

Aquatic Biology

Writing Assignment – Fall 2016

The components of the writing assignment includes confirming your research topic (10%), creating a reference list (20%), rough draft (30%), peer review (10%) and final paper (30%). Assignments are due at the beginning of the class period on the due date; late assignments will receive a 0, but will be marked and returned to the student. All writing assignments must be typed on a word processor (keep your spell-checker on).

Being able to write in a scientific style is one of the most important skills in any field of science. Limnologists are constantly communicating their findings in reports and manuscripts, and in order to assure quality progress in this field these papers go through a critical review process. Most scientific journals operate with a 70% rejection rate, so even the best papers receive extreme scrutiny. In this class, you'll practice scientific writing *and* editing, with the opportunity to review another paper, have your paper reviewed by someone else (as well as me) and then re-submit yours once it's fixed up.

Here's how it works:

You will be writing a 10-page (double spaced) term paper on a hot topic in aquatic ecology. The paper will be written in the scientific style rich in literature citations. After confirming your topic (see below), you will be expected to do a thorough review of recent literature on the topic. Your paper will then introduce the topic to the reader, provide a background in the development of the field, discuss differing opinions in the literature and then make recommendations of how discoveries in the field might progress through new science. The specific steps to get you to this point are provided below:

1. Paper Topic (10%)

The paper will be about the effects of global climate change on a particular aspect of aquatic ecology. Review the topic list below and select a few topics you would be interested in doing. You must come to my office and discuss your topic and ideas on how to proceed. For this assignment all you have to do is select your topic from the list, confirm that topic with me during our 1-1 meeting, come up with a title that contains that topic and the words "climate change", and upload as either a Word or PDF to the Bb website (no other file types will be accepted and will receive a zero). Please consult course calendar/Bb for due date.

2. Bibliography (20%)

Now you need to gather all of the recent and relevant literature on your topic. You should use ISI Web of Science - Science Citation Index, Google Citation, Jstor, Etc. to find primary literature relevant to your topic. I anticipate you will need to find and read at least 30 relevant papers in order to have a good enough understanding of your topic to make an appropriate reference list. You need to start this assignment early because some of the papers will not be available in the library or through the library web-portal and so will need to be ordered by interlibrary loan. Out of those ~30 papers, pick the 10 most relevant to write up into a bibliography. Your bibliography needs to be

formatted in the style presented in papers in the journal [Limnology and Oceanography](#) (“L&O” - click on this link and find a paper to use as a guide for formatting your reference list). At least 8 of the 10 papers cited need to have been published in the last 5 years. Put your name and paper title at the top of your paper and list your papers exactly as indicated for the journal (in alphabetical order and following the indicated style). Attach the first page of each of the 10 papers to your bibliography (not the abstract you get from ISI or web browser but the actual first page – I want to be sure you have the papers in hand). Your grade on the bibliography will be determined by relevance and appropriateness to the topic (10%), attached 1st pages (5%) and style (5%). Please consult course calendar/Bb for due date.

3. Rough Draft (30%)

Now it is time to prepare your manuscript. This would be the draft submitted to an editor of a journal for publication and therefore represents your best possible attempt at publishing (remember the 70% rejection rate, even before review!). The paper needs to be fully referenced in the style of a scientific manuscript and should be 10 pages in total (undergraduate) and 15 pages in total (graduate) excluding bibliography using double space, 1-inch margins, 12 point *Times New Roman* font. Aside from the first page, the manuscript should flow as one continuous document with headers in bold to divide the indicated sections.

Title, Name, Key Words, Abstract (Page 1) - This should be formatted as in the style of [L&O](#). The abstract is a summary of what you present in the paper.

Introduction (1-2 pages) – An overview of why your topic is important – introduce the reader to the topic and the latest understanding of it in the literature.

Background (1-2 pages) – Provide the history of the development of this field (you may include here literature citations older than 5 years) leading to the current understanding.

Current research (2-3 pages) – Provide a full discussion of the current state of research in this field (2-3 pages).

Future research (1-2 pages) – Provide a discussion of where the research is heading, what will be the next steps to address controversies or questions arising from current literature.

Literature cited – Your bibliography of at least 10 references cited in the paper – they do not need to be the same as those submitted earlier.

You will need to submit your paper by class time on the due date to the Bb website. Please consult course calendar/Bb for due date.

Review (10%)

Each student will receive another student’s papers to review. The reviews will be anonymous (neither the author nor the student will be revealed to either student). Once you receive your paper to review (the class period after they are turned in) you must grade it according to the provided rubric. Fill out each section and then upload it to the Bb website. You **MUST** also write comments on the hard copy of the draft you receive – any grammatical markings and comments must be written directly on the draft and turned in in person at class time on the due date. I will then receive these reviews and act as the

editor of the submission journal. I will grade your review based on how thoroughly you examined the manuscript and then grade each paper based on the reviews I receive and my own assessment. I will then provide the review, my assessment and grade and the marked rough draft back to each student. Please consult course calendar for due date.

4. Final Draft (30%)

Using the remarks from the reviewer and editor (me) on your draft and rubric, correct your manuscript and re-submit it to the Bb website by class time on the due date. Your final draft will be graded according to the same rubric as the rough draft.

TOPICS: Effects of climate change on...

1	Freshwater sustainability
2	Aquatic ecosystem services
3	Aquatic life in cryosphere
4	Ice cover duration in lakes
5	Thermal stratification
6	Lake mixing
7	Watershed runoff and streamflow
8	Evaporation of surface water
9	Wetland transpiration
10	Groundwater table
11	Light penetration
12	Ultraviolet radiation penetration
13	Lake and wetland drying
14	Dissolved material transport in streams
15	Wetland hydrology
16	Microbial diversity
17	Phytoplankton succession in lakes
18	Cyanobacterial blooms
19	Deepwater algal blooms
20	Aquatic invertebrate life cycles
21	Zooplankton behavior
22	Zooplankton succession
23	Invasive invertebrates
24	Nutrient loading to lakes
25	Nutrient loading to streams

26	Internal nutrient loading in lakes
27	Oxygen distribution
28	Aquatic metabolism in lakes
29	Aquatic metabolism in streams
30	Carbon cycle in wetlands
31	Carbon cycle in streams
32	Carbon cycle in lakes
33	Phosphorus dynamics
34	Nitrogen dynamics
35	Salinity in closed basins
36	Pollutant cycling
37	Lake trophic state
38	Fish habitat
39	Fish behavior
40	Fish distribution and diversity
41	Waterfowl
42	Fisheries
43	Phytoplankton diversity
44	Microbes in wetland soils
45	Paleoecology – sediment accretion
46	Paleoecology – pollen records
47	Paleoecology – algal records
48	Coastal lakes
49	Fish migration
50	Water-borne diseases