

LITERATURE ASSIGNMENT

Scientific research builds upon previous scientific research, which is why knowing the background context for a particular topic is critical for designing experiments and making sense of results. Understanding the relevance of a new experiment also depends upon knowing the appropriate scientific context. The Introduction section of a scientific report should provide the reader not only with the relevant background material (i.e., previous research findings), but explicitly link this information to the present study. This assignment will start you exploring the literature that pertains to the stream ecology project – it is only a start, as you will need to find additional references and gain a solid understanding of factors that influence the ecology of stream organisms.

ASSIGNMENT

1. As a starting point, **read the Stream Ecology lab instructions and the paper by Morley & Karr (2002)**. This paper (posted on the course website) should serve as a practical guide for how a scientific report should be structured and how primary literature is incorporated into a report, as well as a jumping off point for your literature search (see Web of Science instructions on the back of this page).
 - a. **Generate hypotheses for our experiment.** We will discuss the structure of hypotheses on the first day of class and generate several different ones during the course of that discussion. Based on these and your reading of the stream lab instructions, you need to state at least one clear hypothesis for our upcoming research experiment (more are ok, as your paper should have at least 2-3). Note: you don't need to have exactly the same ones as the rest of your group – this is an individual assignment.
 - b. **Summarize in 2-3 sentences (double-spaced!)** how the Morley & Karr paper relates to your hypotheses for the stream ecology project.
2. Each group will be assigned a topic from the following list:
 - a) Effects of land use on watersheds and streams
 - b) Stream invertebrates as a tool for stream assessment
 - c) Biotic indices/metrics as tools for stream/habitat assessment
 - d) Padden Creek, Chuckanut Creek, or other Pacific Northwest stream studies
 - e) Linking stream water quality to biodiversity, salmon habitat, or other ecosystem services (benefits people derive from natural ecosystems).
 - f) Effectiveness of stream restoration

Each person within a group needs to find 1 paper on their group's topic, so that the class will end up with several *different* papers on each topic. Look for current articles first; at least two of the papers from each topic should be from the last 6 years (2004-2010). Be in touch with your other group members – no duplicate papers allowed.

For each paper the following information is required:

1. Turn in as a hardcopy:
 - A **properly formatted citation** (use the format shown in the Paper Guidelines handout).
 - The category (from above) of your paper.
 - A statement of the **critical question** being investigated by the research, **how they tested** that question, and a brief summary of **what they found** (i.e., you must read the paper!).
 - A statement of **how the research relates to your hypotheses for the stream ecology project**.

2. Email to your instructor and the TA:

- **A .pdf of the electronic version** the article. See strategies below for getting a .pdf. If you can't get one, we'll need a hardcopy, but .pdf is strongly preferred.

Below is an example of how you should format your annotated citation.

Morley S.A., J.R. Karr. 2002. Assessing and restoring the health of urban streams in the Puget Sound Basin. *Conservation Biology* 16:1498-1509.

- The paper by Morley and Karr (2002) addresses the question...
- This relates to the stream ecology project because the researchers ...

FYI - Your submission will be graded on both content, relevance and formatting of the reference. Use the citation format specified in the "Guidelines for Lab Reports" handout.

Accessing & Using the Web of Science Literature Search Engine

A Quick Guide by Sarah Harper-Smith

Web of Science can be accessed via the Western Libraries website

(<http://www.library.wvu.edu/index.shtml>)

- From the Western Libraries homepage, visit "Articles – Search Databases".
- Under "Select a database by name" click "Go" to the "Alphabetical List".
- Click "W" and then the "Web of Science" link.
- You're there! Some things to keep in mind...
 - Deselect the non-science citation databases to eliminate unnecessary results.
 - Two main ways to search:
 - By topic and/or author (this is the "Quick" and "General" search – it finds articles on a given topic or by a given author)
 - By cited reference (finds other articles that reference a given article or author)
 - Once you have found a good article (via either search method), you can then link to the articles it referenced, as well as any articles that reference it.
 - The "Find it" button will open a new window and tell you if WWU has, or has access to, the article you're interested in.
 - The following is a link to a tutorial that explains how to most effectively navigate the Web of Science site (<http://scientific.thomson.com/tutorials/wos7/wos7tut2.html>).
- By always accessing the database from the Western Libraries page, even when you're off campus (you'll be asked to login to your account), you will be able to use the "Find it" function, as well as gain access to journals and articles that you would be unable to view without Western's subscriptions, etc.
- Google Scholar is another great literature search tool (<http://scholar.google.com>). It's a good way to find articles on-line to which Western may not have subscriptions.
 - Try LibX, a Firefox extension for Google Scholar (see <http://www.library.wvu.edu/info/libx/> for more info)
- If Western doesn't have the article you want and you can't find it on the web with Google, then the quickest and cheapest way to get a reprint is to email the author directly. Look for the author's contact info in Web of Science or google them. Send a brief, courteous email with the full citation of the article you're requesting. They will usually send you a .pdf version via email within a day or two. In contrast, to order such an article through Western's library often takes 2-3 weeks and costs the university \$30 or more!