

## BIOE 155 – *Freshwater Ecology*- Term paper

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<b>Assignment</b>	<b>Due Date</b>	<b>Credit</b>
<b>1. Your topic</b>	<b>Nov 12</b>	<b>2%</b>
<b>2. Annotated bibliography and outline</b>	<b>Nov 24</b>	<b>3%</b>
<b>3. Review paper</b>	<b>Dec 3</b>	<b>15%</b>

Your assignment is to write a review of a topic related to freshwater ecology, supported by primary scientific literature. When writing the review paper, keep these objectives in mind (because that's our goal for you):

- refine your skills at critically evaluating scientific papers in a historical context
- become familiar with using reference databases in libraries
- develop scientific writing skills
- gain expertise in an area of freshwater ecology

This assignment has three components:

1. *Your topic.*--Keeps you on track! Submit a 1 – 2 sentence description by Nov 12 via email. Send this in the text of an email to both Jon and Ann-Marie. If you are having trouble thinking of a fun topic you are excited about, talk to Jon or Ann-Marie.
2. *Annotated bibliography and outline.*--The goal of this assignment is to help you through the process of scientific writing. The outline will enable Jon and Ann-Marie to provide you with constructive feedback on your essay, and will hopefully make writing the final version of the term paper easier. Submit the hard copy in class.
  - a. An annotated bibliography is a list of peer-reviewed scientific papers that you are considering reviewing in your paper, and a short (1 to 3 sentence) summary of findings relative to review. This bibliography should be in correct scientific format (see example provided). There should be a minimum of 5 papers from the scientific literature in this bibliography. Submit the hardcopy, in class.
  - b. The outline of your paper is meant to help organize your thoughts about your review. Consider the outline as a skeleton of your paper. What we must find in your outline:
    - i. A title
    - ii. A general statement of objective
    - iii. A bulleted list of topics. These topics should be ordered logically. Each of topic should contain:
      1. Your claim (the major headers). Do not go into any detail for any of your major headers, just write one sentence per idea.
      2. A description of what you will support those claims. Some techniques to achieve this include figures, tables, and verbal descriptions of data (no need to include actual figures, etc.).

3. *Review paper.*--The term paper should be a brief essay (5-6 double-spaced pages of text) that discusses a topic related to freshwater ecology drawn from the scientific literature. This is your opportunity to learn more about an aspect of freshwater ecology that **\*you\*** are interested in. Essentially, a review summarizes the scientific understanding of a general subject. You want to provide an interesting synthesis of a topic within freshwater ecology. The best papers will use a combination of older literature to provide a historical perspective on the topic and will also provide information from recent papers to illustrate advances on this topic. Your paper must include:
  - a. A title and four general sections: 1. introduction, 2. body of paper, 3. conclusion and future directions, and 4. literature cited (no need to use those headings though).
  - b. Examples of data that support your claims accompanied by the citations that you read to come up with the data. These data can take the form of tables, graphs, or verbal descriptions.
  - c. At least 5 papers from the scientific literature to provide a thorough overview of your topic.
  - d. The literature cited should list all of the papers you cite in your project. See the reference section of papers from the journal *Ecology* or *Limnology & Oceanography* for examples.

We suggest the following steps to researching a problem in the library, and writing your review paper.

- 1) **Find an interesting paper.** Find a recent paper (e.g., published between 1995-2005) from the peer-reviewed, limnological literature that presents a scientific finding **on a topic that is interesting to you!** These journals are good places to for interesting papers:

*Limnology and Oceanography, Ecology, Ecological Applications, Canadian Journal of Fisheries and Aquatic Sciences, Journal of the North American Benthological Society.*

- 2) **What is the main point?** Carefully read your focal paper and determine what the authors' main scientific discovery was. Is this interesting to you? If not, find a paper that is.
- 3) **What historical research inspired this work?** Find some papers that inspired the research of the focal paper.
- 4) **What new research has been done that refines or refutes the discoveries of your topic?** These papers may refine or refute the discovery presented in your focal paper.
- 5) **What research might be done now?** Based on your review, provide suggestions for what research might be done next to further develop the progression of ideas you have summarized.

Please consult the following website for helpful hints on how to write a review paper:

<http://www.uwlax.edu/biology/communication/ReviewPapers.html>