

ENED 3341 & 3342 Field Interpretive Techniques:

Tips on Writing for this Class:

Sharing information, lesson plans and activities with others is an integral part of your development as an educator. It is important to have complete and reliable information. You will need to go to many different sources to get all you need and you must be able to evaluate the quality of the information you find and integrate the information using your own words (not copying the words of others).

To provide a complete picture, you need to provide sources for your information. There are three broad categories of sources of information and you will be expected to use ALL of them in each project (you cannot rely completely on web sources). The three general types of scientific literature are summarized below.

1) Primary Literature – Reports original work. Format is in the form of a scientific paper and serves a function that is somewhat different from other forms of scientific literature. (Information is original)

Periodical (Scientific Journals)

Dissertation (Ph.D.)

Thesis (Masters)

2) Secondary Literature – Provides access to information found in primary literature via reference materials and may be somewhat summarized, but largely is a list of pertinent facts. (Information is not original)

Encyclopedia

Handbook

Index (Science Citation Index)

3) Tertiary Literature – More about science than of science. Although tertiary literature provides access to primary literature (as does secondary literature), it provides a broader context (historical and contemporary). Tertiary literature is often heavy on descriptions, figures, and diagrams, and very light on actual data, statistics, and methodology. (Information is not original). Example of tertiary literature include

Subject matter Books (non-fiction)

Textbooks

* *Reviews* and *Treatises* are forms of biological literature that more or less combine aspects of primary and tertiary literature in that they summarize or synthesize a current body of knowledge including discussions of data, but without providing new data.

Any writing for this class must be clear and well written using proper grammar, spelling and punctuation. Next, it must be organized so that it is easy for the reader to follow and understand the concepts presented. In the case of lesson plans, it should be possible for the reader to duplicate the lesson.

All “non-journal” assignments should be typed and include:

A Title

The Title should have an informative title, your name, section number, and date centered on the page. There is no set formula to writing a title, however, a good title adequately and fairly describes the topic of paper.

The Body

The body of the paper will differ for each assignment.

References

This section should contain, in alphabetical order by author, only those items specifically used to gain background information for the paper/project. Below are examples of what is REQUIRED in all bibliographic citations you provide.

Journal articles: This reference includes the name of the author or authors, the year of publication, the article title, the fully spelled journal name, and the volume (and issue if appropriate) and page numbers of the article itself.

Werner, E. E. 1977. Species packing and niche complementarity in three sunfish. *American Naturalist* 111:553-578.

Article/Chapter in edited volume (*author & editor are not the same*): This reference includes the article/chapter author(s), date of publication, article/chapter title, pages in volume, names of volume editors, volume title, and the publisher's name and location.

Pianka, E. I. 1975. Niche relations of desert lizards. Pages 292-314 in M. Cody and J. Diamond, editors. Ecology and evolution of communities. Belknap Press, Cambridge, Massachusetts, USA.

Book: This reference gives the author(s), date of publication, title, the publisher's name and location and the pages used in the paper/project.

Ivlev, V. S. 1961. Experimental ecology of the feeding of fishes. Yale University Press, New Haven, Connecticut, USA. Pages 120-129.

Web: To cite web resources include the author(s) of the information, date of publication, title, the publisher/organization name, the pages used (if more than 1-2) and the URL. Be sure to check URL independently, if we cannot verify it, you won't get credit and we aren't going to hunt around looking for it.

Hahn, J.D. 2001. Multi Colored Lady Beetles. University of Minnesota Extension Service.
<http://www.extension.umn.edu/projects/yardandgarden/ygbriefs/e615ladybeetles.html>

Quotations

Do not use extensive quotations. Usually, the only reasons for using the exact words of another author are (1) because it is this exact wording that is the focus of discussion, or (2) because the wording carries the intended meaning in so striking a fashion that it cannot be paraphrased easily. As beginners, it is easy to think that you cannot say something as well as the sources you find. But it is imperative that you take the background information you find and "interpret" it using your own words. The best way to learn this skill is by doing!

Remember also that using the exact wording of other authors in length greater than phrases (and without quotations) is plagiarism, and is a violation of copyright law and acceptable academic conduct. Plagiarism in the preparation of papers by students can carry very severe penalties at this University and others.

Tables and Figures

Illustrations can be very helpful in communicating information and concepts. If you use them, be sure to do so in a way that enhances your presentation and does not distract. Depending on the context, too many illustrations can be distracting and confusing to the reader. Leave adequate margins on pages with tables and figures, just as for text pages.

When appropriate, refer to the illustration in the text (i.e. figure 1) and provide a title or caption that provides the reader enough information that the illustration can stand alone and the reader does not need to read the text to understand the purpose or content of the illustration.

Writing Tips

Begin sections and paragraphs with topic sentences that inform the reader on what the major purpose of and concepts to be covered in the section or paragraph will be without being trivial. For example, rather than saying "The natural history of a Red-tailed Hawks is interesting", how about "The natural history of red-tailed hawks is particularly interesting because of the differences seen between urban and rural hawks of this species" (should "red-tailed hawk" be capitalized? Hyphenated? You need to figure that out and use the correct form). Following the introductory statement, the section or paragraph should provide a logical and coherent progression, laid out in an easy to follow manner. Unless really called for, avoid using "recipe-like" language (i.e. first...second...then...next...). The final part of a section or sentence of a paragraph should provide the reader

closure with a statement that bring the concept in the section/paragraph to a logical conclusion and doesn't just ...END, leaving the reader hanging.

Before writing the paragraphs to a section, try writing topic sentences for all of the paragraphs first and arranging these in appropriate order.

Other Conventions We Want You To Follow

1. All pages should be numbered.
2. Italicize all scientific names, for example *Carex pensylvanica*.
3. Use the metric system and other international units whenever possible.
4. Write numbers as numerals whenever they are associated with measurement units (e.g., 3 meters) or are parts of dates or mathematical expressions. In other cases, spell them out for numbers less than 10 (e.g., five rabbits), and give them as numerals for larger values (e.g., 14 rabbits).

USING RESOURCES FROM THE WORLD WIDE WEB

Lots of good scientific information can be found on the World Wide Web. However, the researcher must be aware of some fundamental concerns. The major problem with finding information online is that anyone with access to software and a server can publish material on the World Wide Web, regardless of the accuracy of the information. In addition, web pages can be changed by the author at any time. You might use information from a web site, then try to go back to verify it later, only to find that the material you used is gone. The following worksheet will help you to evaluate information you find on the World Wide Web.

Evaluating Web Resources

Authority of a Web Site

- Questions to Ask Yourself
 - What type of organization is responsible for the site? Most web sites containing good scientific information will be posted by a government agency or an organization rather than by an individual.
 - Who is the author of the material?
 - What are the author's credentials?
- Strategies to Answer the Questions

Pay particular attention to the domain name, which indicates the type of organization that hosts the web site. *.gov* refers to a government agency, official, or organization. Government sites provide some of the most reliable information on the web.

 - *.com* refers to a business or other commercial enterprise, including news and journalistic sites. These are good sources for the most current information. However, in general they are not good sources to cite in an academic paper because the web pages change so frequently. The article you cite this week may be gone by the time someone reads your paper. If there is a printed version of a newspaper or journal article available at the library, it is better to cite that version.
 - *.edu* refers to a college or university. Professors and graduate students often post the results of their own research on the web. Be sure to examine the credentials of the researcher. The quality of the research is likely to increase as the person's educational level increases (in other words, a professor's data is likely to be more reliable than a PhD student's data, which is more reliable than data collected by a student working on a master's degree).
 - *.org* refers to a non-commercial organization, usually a non-profit. Many of these organizations are advocacy groups. These are people who have strong opinions about a certain topic, so the information on their web sites may be biased. However, members of advocacy groups are often the only people who care enough about particular issues to thoroughly investigate them, so they may be the only source for some information.
 - *.net* can indicate almost any type of organization, usually a commercial one.

- *.mil* refers to a military site.
- To find the author's name, check the beginning and the end of the page. Biographical information about the author may be contained as a link somewhere within the web site. If you cannot find an author's name, look for the webmaster's contact information and e-mail that person for further information about the author.
- If the author's name is given, look for information about his/her qualifications and credentials. Check to see if the author is affiliated with a known and respected institution or organization. Look for a list of the author's other publications. Look for an e-mail address or link for contacting the author.

Accuracy of Information

- Questions to Ask Yourself
 - Is the information accurate and unbiased?
 - Has the information been through a peer review process? Academic publications usually have an editorial group composed of specialists in the field who review all the articles submitted for publication. Peer reviewed publications have greater authority than others. An article that has been peer-reviewed (subjected to the scrutiny of a group of scholars) is likely to be more accurate than one that has not.
 - Is the information original to the author? If not, does the web page tell you where the original data came from?
- Strategies to Answer the Questions
 - Examine a variety of sources and compare them against each other. If you find the same information in several reputable sources, you can assume that the information is accurate and generally accepted by the scientific community.
 - Check the web site to try to determine whether the material has been peer-reviewed. If published by a government agency such as the U.S. Geological Survey or Environmental Protection Agency, you can assume that it has been peer-reviewed.
 - Does the web site look professional? Are there mistakes on the pages? The design of a web site makes a powerful statement about its author and the information that the site contains. Authors who are careless in the way they present information probably do not have good information.

Current Information

- Questions to Ask Yourself
 - Is the information current?
- Strategies to Answer the Questions
 - Look for dates that tell you when the page was written, when it was published on the web, and when the page was last updated. This is usually found near the end of the page.

Purpose of the Web Site

- Questions to Ask Yourself
 - What is the purpose of the web page? Why was it created? Is it providing unbiased information? Is it trying to persuade you to a certain point of view? Is it trying to sell you something? Does it advocate for or support a particular cause?
 - Who is the intended audience and what does the author assume the user already knows about the topic? Is it useful to the general user, researchers, or professionals?
- Strategies to Answer the Questions
 - If the author has a list of related links, check to see if the links reveal that the author has any special bias or interests.
 - To find out more about the organization that hosts a web site, look for a page called About Us. Examine the organization's statement of purpose or list of objectives and determine if there are special interests or biases. For example, the About Us page of the web site at "GlobalWarming.org" says this is "a project of the Cooler Heads Coalition, a sub-group of the National Consumer Coalition. The Cooler Heads Coalition formed May 6, 1997 to dispel the myths of global warming by exposing flawed economic, scientific, and risk analysis." In contrast, the web site about global warming at nrdc.org is published by the Natural Resources Defense Council, whose About Us page says the "NRDC is the nation's most effective environmental action organization. We use law, science and the support of more than 1 million members and online activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things."