

## How to write a science term paper (and do well on it)

For your term papers, there are a few requirements that might be different than for other courses. This brief guide is designed to help you understand what we want for your term paper, and also what some of the differences might be in a science paper vs. a history or English paper. There are some important structural differences that are key to scientific writing. The most important points are:

1. **Do not use direct quotes.** In scientific papers, standard practice is to REPHRASE information in your own words, and then cite the author you gathered the information from. For example, if I wanted to reproduce the information in the following few sentences:

“This is likely due to the method employed during crushing, in which crabs initially load the shell between their chelae and produce stress until the shell fractures. Shell failure at this stage tends to fracture one or both valves into multiple non-diagnostic pieces. If this method of breakage was unsuccessful, crabs resorted to taking multiple chips out of the margin to breach their prey, producing a far more diagnostic predation trace.” (From Kosloski, 2010)

I would write them up possibly like this:

Crabs crush shells by loading them between their chelae and stressing them until they break. When they break using these methods, valves are fractured non-diagnostically. If the crab cannot break the shell this way, it will attack the shell marginally, which often removes multiple chips and results in a more diagnostic predation trace (Kosloski, 2010).

Or like this:

Kosloski (2010) found that crabs initially try to crush shells by loading them outright; if this fails they employ a different method where they chip the shell margin, which results in a more diagnostic predation trace.

Or any other way. There are a lot of different ways to do this, just make sure you rephrase and cite, cite, cite unless you researched it or are stating the conclusion you have drawn independently from a synthesis of others' data. Direct quotes should not be used; however be very careful to cite any information you pull from other sources for your paper. To not do so constitutes plagiarism.

2. **Do not use footnotes!** All of your citations should be at the end of the paper in a section titled References. Cite as following: (what is in parentheses is how you should cite the article in text, what follows is how to reference the article at the end).

Article with one author: (In text: Landers, 1954)

Landers, W.S., 1954. Notes on the predation of the hard clam *Venus mercenaria*, by the mud crab, *Neopanope texana*. *Ecology* 35, 422.

Article with two authors: (In text: Zaton & Salamon, 2008)

Zaton, M., Salamon, M.A., 2008. Durophagous predation on Middle Jurassic mollusks, as evidenced from shell fragmentation. *Palaeontology* 51, 63–70.

Article with multiple authors: (In text, Wong et al., 2010)

Wong, M.C., Peterson, C.H., Kay, J., 2010. Prey size selection and bottom type influence multiple predator effects in a crab-bivalve system. *Mar. Ecol. Prog. Ser.* 409, 143–156.

Book: (In text: Vermeij, 1993)

Vermeij, G.J., 1993. *A Natural History of Shells*. Princeton Univ. Press, Princeton, New Jersey.

3. **Always put genus and species names in italics**, with the genus capitalized and the species in lowercase, as follows:

*Busycon carica*

*Menippe mercenaria*

*Mercenaria mercenaria*

4. **Include page numbers!**

5. **Use peer-reviewed journals** for your required articles. You can use your textbook in addition to these sources; however, your textbook is not peer reviewed so it does not count as one of these sources. This is very important from a scientific perspective—using research journals where there is a peer-review process guarantees that there is oversight to the author’s assumptions and methods. This is a fundamentally important part of doing science.

A good place to start your search is at <http://cornell.edu/libraries>. If you search within the “article” field (see Figure 1 & 2) for subjects pertaining to the different mass extinctions (i.e., Permian Triassic mass extinction, Devonian extinction), it will link you to a variety of different article names (Figure 3). Click “Get it Cornell!” if it is available and it will usually take you to the actual article. You can also search within your results and narrow them down to only results from academic journals. Looking through the article you select and checking their reference list is then an excellent way to find more articles for your term paper, many of which you can access via the Journals tab in the initial search engine.

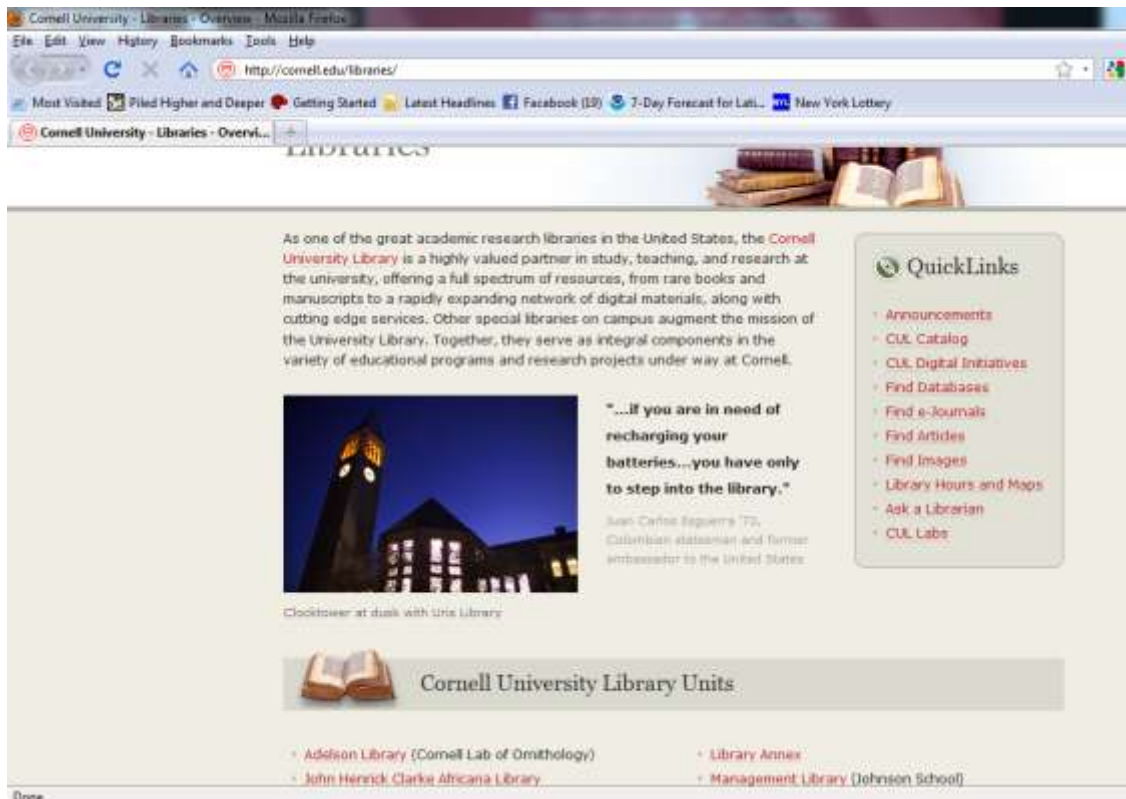


Figure 1. Quicklinks has your different search options.

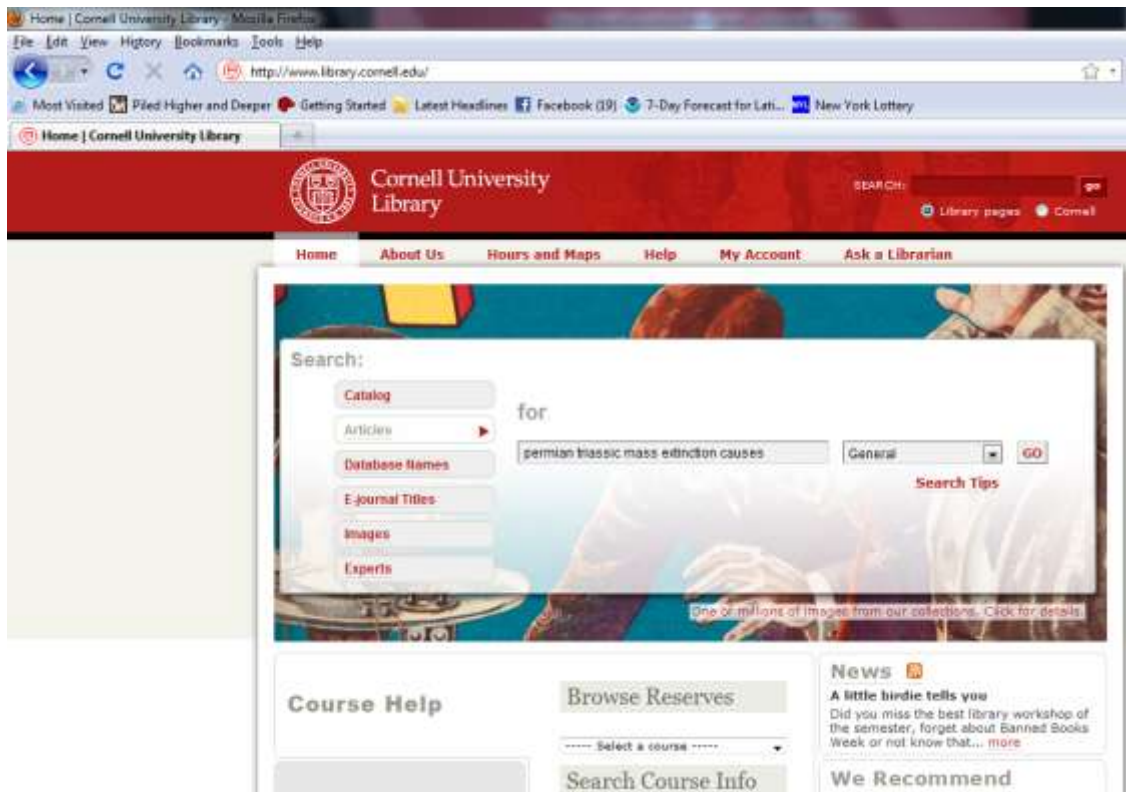


Figure 2. Articles search field.

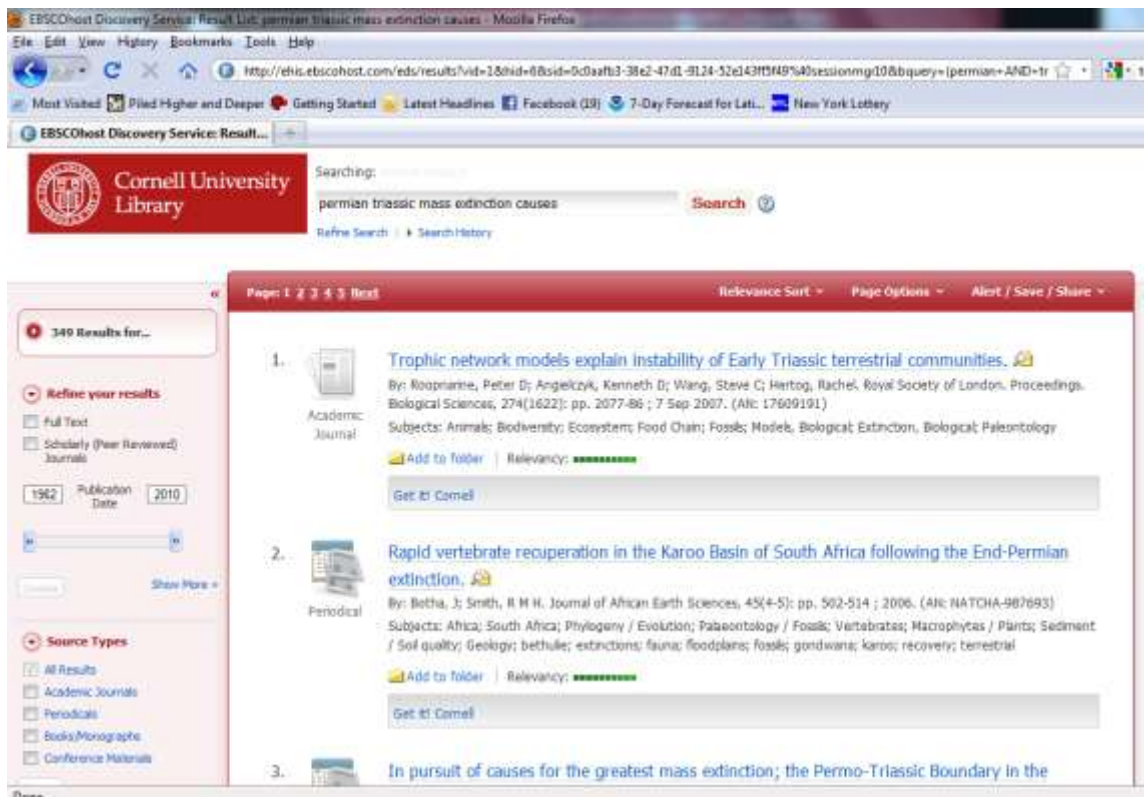


Figure 3. Search results. Note, on the left, that you can select Academic Journals to make sure you get peer reviewed sources. Clicking Get it! Cornell will bring you to article links or journal links.

Cornell has at their library both an excellent collection of journals in physical hard copies and available online. Feel free to consult with the librarians or your TA about how to access and search these journals if you have not done so before; the library also has an excellent online search engine that lets you look for individual journals, articles, authors, etc. Also, to note: looking through the references of the articles you find is an absolutely excellent way to find more articles to use! So pay attention to who they cite.

6. **Synthesize:** we don't just want you to rephrase a bunch of different authors, we do want you to evaluate competing hypotheses and to see how they relate to one another and how the evidence and data support different hypotheses. Do consider competing hypotheses, however-- I should come out of this paper knowing which hypothesis you support and why.

Good luck, contact your TA or professors if you have any questions!