Reading and Writing Science

**Using Scientific Literature**

As you explore the scientific literature, it is important to appreciate the distinction between its different forms. The primary literature consists of journal articles, in which scientists describe and interpret the results of their investigations for the benefit of others in their field. You probably have little experience with the primary literature, and one of our goals is to help you learn to use it. The secondary literature is variable in form and quality, ranging from scientists synthesizing a body of primary literature for other scientists, to scientists writing for the general public, to journalists writing about science for the general public. In this course, you will use and cite primary literature in your investigation.

**Some Tips for Reading Primary Literature**

1. Read the title. What does it mean? Write down all the questions that it raises.
2. Now read the summary/abstract. The abstract will usually provide complete clarification of the title, and describe the essence of this study. You should be able to answer all of the questions you had from the title (if the abstract is well-written and you are sufficiently well informed on the subject matter). In turn, the abstract may raise further questions. The abstract is only intended to summarize the important aspects of the study, so you will need to read the body of the paper to assess the quality of the data and the interpretation of the results upon which these conclusions are based. Similarly, reading the body of the paper will allow you to assess whether the methods and statistical analyses performed were appropriate for the question being examined.
3. Read the introduction. This is an important section because it tells you something about what is already known regarding this subject, provides any background you might need to understand the work, and it should clearly set forth the experimental question(s) the authors were addressing in their work. At this point you should have a good idea where the paper is headed. When you are finished reading the abstract and introduction you should ask yourself, what are the authors doing in this paper and what is the overall importance of their work. As you read, if the authors use terms or introduce concepts that you are not familiar with, you should consult your textbook to see if it can provide any clarification.
4. Next look at the figures, graphs and tables. Read the legends and try to ascertain what’s being presented visually. Is their relevance obvious to you? How do YOU interpret the data? It’s worthwhile taking a moment to jot down any results that seem significant to you, prior to reading the authors’ interpretation of the data.
5. Prior to reading the content of the paper, check the references and notes section for information-rich notes. Note the numbers of these references and highlight these numbers in the text. When you are reading the paper, you will now know which references are worth checking for further information that may be of interest to you.
6. Now it’s time to read the content. Read through the body of the paper in its entirety and then try to answer the questions that arose from reading the abstract and title. If all questions are answered you should have superb notes that have helped determine the essence of the study and why you were interested in it in the first place.
7. If you have not been able to answer your questions, try to sort out why. This type of analysis is essential if you are to learn from the primary literature, rather than simply being overwhelmed by it. Is your knowledge on the subject matter inadequate? Is the paper poorly written?...

**See the Grinnell College writing science guide**

**Guidelines**

Font should be Times New Roman 12 pt and margins should be 1 in. The document should be single spaced with a title and author section. The methods are written in past tense. Most of the rest of the paper should be in present tense. Make sure to cite your sources.