

How to read a scientific paper

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How to read a scientific paper?

- Reading a scientific paper is not easy, especially if you are unfamiliar with the subject matter of the sub-discipline of geology
- Not only true for undergrads but also for more experienced geologists and professors.
- Note there are different kinds of papers: e.g. reviews, specific topics, short communications
- Here are some hints and tips on how to read papers without becoming overwhelmed.



How are scientific papers organized?

- Typical paper organized as follows:
 - Abstract
 - Introduction
 - Methods (details of procedures)
 - Results (objective description of data obtained)
 - Discussion (interpretation of data)
 - Conclusion



How to start to read scientific paper:

Suggestions

- Don't expect to understand it all; it takes years of reading the literature in one's own field to be able to follow papers easily.
- Start by reading the abstract. Look up any words you don't know, or post a question on the LEARN discussion group.
- Flip through the paper
- Read the conclusion
- Look over the figures. Usually figures are used to present the author's data and make interpretations from this data. What main points are the authors trying to make in each figure?
- Read the introduction. Usually the introduction gives you a good overview of the topic and how the author's contribution is important and fits into the field of study.



Look over the paper in more detail

- The methods section of papers can be hard to read, especially when you aren't familiar with the techniques they are using.
- Skim this section and try to get an idea of what techniques they are using and what scientific questions they are trying to answer. Don't get bogged down in the



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- Skim over the discussion section and see if you can determine the main points the authors are trying to make.
- Don't worry if you don't understand their reasoning for each point they are trying to make. One way to do this is to read the first and last paragraphs of each section in the discussion, and try to decide what points the authors are trying to make



Look over the paper in more detail

- Look over the figures again and think about how they are helping the author to make any points you have just read about in the discussion.
- If you are ready and want to understand more detail, work through the details in the paper.



Final hints

- Skip anything you are having problems understanding. If you are getting frustrated, **STOP READING!!**
- If you feel the paper is really relevant, and you are having difficulties understanding it.....ask. You can ask your fellow student, someone else in the laboratory, your supervisor or course coordinator. Don't be afraid to ask



Source

- Adapted from: L. Elkins-Stanton,
Massachusetts Institute of Technology,
<http://serc.carleton.edu/NAGTWorkshops/index.html>

