

Some pointers for reading a scientific paper

- Make special note of *who* the authors are. What are their qualifications? What are potential conflicts of interest? (I'd be very wary of a paper on evolution if it came out of the Institute for Creation Research; likewise for a paper on climate change coming from an oil company.)
- Make special note of *when* the paper was published, and *in what journal* it was published. Has the paper been subject to peer-review? (You can assume all mainstream journals, such as those you find on the CWU e-journals website, are peer-reviewed.)
- Read the abstract, introduction, and conclusions first.
- Pay close attention to the figures and tables and their captions.
- Don't get bogged down in the details. Don't give up if you don't understand the Materials and Methods Section or you fall asleep during the Results Section! As with the novel *Moby Dick*, it's often better to read different parts of a paper at different paces.
- Don't shut down when you come across math. Read through the equation slowly; what's the relationship between different variables? Often it's easier than you think!
- If you're new to a subject, the jargon may get to be too much. Keep a dictionary (preferably a geology dictionary) or Google on hand. Usually Wikipedia.org comes through in a pinch.
- Pay attention to the references cited. Often these are the most valuable part of the paper; they provide an entry into the literature. Also avail yourself of the Science Citation Index (= Web of Science), which tells you which papers have cited the paper. (Isn't that great? Now you can go backward *and* forward in time.)
- Be an *active* reader, not a passive one. This means you should:
 - Ask yourself big-picture questions, such as:
 - What's the main point of this paper?
 - How do the authors prove – or try to prove -- their point?
 - What is the hypothesis they want to test?
 - What are the results?
 - How do the authors interpret these results?
 - What are the implications of these interpretations?
 - What are the potential weaknesses of this paper? (The answer, by the way, is hardly ever 'none'. And you don't always have to be an expert to spot weaknesses. Often all you need is the ability to think logically.)
 - Take notes, even if it's just a few lines. Try your best to write in your own words. This will help you digest the information and remember it. Write in the margins by critical points and sum up your thoughts in a couple sentences at the top of the first page – that way if you come to the paper a year from now, you won't have to start from scratch.
- When you're done, call your mother/significant other/friend/roommate/coworker and tell him/her you just read a really interesting/stupid/brilliant/crazy paper. Then tell him/her what the paper was about. Succinctly. Don't cheat by looking at your notes or the paper itself. If you can't do this without cheating, you didn't understand the paper. Go back and study it again.