

PAPER TOPICS

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Philosophy of Mathematics

The paper is due on December 11 at 10:20am. (Lateness policy here: https://tedsider.org/teaching/215/lateness_policy.pdf.) It should be 6–10 pages, double-spaced, normal font and margins. It is worth 20% of your grade.

Below are some suggested paper topics. I am open to your doing a paper on some other topic, but please clear it with me first.

I expect that this might be a difficult assignment, so I have a suggestion. Although each of the suggested paper topics mentions an entire article or book chapter (two articles, in one case), you should not try to cover everything in the article or chapter, nor should you try to summarize all of it. Instead, after reading through the article or chapter, and thinking about it some, you should pick one, or at most two, particular things to focus on, such as one of the author's arguments. Your paper should then do the following things. First, begin with a brief introduction to the topic of the paper. (You should write as if your reader is an intelligent person, but knows nothing about the topic you are writing about. Thus you need to say enough about what the topic is so that the reader can understand your paper.) Second, give a clear presentation of the issue you are going to focus on. For example, if you are going to critically discuss one of the author's arguments, you should clearly present that argument. (In a way that could be understood by an intelligent but uninformed reader, as I mentioned earlier.) Finally, you should make some new contribution of your own. It's pretty open-ended what that contribution might be. You might, for example, present reasons to think that the author is wrong about something; or you might present further reasons in support of what the author says. But either way, you need to make some contribution of your own (your paper can't just be a description of what the author says). And you can't just assert your opinion; you need to give reasons.

Some possible paper topics (papers available on Canvas in the Files section):

1. Benacerraf, "Mathematical Truth"

Benacerraf presents a version of the epistemological problem for mathematics.

2. Clarke-Doane, "What is the Benacerraf Problem?"

Clarke-Doane surveys a number of ways of understanding Benacerraf's argument in "Mathematical Truth", and argues that they're all unsatisfactory.

3. Maddy, *Realism in Mathematics*, chapter 2

Maddy answers the epistemological concern about set-theoretic platonism by arguing that we can perceive sets.

4. Benacerraf, "What numbers could not be"/ Wetzel, "That numbers could be objects"

Benacerraf gives a famous challenge to the idea that numbers are objects (which we may talk about in class); Wetzel answers his challenge.

5. Balaguer, *Platonism and Anti-Platonism in Mathematics*, chapter 1: "The epistemological argument against platonism".

Balaguer surveys and criticizes a number of different attempts to answer the epistemological challenge to platonism.

6. Balaguer, "A platonist epistemology"

Balaguer attempts to answer the epistemological challenge to platonism by defending the view that every consistent mathematical theory is true.

7. Clarke-Doane, "Morality and Mathematics: The Evolutionary Challenge"

Clarke-Doane argues that a certain challenge to the idea that we have knowledge in *ethics*—namely, a challenge based on evolutionary theory—is no stronger than a corresponding challenge to the idea that we have mathematical knowledge. (Much of the paper is about "meta-ethics", which is a quite different area of philosophy.)

8. Shapiro, *Thinking about Mathematics*, chapter 10: "Structuralism".

Shapiro distinguishes various forms of structuralism and defends one of them. (The final two meetings of our class are listed on the syllabus as being about structuralism. We may or may not get to those.)