

Chemistry 391 – Semester writing assignment: Paper Review

The journals published by *Science* and *Nature* often include short reviews of research articles that appear elsewhere in an issue to highlight the importance of the work to the scientific community. They are listed as “Perspectives” (*Science*) or “News and Views” (*Nature*). In Chemistry 391, you will be asked to select a research paper of your own to review and to prepare a 2-3 page (1000-1500 word) “Perspective/News & Views” paper that highlights the relevance of that article in the context of structural biochemistry and/or chemical biology. The paper MUST be drawn from the last 5 years of the literature.

The writing process will be completed in two steps, with a first (but **not** rough) draft due before Thanksgiving and a revised draft due on the first day of final exams. Although you shouldn’t expect to begin writing the paper until after break, it never hurts to begin perusing the literature, in search of potential topics. The relevant dates for the assignment are as follows:

Oct. 25 (Thursday after break) – Identify paper to be reviewed and email me a PDF or a link.

Nov. 20 (Tuesday before Thanksgiving) – Submit first (but not rough!) draft of your paper. Note that a substantial fraction of the evaluation on this assignment will rest with your first draft.

Dec. 10 (Monday of finals week) – Final draft due.

Choosing a paper

The article you choose must clearly have a chemical perspective, linking structure to function (where function is related to thermodynamics/equilibrium or kinetics). You may not use a paper we discuss in class or that has appeared in a problem set as your focus. Please feel free to contact me if you’re unsure of the suitability of a given topic/paper.

My almost dictatorial stance is that the paper must come from one of the following journals: *Science*, *Nature*, *JACS*, *PNAS*, *ACS Chemical Biology*, *Nature Chemical Biology*, *Nature Structural and Molecular Biology*, *Angewandte Chemie*, *EMBO Journal* or *Cell*. These are journals that have high editorial bars for impact, so the papers that appear there are likely to provide good fodder for this kind of review.

Along the way, you may choose to take advantage of several search tools that will help you comb the scientific literature. My favorites are: Web of Science, PubMed and Google Scholar. But other resources are available as well. I encourage you to consult with Robin Ford (fordr@reed.edu), Reed’s science librarian, to learn more about literature databases and other topics in information retrieval.

Some Comments on Reading and Writing

- Although you shouldn’t use review articles as sources for this paper, they may be useful to you in hunting down sources, but even more importantly they can help you identify useful ways of expressing ideas and phrasing issues. Read several, especially those in the News and Views section of *Nature*, and find a writing style you like and use that as a model for your own.
- Your review will be characterized by a first paragraph that broadly introduces the area of concern. For example, if you are reporting on a study that looks at enzyme X implicated in disease Y, your first paragraph will probably discuss the challenges of disease Y. The second paragraph will then narrow in on enzyme X and its role in disease Y. Typically the last sentence of that paragraph will

identify a key concern that the paper of interest addresses. Then you can begin your overview of the study, with a final summary paragraph that points to future needs/directions.

2. In many instances you may want to use a figure from an existing paper to illustrate your own paper. Please cite the source of the figure, and also – please note this especially – REWRITE the caption. The figure is now in the context of your document and needs to be explained in that context. Also, using a full caption without quotation marks is not different than copying paragraphs of text.

3. As with any assignment for this class, I assume that the work you submit is your own. In this case, it means that the structure of your paper and even the structure of individual sentences and paragraphs follows a logic that you construct yourself. Of course, you should take great care to cite any literature you use in framing your paper, but if you do feel the need to paraphrase or use a direct quote, be sure that it is clear you are doing so (i.e. via indentations or quotation marks) and cite the source carefully.

4. Citations may be identified in the text however you like (numbered footnotes, or names of authors) but please take care that your bibliography include the title of the citation in addition to author(s), journal, volume, pages and year.¹

The document should be double spaced in single column format, and be submitted as a PDF via email.

Some examples

Here are some short reviews from *Science* and *Nature* that might help you think about what's expected. Definitely look at the article being reviewed as well.

1. A. Berlin (2013) No Barriers to Cellulose Breakdown. *Science* **342**, 1454-1456.
<http://science.sciencemag.org/content/342/6165/1454>
2. S. G. Sligar (2010) Glimpsing the Critical Intermediate in Cytochrome P450 Oxidations. *Science*, **330**, 924-925.
<http://science.sciencemag.org/content/330/6006/924>
3. N. K. Karpowich & D. Wang (2010) Transporter in the spotlight. *Nature*, **465**, 171-172
<https://www.nature.com/nature/journal/v465/n7295/full/465171a.html>
4. A. Hernández & J. Piccirilli (2013) Prebiotic RNA Unstuck. *Nature Chemistry* **5**, 360-362.
<http://www.nature.com/nchem/journal/v5/n5/full/nchem.1636.html>

¹ A. Glasfeld (2017) Writing Final Papers in Biochemistry. *J. Biochem. Ed.* **11**, 56-62.