

### Paper Assignment

The following are possible topics for your paper:

1. The synthetic theory of evolution, as articulated in the 1930s and 1940, is increasingly being challenged by evolutionary theorists who view its central tenets as providing too restricted an account of the processes responsible for evolution. Describe the main claims of the synthetic theory as initially developed. Present *one* of the issues on which critics have challenged the synthetic theory. Discuss whether this objection represents a fundamental alteration of the synthetic theory or a minor extension.
2. The question of what is a species has a contentious history. A central issue has been whether species are natural kinds with essences in the same way chemical elements are. One major alternative view holds that species are individuals. What is at stake in treating species as individuals? Identify at least one initially compelling argument for and against the view that species are individuals. Defend one of the views as the appropriate one to adopt either in biology generally or in specific fields of biology.
3. A common view is that natural selection should be understood as operating on genes—genes are the units that have fewer or more copies as a result of selection. Consider one other level at which some investigators have claimed that natural selection operates (organisms, groups, species, etc.) and evaluate whether entities at that level should be construed as undergoing natural selection. Make it clear what you take to be the conditions on an entity as a unit of natural selection.
4. Since Aristotle there has been a proclivity to adopt a teleological view of the traits of organisms, understanding them as performing functions. Consider two of the approaches to accounting for teleology in biology that have been proposed. Present what you think is the strongest argument for each of them, and then explain which one you think does the best job of explaining the teleology exhibited by living organisms.

This is to be a paper, which is different from an answer to an exam question. You set the problem and specific thesis of your paper and address it. Thus the question you address may depart from the ones posed above as long as the paper ends up with a good thesis. Make it clear what your thesis is. If you have a question as to whether a thesis you propose to argue for might drift too far from the questions posed above, ask me. Draw upon the reading and the class lectures to develop your arguments, and make them as compelling as you can. Don't assume your reader will figure out what you are doing and how the things you say fit together—make it clear. And remember that a title is your first opportunity to direct your reader's attention to what you are doing in the paper.

The overall evaluation of your paper will reflect both how well you do what you set out to do and how ambitious your project is. But be aware of the page limit—this is to be a short paper, 3-5 pages double-spaced (900 to 1500 words). Do not get so ambitious that you would need 10-20 pages to do what you set out to do. Typically, you will be better off narrowing your focus and developing a highly focused discussion in detail rather than pursuing a very broad issue superficially.

Write your paper for an intelligent audience, but do not assume that they have been in this class or have read what you have read. That is, you need to explain the relevant material to your audience, not just make an allusion and assume they will understand. You may ask others to read your paper and give feedback, but the writing is to be your own.

You should submit the paper electronically to the [papers@mechanism.ucsd.edu](mailto:papers@mechanism.ucsd.edu) in MS Word or .rtf format (not PDF). Please be sure that you do not have any computer viruses before submitting (I hope you don't have any other kind either). It is due by Noon on Wednesday, March 2.