

How to Write a Formal Critique of a Paper in Molecular Ecology and Evolution

As one of your assignments, you need to write a formal critique of two of the papers that we are discussing this semester. I am expecting these assignments to be very much like a review for a paper that has been submitted for publication. Although it is not necessary to follow the format below exactly, you should be sure to include all important information. I'm expecting that you will need about 2-3 pages, but this is not a requirement. If you can write a clear, concise, and complete review of the paper in 1 page (doubtful for most papers), fine. If it takes you 5 pages to write a **clear, concise**, and complete review (again not common) then that is fine too. You will be graded on content AND writing style.

I) Quick summary: start your review with a short (i.e., 3-4 sentences) summary of the paper. Include the overall goal, methods used and general conclusions of the paper

E.G.:

Hedges et al. use microcomplement fixation of blood albumin to determine the degree of genetic relatedness between a number of different frog, lizard and snake species from throughout the Caribbean and North and South America. The genetic estimates of times since divergence were related to geological information on the formation of land masses where the species are found to infer when these taxa colonized these areas. In general, they found a more recent time of divergence than expected based on the geological data. Extirpation by the Cretaceous bolide impact is suggested as the proximate cause for the discrepancy.

II) Materials and Methods: briefly summarize the numbers of samples, sample location, method of assay, method of analysis, and other information that are **important** to the interpretation of the data.

III) Results and Discussion: This is the most important part. Briefly summarize the results of the data collected. Indicate where there are weaknesses and strengths in the data. Move quickly onto a summary of the findings and emphasize how well the **collected data** support their conclusions. I emphasize "collected data" because this is a commonly difficulty to determine with papers. Often, if the collected data do not support the a priori beliefs of the authors, they do not let this stop them from drawing conclusions consistent with their beliefs, but not their data.

IV) Suggestions of further studies or resolutions to the above mentioned limitations: It is one thing to be able to see the flaws in a piece of work, but an entirely different thing to make positive, constructive suggestions on how to better the research (either by advancing or correcting). Include as a last paragraph how you might improve on the research or resolve any difficulties that you have pointed out.