Aquatic Ecology (ECOL 152)

Critical Thinking About Scientific Literature - Journal Paper Presentation

Here is a list of questions you should ask about the different sections of a scientific paper. Because many papers in the literature are poorly written, you may not always come up with a good answer! Use these questions as a general guideline for your journal paper presentation. Include the paper citation in your presentation, including: title, authors and their institutional affiliation, year published, journal, volume, and page numbers.

Introduction

What hypothesis is being tested?
Is it explicitly stated anywhere in the text?
If not, can the questions the study addresses be recast as working hypotheses?
Does the hypothesis describe a mechanism, or is it just a statement of pattern?
Where did the hypothesis originate?
Why is the question worth asking?
Has the literature and background material on this topic been accurately summarized?
Have opposing viewpoints or alternative ideas been discussed?

Materials and Methods

What kinds of data have been collected to address the hypothesis?
Do these data constitute a strong or a weak test of the hypothesis?
Are the experiments and/or statistics appropriate?
If not, how could they have been improved?

Results

What are the results of the study?
What assumptions are necessary to relate these results to the original hypothesis?
Does the description of the results in the text correspond to the data given in tables and figures?

Discussion

Was the original hypothesis accepted or rejected?
Were any results presented that contradicted the hypothesis?
If so, how were they addressed?
If not, what results would have contradicted the hypothesis?
What other hypotheses might explain the author's results?
What additional data would be needed to distinguish among these competing alternatives?
How might the original hypothesis be refined in light of this study?
What sort of data would cause you (or the author) to discard this hypothesis entirely?
Does the study stand on its own merits, or does the author rely on reference to authority, theory, or other published examples to bolster the conclusions?