details).

Step 6: Once you have a list of the sources you want to use, refer back to the rough outline you made earlier. Does your outline still make sense? Do you need to add anything? Change the order? Or otherwise refine your outline in any way? Take the time to make these changes now so you have an updated outline before you start writing.

Step 7: A note about writing research papers, while style guidelines like APA or MLA will have your final product in a specific order, you don't have to write them in that order. Often, it's actually easier not to. **Start off by writing your problem statement and research question(s) or your thesis.**

For your problem statement, look back at the rough thesis you came up with to start. **Your problem statement should simply be a concise explanation of the issue/topic addressed in the paper.** For some types of research papers a thesis may be more appropriate than a problem statement. As a general rule, problem statements are research/studies looking to solve or explain a particular issue, otherwise a thesis statement will suffice. **If you do have a problem statement, finish this section off by writing out any and all of your research questions. If you're using a thesis, work with the one you came up with earlier; if you need to rephrase or alter anything, you can do this now.**

Step 8: Next, start writing your Literature Review section, this will allow you to further break down the sources you just found while laying out the background information about your topic.

Your literature review will be arranged either by date or by subject; in the first case, start off chronologically and layout all the necessary background about your topic (don't forget to integrate your sources where appropriate); if you're arranging by subject, decide on the subject to start with and then come up with the progression that will work best to layout your details (it may help to write this down as part of your outline).

Step 9: Next, get to work writing up your Methodology section. This section, by name, sounds the most daunting, but you've actually already done a lot of the hard work. **Your methodology section should define the type of research project you're doing and how you went about the process of collecting your information.**

Type of Research: Did you do a qualitative or quantitative study? Case study? Interviews? Control trials? Systematic review or meta-analysis?

How you collected data: Part of this will be the information you worked out in step 3, your concrete search terms; this answers the question of how you went about finding your sources. If you performed any kind of experiment or control trial as part of your research you'll also want to include that information in your methodology.

Step 9: Finally, you're at the main event, your **results** section. Here is where you get to stop talking about other researchers work and talk about your own. If you performed a study or experiment during your research, this is where you write up what you found. For this, look back at your research questions and address them one by one; what did you find, what did you learn?

Note: If your paper is more theoretical (one with a thesis as opposed to a problem statement), you can go ahead and replace the results and discussion (steps 9 & 10) sections with your conclusion (step 12).

Step 10: Next, your discussion section, where you'll again be using your research questions, as well as the results section you just finished. Here you'll expand off of what you found and put that in context with your literature review and all the background research you did earlier. What new knowledge or ideas does your research add to the conversation?

Step 11: Remember how we skipped the introduction earlier? Well, now you actually have to write it. The good news, now that you've done the hard work of writing your paper, your introduction should be very simple. Start off with an

opener, something to draw your reader in and make them want to keep reading your research. **Then explain why this research project is being undertaken.** What drew you into this project; are there gaps in the existing research you were trying to fill?

Your introduction should be background information about **why you choose to do this paper** (NOTE: the answer, should not be, “because it was a class assignment” although speaking honestly, that may be actual answer), **why this research is important, and why the reader should keep reading it.**

If you used a thesis statement, finish your introduction with said statement. If you have a problem statement, make it the proceeding section after the introduction.

Step 12: At last, the conclusion. Here is where you’ll reflect on everything and **provide of summary of what you researched, what you learned, and where you or other researchers should go from here.** Think about your thesis or problem statement and start your conclusion off by restating (in different wording) what that statement was. Then, recap your literature review and preliminary research process, followed by a summary of your results and discussion.

End with a statement about any and all future research that should be done in this area. Think about where your research paper lands in the grand scheme of research in this field, what future research will need to be done? What larger ideas does your research call into question? Where should research in this field go from here?

References, Abstracts, Appendixes and More!

Now that your draft is complete you just need to add in the technical stuff. The subject area your paper is in will determine what style guidelines to use (for most scientific papers in health and medicine, it will likely be APA). Double check with your rubric, if you have one, if you’re not sure which method to use. Once you know, visit https://owl.purdue.edu/owl/research_and_citation/resources.html for help learning the style guidelines for whatever citation format you’re using.

References: Use the Purdue Owl link to put together a complete list of all the sources you used for your research. You can also visit PVAMU’s library page for information about using citation generators like RefWorks <https://www.pvamu.edu/library/departments/reference-information-services/research-finding-tools/research-help-citations/>.

Abstract: If you’re using APA, you’ll have to write up an abstract for your research. This will go at the beginning of your paper, and should be a short overview (no more than 150 words) of your paper. For other citation formats, an abstract is usually not required.

Appendixes: Depending on your paper, you may have appendixes, or you may not. An appendix is reserved for information that is too detailed or distracting to be in your actual paper but that’s still relevant to include as additional information at the end.

Here are some examples of things APA guidelines place in the appendix:

- Long lists (short ones can be in the paper)
- Demographic details of subpopulations studied in your paper
- A list of articles that support your data, but aren’t referred to in your paper
- Detailed descriptions (besides essentials details, which should be in the paper)

Finishing Touches: To finish things off, use PurdueOwl to make sure your citations are in the right format, you have the necessary header information, a cover page (if necessary), and footnotes (if necessary).

Once all that is done, congrats! You’ve completed the first draft of your paper! Now, you just have to do some editing, but that’s a subject for a different guide.