

Research Paper Assignment

Description: A brief research paper, addressing a *significant* issue or question in the history or philosophy of science. Your paper can be on one of the following topics:

1. *Historical Interpretation* – You will investigate a significant episode in the history of science or medicine. You must examine primary source materials—such as scientific papers and treatises, autobiographical accounts, or archival materials—as well as secondary sources that provide interpretations of events. The secondary source material should frame the argument of your paper; your goal is to make some contribution to the historical debate on this topic.
 - E.g., John Snow's work on cholera, development of the germ theory of disease, Galileo's arguments for the moving earth
2. *Philosophy of the special sciences* – In addition to philosophical problems about science in general that we focus on in this class, philosophers of science often focus on problems that are unique to specific sciences. Such questions form the sub-fields of philosophy of physics, philosophy of biology, philosophy of cognitive science, philosophy of economics, philosophy of medicine, etc. These sub-fields often require more detailed understanding of the specific science under study than general issues. Investigate the sub-field that interests you and pick a significant problem. You should site both classic and relatively current writings on that topic.
 - E.g., Interpretations of quantum mechanics, the nature of biological species, reductionism in chemistry, ontology of economic markets
3. *General philosophy of science* – Your paper investigates one of the major general issues in philosophy of science, such as the aims of science, explanation, reductionism, laws of nature, incommensurability, science and gender, or values in science. You should defend or critique a *particular* response to that issue. If you choose to respond to an approach from one of the readings on the syllabus, you must include significant outside sources addressing that response as well.
 - N.B. You **may not** address the topic of demarcation criterion (science v. pseudoscience)
4. *Historical critique of philosophy of science* – As above, pick a specific argument on a specific issue in philosophy of science, but use resources for the history of science to critique it. You must refer to primary and secondary source materials about the historical episode as well as the philosophical approach being criticized.
 - E.g., In critiquing Hempel's theory of scientific explanation, pick examples of effective explanations in the history of science which fail to conform to Hempel's model
5. *History of philosophy of science* – An investigation of the historical development of ideas about the nature of science, focusing either on the views of a particular historical figure or the development of significant ideas. Your sources should include primary and secondary sources, and should pay attention to historical context.
 - E.g., C.S. Peirce's critique of determinism, Feyerabend on values in science, the development of the idea of underdetermination of theory by evidence
6. *Science in society* – Your paper deals with a pressing, current social issue about science that can be illuminated by reference to history or philosophy of science. E.g., climate change, intelligent design, biases in medical research. (See me for more info on this topic.)

Your topic should be sufficiently *focused* and *specific* to allow you to make a detailed and interesting argument in the space provided, while being interesting and worth investigating. Your paper should display a knowledge of several key texts, while staking out a clear position (making a claim) and providing reasons and argument for your view. You *may* refer to the assigned readings, but you *must* include significant outside sources. Your paper should clearly and accurately survey the debate in a succinct fashion, stake a clear and specific position, and provide an argument for that position that is compelling and easy to following, grounded in evidence. (**Note:** The readings do *not* always provide good examples of this.)

Format: Length - 3800 words (± 500), approximately 11-15 pages. *First* page must include your name, UTD-ID, term, course name, paper title, and word count. Subsequent pages should include your last name and page number. Must consistently follow the guidelines of your favorite manual of grammar and style (MLA, APA, Chicago), and include proper and complete citations to the works you draw on (avoid any whiff of plagiarism). 12pt, ordinary fonts, double-spaced, 1-inch margins, page numbers. Improperly formatted papers *will not be accepted*, i.e., you will receive a grade of **F** for the assignment.

Criteria: Papers will be evaluated according to their (a) informedness, (b) clarity and interest-iness of claim, (c) rigor and effectiveness of argument, (d) insightfulness and thoughtfulness, (e) quality of research, (f) quality of interpretations of primary sources, (g) subtlety and nuance of understanding of material, and (h) creativity.

Turn all stages of papers in online at Turnitin.com: *ClassID:* 5549419; *Password:* karlpopper

Paper Milestones – *All milestones MUST be met or final papers WILL NOT be accepted*

Friday, October 5th – **Topic Summary** – 200-300 word description of the topic you want to tackle in your paper, including (1) what type of paper (of the 6 types above), (2) what the problem or issue is, (3) if possible, which approach / response you think you will want to defend or critique. Not yet the argument or structure of your final paper. The more specific, the better. ☆

Friday, October 12th – **Annotated Bibliography** – At least 5 sources (at least 4 not assigned readings), including primary and secondary source materials. These should be major journal articles, chapters in scholarly books, or other appropriately academic resources. ☆

Friday, October 19th – **Paper Abstract** – 200-300 words, includes a statement of a thesis and a summary of the argument of your paper. ◆

Friday, November 9th – **Draft** – A full draft of your paper, at least 3000 words. ◆

Friday, November 16th – **Reverse Outline** – Create an outline of the argument of your paper draft, 2-3 pages. The goal is to give the *structure of your argument* including major items of evidence. Schematic but easy enough to follow. ☆

Wednesday, December 5th – **Second Draft (optional)** - Final opportunity for feedback on your paper before the final is due. ◆

Friday, December 14th – **Final Paper Due** ☆

Annotated Bibliographies

A **bibliography** is a list of sources (books, journals, websites, periodicals, etc.) one has used for researching a topic. Bibliographies are sometimes called "references" or "works cited" depending on the style format you are using. A bibliography usually just includes the bibliographic information (i.e., the author, title, publisher, etc.).

An **annotation** is a summary and/or evaluation.

Therefore, an **annotated bibliography** includes a summary and/or evaluation of each of the sources. Your annotations must do the following:

- **Summarize:** Some annotations merely summarize the source. What are the main arguments? What is the point of this book or article? What topics are covered? If someone asked what this article/book is about, what would you say? The length of your annotations will determine how detailed your summary is.
- **Assess:** After summarizing a source, it may be helpful to evaluate it. Is it a useful source? How does it compare with other sources in your bibliography? Is the information reliable? Is this source biased or objective? What is the goal of this source?
- **Reflect:** Once you've summarized and assessed a source, you need to ask how it fits into your research. Was this source helpful to you? How does it help you shape your argument? How can you use this source in your research project? Has it changed how you think about your topic?

Entries in your bibliography should be approximately 150 words. Bibliographic entries should follow a standard style manual. (MLA, APA, Chicago, etc.)

For more info, see:

- <http://www.iupui.edu/~uwc/pdf/Annotated%20Bibliography,%20Preparing%20an.pdf>
- <http://owl.english.purdue.edu/owl/resource/614/01/>
- <http://olinuris.library.cornell.edu/ref/research/skill28.htm>
- <http://lib.calpoly.edu/research/guides/bibliography.html>

Term Paper Guidelines and Helpful Hints

Choose a guiding idea. Start with a rough version of what you'll argue for that is a real issue worth exploring and focused enough to fit the length requirements. Don't commit yourself so much up front that you feel stuck later, though your final paper will need to have a clear thesis/claim.

Pick out the relevant readings. Figure out what we've read that is relevant to the topic you'll be writing on and familiarize yourself with what they say.

Research using reliable and appropriate resources. It's best to use sources from an academic press. Consult the databases in philosophy and related areas at the library or on library webpage (the librarians are friendly and willing to help). Required & recommended class texts often include helpful sources in their bibliography. An encyclopedia is fine for giving you ideas for where to look for sources, but it usually isn't to be used as a primary source itself.

Read for relevance. Use highlighters or pens, write in the margins, use sticky-notes, whatever technology will help you pull apart the structure of what you read. You will need to explain and analyze the ideas *and* the reasons the authors give for accepting those ideas (i.e., the argument).

Talk to people about your ideas. This includes classmates, other friends, professor. Get advice. Bounce ideas off each other. Advice is not plagiarism, but do the research and writing yourself.

Analyze, don't summarize. Pick apart the argument and show how it works. Only talk about the part of the text that is relevant to your argument. Leave out useless details. Don't just repeat in shorter form what has already been said. Your reader should learn something new about your sources.

Be prepared to revise or change your claim. Stay flexible. Your research may prove you wrong.

Every part of your paper should provide new reasons for accepting your claim. Make sure everything in your paper is clearly connected and makes your point. Focus it. **Avoid rhetorical questions!**

Provide specific evidence. Don't speak only in vague generalities and abstractions, and don't *just* appeal to personal feelings or commitments. Provide facts that *actually* favor your view.

Be creative. Bring something new to the table: a new bit of evidence, a more subtle argument, a novel application of an argument, or a new position in the debate.

Write for an interested but relatively unfamiliar audience. Imagine trying to explain it to your peers who aren't in the course. Better yet, actually try explaining it to them while you write.

Use correct grammar and formatting, and a clear style. Consult a standard handbook such as MLA for references and citations. Use a style manual like Strunk & White's. It may be useful to consult a basic handbook of argumentation, such as Weston's *Rulebook of Arguments*. Another useful resource is Jim Pryor's page on writing philosophy papers:

<http://www.jimpryor.net/teaching/guidelines/writing.html>

Cite every source that you quote directly, paraphrase, or rely on for your understanding of the material, including course textbooks. Again, look to a guidebook like MLA. **Don't plagiarize!**

Make sure you understand what that means.

The following advice is inspired by Anne Lamott, *Bird by Bird* (NY: Pantheon, 1994).

Write "draft zero." Get all of your thoughts on paper, all the rough notes, quotes, bits of analysis, etc. Arrange it so that it looks sort of like an argument. Print this out and read over it. Highlight your claim with one color. Highlight all of the most important items of support in another color.

Write a shitty first draft. Start a fresh document, and commit to not copy-pasting anything (except maybe quotations) from draft zero. Put your argument together. Get the whole thing down on paper before you worry too much about how each part of it works.

Revise, revise, revise. For each draft, print it out (preferably on recycled paper!). Highlight (different colors) your (a) main claim, (b) major sub-claims, and (c) key bits of evidence. Make sure that the non-highlighted parts of your paper all work to make clear the connections between the highlighted parts *or remove them*. Read it again to make sure it sounds good. **Show no mercy** with your red pen: cross out useless words and sentences, rewrite awkward bits, add in missing pieces. Look over this draft with your classmates, professor, writing center tutors, friends, pets, roommates, significant other(s), parents, coworkers, or whoever can give you useful feedback.