

WRITING IN ENVIRONMENTAL STUDIES – Note: part of this material is modified from the Environmental Studies Handbook for the Senior Comprehensive Requirement.

Writing in Environmental Studies spans a number of disciplines and may be aimed at different audiences. Despite this fact, there are many commonalities in writing good research papers in Environmental Studies. There are other forms of writing in Environmental Studies, such as field journals, creative writing for environmental education, and environmental reporting, that differ in substantial ways, but most research papers (including the final paper in this course) have the following characteristics.

Process - Developing research papers in Environmental Studies follows an iterative process.

- Developing an informal question or area of interest
- Doing library research to determine what other research has been done in this field.
- Developing a clear hypothesis/question
- Collecting data or reviewing relevant literature
- Critically analyzing this information to answer the hypothesis/question
- Drawing conclusions based on this analysis
- Relating the conclusions to the larger context of the field of study

Critical Analysis - All research in Environmental Studies requires interpreting data from a range of sources collected using differing methodologies. The information must be compared, weighed and interpreted noting personal biases and differences in methodologies for collecting data. Just because a book or article is published does not mean that its conclusions are well supported. Any conclusions drawn in the paper must be substantiated by the material presented whether it is primary data or a review paper. It is always important to distinguish between the opinions of others, your conclusions based on the information presented, and your speculations and opinions.

Style - Good organization and writing style is essential to help the reader understand your main points. Start with outline and use it to organize your ideas. I recommend writing in reverse. In other words, first think about your conclusions; then consider the information needed to support those conclusions; then write an introduction that gives your reader only the relevant background information to the rest of your paper. In short, make sure there is coherence between the different sections of your paper. Do not introduce new topics in the conclusion.

- Clearly stated objective or hypothesis.
- Clear sequence of thoughts throughout paper.
- Judicious use of headings helps to provide the reader with a framework.
- Smooth transitions between paragraphs.
- Paragraphs with clear topic sentences.
- Correct spelling (use a spell checker), grammar and punctuation.
- Avoidance of colloquial (slang) phrasing.
- Succinct writing - fewer words are always better if they convey the same meaning.
- Use active voice when possible.
- Be consistent in your use of tenses.
- Contractions are generally not used in formal writing.
- Remember to number your pages. It helps reviewers in cross referencing.
- Demonstrate command of the language. Don't use words just because they sound impressive.

Citing and Plagiarism - Identifying ideas or quoting passages to strengthen arguments and to acknowledge sources is essential and is the hallmark of scholarly work. Any writing which is directly copied or any idea not your own must be identified and cited. Not to do this is plagiarism, and is unethical. Essentially this is how scientific and scholarly writing differs from journalism: sources must always be disclosed for the purpose of verification. Acknowledgments must also be made for maps, tables, figures, and text, if they are copied. See final page of this handout for citation format guidelines.

A few common writing pitfalls:

Starting with the Answer instead of the Question - Environmental studies students care deeply about the environment and are eager to remedy the problems they see. This sometimes results in an agenda or quick judgments about what should be done. Starting with the answer limits what you can learn, and is usually dualistic in approach, i.e., something is good, something else is bad. Starting with the question opens up your research and allows the possibility of making a contribution to the field.

Scope of paper - Most students end up with much more material than they can usefully handle. Usually the scope of a paper as perceived by the student is far too great and a good rule of thumb is to limit the work to one or two important aspects of the topic. It is far better to have something focused and of substance than something scattered and insubstantial.

Hoping the First Draft Will Do - **Good writing isn't written – it's rewritten.** Your professors and TAs rewrite articles many times and get comments from other readers before they publish them. Never skimp on the editing and proofing and know that it is almost impossible to edit your own writing.

Before giving a draft to reviewers, go back and rewrite and do as much polishing as possible. Submitting a section full of grammatical and spelling mistakes makes it difficult for any reader to understand what you are trying to say. Doing your part to save time and be clear will ensure that your reviewers can concentrate on important elements from which you will derive the most benefit.

Questionable Usage - There are numerous inappropriate and overworked words in environmental writing. Be careful of "pristine." It's overused and means little scientifically. "Fragile" is in the same category. Particular care also has to be used with "sustainable," if not applied to development or agriculture. "Unique" could almost be dispensed with as all environments are unique and the use of the word on its own, or strengthened incorrectly as "very unique," means nothing.

The Soapbox - Almost everyone has an area of intense personal interest where they feel strongly that changes should be made. Beware of this emotional involvement. Resist the temptation to mount your personal soapbox. Most readers want to be swayed by sound argument, not by personal sermons that do not belong in a paper.

Use the words "must" and "should" sparingly. To say the "community must" or the "government must take the following steps" could be considered presumptuous, especially as it may only reflect a personal belief. To strongly recommend that something be seriously considered, is quite different from the judgmental "must" or "should."

Quotations - Don't overuse quotations. Well chosen, they can strengthen arguments, provide lively description, or make a telling point. Think of using quotations when the **way** someone says something is just as important as the actual content. Generally, you can probably rephrase points more succinctly than quoting verbatim.

Normally a short quotation is presented within quotation marks in double-spacing. A quotation longer than two sentences is set off as a block on its own, indented, in single spaced typing and not within quotation marks. The paragraph in the previous section is an example of a block quotation.

A quotation may be shortened by omitting irrelevant material. This is done by using ellipses – three equally spaced points or periods. For example, "Land use was most extensive in the south...[became] intensive as one approached the alluvial soils...[and] was barely apparent on the skeletal soils of the highlands (Tuimono 1991:23)." The ellipses show that something has been omitted and the square brackets [] are used to show that the present author quoting the passage has injected material not in the original.

For more detailed guidance on paper writing please consult one of the widely used manuals listed below:

Day, R. A. 1998. *How to write and publish a scientific paper*. Phoenix: Oryx Press.

Hacker, D. T. 1999. *Pocket style manual: updated with Mla's guidelines*. Boston: Bedford Books.

Strunk, W., Jr., and E. B. White. 1999. *The elements of style*. Boston: Alyn and Bacon.

University of Chicago Press. 1993. *A manual of style*. Chicago: University of Chicago Press

SOURCES FOR INFORMATION – By this time you should have written a number of research papers and should be familiar with the different sources of information available but as a review, I list the most common.

Scholarly (peer-reviewed) journal articles – Most researchers publish their work in journals where the articles are reviewed by their peers. This review provides a certain degree of quality control for their work. Nonetheless, readers still need to review the work thoughtfully to determine if they agree with conclusions and supporting evidence. A wide range of journal databases available to UC faculty and students are listed at <http://library.ucsc.edu/Zope/eresources/bytool/ArticleDatabases>. Many are now available electronically, making access even easier.

Popular articles – Popular magazines publish articles written by professional writers (rather than experts in a particular field) and are written for the lay reader. They are not generally used as references for research papers. See <http://library.ucsc.edu/ref/howto/popularscholarly.html> for a discussion of popular vs. scholarly articles.

Books – Books are published by a many publishing companies for a wide range of audiences. They vary a great deal in the degree and type of review. Most books for academic audiences are peer reviewed. The UCSC book holdings (cruzcat) and the University of California holdings (melvyl) are accessible through the UCSC library web site <http://library.ucsc.edu/>. Books at other UC campuses can be requested through Interlibrary loan, but this requires allowing sufficient time (at least a week) to get these sources. It can be harder to find books on a specific topic as the search engines only search words in titles rather than in abstracts.

Government documents – All government documents owned by UCSC can be found using Cruzcat. For some regional issues you may need to contact specific government agencies to determine where you can access specific documents, such as Environmental Impact Statements.

Internet – The internet may be the only source of information, but should not be the primary source of support for papers. Be critical of sources found on the Internet. Think about who produced the information, their credentials, and their agenda. Since there is no overall quality control it is up to you to check the reliability of the information and whether or not it is refereed. The internet is also problematic because it is constantly changing, so a source you cite may not be there if a reader wants to corroborate your source. If you end up using material from the Internet it needs to be cited in your bibliography, including the url, title, author, date posted, and date accessed. Give preference to refereed publications such as books and journal articles rather than those found on the Web.

Personal interviews – Personal interviews may provide key information on some environmental issues, but should be used judiciously to answer questions that cannot be answered by published material. Also, as discussed earlier in the quarter, when approaching individuals be well organized, polite, and respectful of their time and the favor they are doing for you.

Citing References – a refresher

Why cite references?

1. You need to give credit to people for ideas and information.
2. Your points are much stronger if you back them up with studies illustrating or expert opinion supporting your points.

In text citations

- Normally you cite references in the text by using the last name and year if there are one or two authors.
- If there are more than two authors then put the first author's name and et al. et al. = et alia so there is no period after et and there is a period after al.
- Normally the citations are put in parentheses with a comma or semicolon separating citations. The period ending the sentence goes after the parentheses.

Ex.: Low seed dispersal commonly limits tropical forest recovery (Cubiña and Aide 1994, Holl et al. 2002).

- When you use direct quotes also include the page number – e.g. (Holl et al. 2002: 12)
- If the author is the subject of the sentence then the name is not in parentheses and the year is.

Ex.: Holl and Howarth (2000) report that restoration costs are often underestimated.

Format for citing references

- You need to present all the information that a reader would need to find the reference themselves.
- There are many different formats for bibliographic citations. You are welcome to use any format you like as long as you are consistent and provide all relevant information. Below is a suggested format.

Peer-reviewed journal article

Cubiña, A. and T. M. Aide. 2001. The effect of distance from forest edge on seed rain and soil seed bank in a tropical pasture. *Biotropica* 33:260-267.

Book

Gauch, H. G. Jr. 1982. *Multivariate analysis in community ecology*. Cambridge University Press, Cambridge.

Book chapter

Bradshaw, A. D. 1987. Restoration: an acid test for ecology. Pages 23-29 in W. R. I. Jordan, M. Gilpin, and J. D. Aber (eds) *Restoration Ecology*. Cambridge University Press, Cambridge.

Edited book

Pennington, T. D. and E. C. M. Fernandes (eds). 1998. *The genus Inga*. Continental Printing, Belgium.

Newspaper article

Knox, R. 1997. Please don't dial and drive, study suggests. *Boston Globe*, 13 February 1997: A1, A17.

Web pages

Save Lake Davis Task Force.¹ 2000.² *Managing northern pike at Lake Davis: a plan for Y2000*. Retrieved January 5, 2004³ from the California Department of Fish and Game web site <www.dfg.ca.gov/northernpike/mgpike.htm>.

¹If there is no author you can list a document as anonymous, but, in general, if there is no author listed with a document then the credibility of the web site should be considered. If possible, find a more reliable reference.

²If there is no date indicating when the web page was posted then put n.d. where the date should go. But, be careful that the information is not outdated.

³It is standard practice to include the access date for web pages since they may change.