

How to read a scientific paper

Different people approach reading scientific literature a little differently. This is a guide that you may find helpful as you develop your own strategy for reading, understanding, and critiquing scientific literature.

I. Read the abstract

II. Ask yourself the following questions:

- A. What is the authors' hypothesis?
- B. What tools are the authors employing to test the hypothesis?

III. If there are phrases or terms that are foreign to you, scan the Introduction section of the paper to determine if they are clarified.

- A. If so, take brief notes to remind yourself of key phrases, terms, ideas
- B. If not, look for other literature (in this class, you'll probably find the background you need in the "background," "review," and "Preview" papers that I've assigned).

IV. Based upon your understanding of the background, go back and ask yourself what kind of results you'd expect to find in the paper if the authors effectively support their hypothesis.

(For example if a paper hypothesizes that two proteins work together to perform some function, you might predict, without even reading the rest of the paper, that the authors would demonstrate some sort of physical interaction between the proteins).

V. Read the introduction

VI. Read the results and analyze each figure

- A. Be sure you understand the set-up of the experiments shown in each figure
- B. Ask yourself what the authors are trying to demonstrate with the given experiment
- C. Ask yourself what the positive and negative controls for the experiments should be
- D. Carefully analyze the data presented
- E. Determine if the authors, with the given experiments, support what they are trying to demonstrate in "B."
- F. If you think that there are problems with the interpretation, determine how the experiment could be modified to better support the authors' claims

VII. When you have gone through the results, assess for yourself if the authors support their hypothesis (IIA. above)

VIII. Read the conclusion and ponder the long-range implications of the work and the future directions