

Graduate Term Paper for FCH 510

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All graduate students enrolled in FCH 510 are expected to write a comprehensive critical review on a topic relevant to aquatic chemistry. The goals of this assignment are: 1) to motivate you to begin to critically evaluate research articles that you read (as opposed to "believing" everything you read as truth), and 2) to gain experience in writing a comprehensive paper in environmental science. Below I have briefly summarized a few comments that hopefully will aid you in writing your critical review. If you have queries that are not addressed here please do not hesitate to stop by to discuss them with me.

- 1.) Your review should be focused. If you choose a topic that is too broad you will never be able to critically evaluate that topic in the time-frame of this course. This is one of the reasons why I want you to discuss your proposed topic with me. Do not choose a topic to critically evaluate that is similar to your M.S. or Ph.D. project.
- 2.) Your critical review should be on a topic encompassing many papers, and not on one paper! You should conduct an exhaustive literature search on any topic that you choose. In addition, as you may already be aware, you need to understand the chemical concepts/techniques relevant to your topic, even if we have not gone over them in class. For example, if you are writing a critical review on the photochemistry of iron in lakes, you need to find out everything that is known about the biochemistry and chemistry of iron in natural waters. Additionally, you will need to become familiar with the basic principles of photochemistry.
- 3.) Confine your critique to chemistry and biochemistry; do not, for example, discuss politics or EPA protocols!
- 4.) In your critique, pay particular attention to the methodology (e.g., are there potential artifacts?), experimental design, assumptions, and interpretations of the results.
- 5.) You can hand me drafts of your paper, prior to the deadline, that I will review and return to you with comments. The latest date that you can hand me a draft is three weeks before the due date of the paper.
- 6.) Do not paraphrase or copy other authors' words. This is an absolute no!
- 7.) For your review, focus on refereed journal articles (RJA) and not review articles or book material. An RJA can be identified by the fact that it has an introduction, methods, results, discussion and a conclusion. It also has a "received date" and an "accepted date" noted somewhere in the text. Some good journals to choose from include *Nature*, *Science*, *Environmental Science and Technology*, *Limnology and Oceanography*, or the *Journal of Geophysical Research*.

Choose topic by: February 21

Outline including key references: March 7 **(optional)**

Deadline for drafts that you want me to review: April 4 **(optional)**

Deadline for final draft to be handed in: May 2