

Math 3010 Final Paper

1. OVERVIEW AND REQUIREMENTS

As will by now be evident, this course gives only the quickest of sketches of its subject-matter, only touching on some subjects, and omitting many others altogether. The final paper is your chance to study a topic in the history of mathematics in greater depth. There are no constraints of place or of time, and you are welcome to write a paper that focuses on the interaction between mathematics and any one of the historically-related fields of inquiry (logic, optics, metaphysics, music—you name it). If you have any doubts about whether a topic is suitably “mathematical,” please ask me: a paper on Aristotle’s classification of bloodless animals is probably not appropriate; a paper on (some more narrowly-defined aspect of) Aristotle’s use of contemporary mathematics as grounds for and examples in his philosophical arguments is entirely appropriate. Here are some more hard-nosed requirements:

- The paper should be approximately 10-12 pages (in some reasonable font and font size) double-spaced. Much less probably means you haven’t read enough and assembled enough evidence. Much more will probably try my patience, unless the quality is very high.
- There must be some mathematics, and mathematical explanation, in your paper. Just how you incorporate some mathematical exposition will vary from subject to subject. For instance, if your paper dealt with the influence of mathematical reasoning on Aristotle’s logical works, you might include the passage from the *Prior Analytics* on problem set 5 explaining the incommensurability of the diagonal of a square with its sides. In order to explain the function of this example in Aristotle’s text, you would of course have to explain the mathematical argument.
- You must draw on a *bare minimum* of two primary and two secondary sources. In cases where there are no extant primary sources (eg, many of the Greek mathematicians from the 5th century), you should interpret ‘primary’ here as those sources we have that are closest to the the original source, and that primarily provide the basis for our reconstruction of the contents of the original source. “Secondary” source here means scholarly interpretation¹ later than the original subject of study.
- Give credit where it is due: whenever you use another author’s ideas, whether appearing in your paper as direct quotation, paraphrase, or simply influence, you must cite them (with a footnote and then inclusion in the bibliography). However you format these citations and bibliography entries, they should be unambiguous: it is probably easiest to choose and stick with one of the standard style-guides: <http://campusguides.lib.utah.edu/style>.

2. TIMELINE

- Due M 2/29. Summarize (in a half-page or so) your general topic of inquiry; this need only be precise enough to suggest sources for you to study, which will then lead you to a more specific topic. Along with the summary, you must hand in a list of at least two primary and at least two secondary sources that you will use; and, for each of at least two primary and one secondary source, you must hand in an analysis of a passage (or passages) that you think might prove useful to your eventual line of inquiry (a few sentences per

¹In books or journals, not blogs or wiki articles. That does not say you may not read or use the latter to help your research; but, for instance, if you read something on Wikipedia, you should track down the source cited in the Wikipedia article.

passage is fine, for now). This analysis does not yet have to be linked to any sort of “thesis statement,” but by accumulating such analyses—by reading closely and reflecting on your sources—you will be doing the necessary work preliminary to writing a well-constructed, carefully-argued paper.

- Due M 3/7. Hand in a first attempt at formulating your argument: write two or three introductory paragraphs in which you state the aims of your argument and sketch the route you will take, through your sources, to make that argument. (I will return comments on this and the 2/29 assignment before the spring break.)
- Due M 3/21. Hand in a partial draft (at least 5 pages) of your paper: this must include an introduction and several body paragraphs that begin to build your argument through detailed reference to a number of (primary and secondary) sources. (I will return comments on this by April 11. In the meantime, you should complete your reading.)
- Due 4/25 (our last class session). Hand in the final version.

3. RESOURCES: HOW TO WRITE A SUCCESSFUL PAPER

Two things above all will help you write a good paper: your own interest in and enthusiasm for your subject, and the breadth and depth of your preparatory reading and thinking *before* you sit down to write the paper. I am hoping to help you with the latter via the preliminary assignments (see Timeline above) that build up to your first draft. For the former you will have to rely on your own curiosity, and it is my greatest hope for this assignment that you find a topic that excites you. Here are some more specific suggestions:

- As you begin to look for a topic and for references, look at the “References and Notes” section at the back of each chapter of Katz. These provide pointers both to primary sources and to some of the most valuable secondary sources in the history of mathematics literature. If your topic pushes beyond mathematics into neighboring subjects, you will likely find Katz’s bibliography inadequate. You might want to refer to the appropriate library guide at <http://campusguides.lib.utah.edu/> (you will find resource guides here in philosophy, mathematics, classics, etc.).
- One problem you might encounter is that your initial topic is too broad, too floppy. The best solution to this problem is to read more, and to read more carefully: if you do the necessary leg-work with your sources, specific questions will emerge from them. If you would find a more programmatic guide to narrowing your topic helpful, you might look at the following advice from the library website: <http://campusguides.lib.utah.edu/c.php?g=160640&p=1049651> (see the “Links to help with narrowing” portion of the website).
- Language, and the care for precise language, matter. A trenchant statement of the case is George Orwell’s essay “Politics and the English Language” (<https://www.mtholyoke.edu/acad/intrel/orwell146.htm>), which I highly recommend you read. Like all “style-guides,” Orwell’s essay is at times overly-prescriptive, but if you can read this essay with a relatively clean conscience, then either you have no shame, or your writing is on the right track. More generally, the best way to help your own writing is to read good writers—I would be happy to suggest examples of scholarly yet engaging contemporary writers. As you are writing your paper, a good litmus test of the directness and intelligibility of your writing is to read it aloud: you yourself may be a sufficient audience, or you may want to corner a roommate or sibling. If it sounds odd aloud, it assuredly is no better on the page.