

Natural Resource Conservation & Management
Guide to Writing Laboratory Reports
(Updated Fall 2008)

All reports must be typed in 12-point font and double-spaced with 1-inch margins

Title:

Your title should be descriptive and suggest what your report is about. LAB 2 is not an acceptable title!

Introduction:

The introduction has two functions: 1) to provide the context for the lab report and 2) to identify the question(s) asked and the rationale for doing the lab. If appropriate, the introduction should state the hypothesis being tested. [If you're not testing a hypothesis then the overall purpose of the work and a list of objectives should be given] Begin the introduction by reviewing background information that will enable the reader to understand the objective of the study and the significance of the problem. Most ideas in the introduction will come from outside sources, such as scientific journals or books dealing with the topic you are investigating, or perhaps from class notes or the lab handout, itself. All sources of information *must be referenced* and included in the Literature Cited (or References) section of the paper, but the introduction must be *in your own words*. Rarely is it appropriate in scientific writing to include text copied directly from sources.

Methods:

The methods section of your report should describe how you collected and analyzed your data. It should be clear from your introduction *why* you collected these specific data. Consider the following when writing your methods section:

- Past tense must be used – you already did the work, so use PAST TENSE!
- Un-necessary details should be omitted! It does not matter who did what, and it usually does not matter in what order the data were collected (even though you have this information in your field notes). For example, it does not matter that a crew of four collected the data, or that Suzie measured diameters and Bob measured tree heights, nor does it matter that diameters were measured before heights. So, do NOT include this information in your methods. However, it DOES matter that diameter was measured with a DBH tape and heights were measured with a clinometer, so you *should include this information*.
- Information to include: the location, all variables that were measured, and the type of equipment used to measure each. NOTE: when you write this section, watch your grammar. For example, variables are **measured**, not **taken**, e.g., diameter is measured not taken, and heights are measured, not taken.
- Data calculations and statistics: Any calculations or statistical tests that you used to summarize your data should be described. In many cases it will be useful to illustrate how some values were calculated to allow your instructor to check your work. These calculation details are often hidden in the black box of spreadsheets.
- Did you use standard methods or techniques? If you did, then it is usually enough to identify the technique that you used (sometimes with a citation) without having to describe all of the details of that technique. For example, if you collected vegetative data using the Point Quarter method, then it is usually enough to state that fact without going into all of the intricacies of the method.

Results (Note, for short lab reports it may be appropriate to combine the results and discussion into a single section):

The results section is intended to summarize the data NOT to interpret them. Briefly and clearly describe your results in text form and refer to tables or figures which illustrate your results.

- Calculations should be accurate.
- Trends in your data are summarized in the text.
- Tables and figures are a good way to display data. When you use them, be sure to highlight important points. Also, each table or figure should have a descriptive caption. All parts of figures must be properly labeled.
 - Figure titles go on the BOTTOM of the figure while Table titles go on TOP of the table.
 - Figures and Tables should be numbered and their titles a full sentence.
 - Axes of Figures and column/row headings of Tables must be labeled and units designated (see Figure 1, below).
- If you include tables or figures, you must refer to them and talk about them in the text of the report. You do not need to write out all of the information presented in the table or figure, but you must provide at least a brief summary of the key data presented.
- Do not fill the body of your results section with long tables of unimportant data (such as the raw data that you collected). Your results section should only contain relevant (usually summarized) data. If you feel you must include other data, put it at the end of your report in an Appendix.

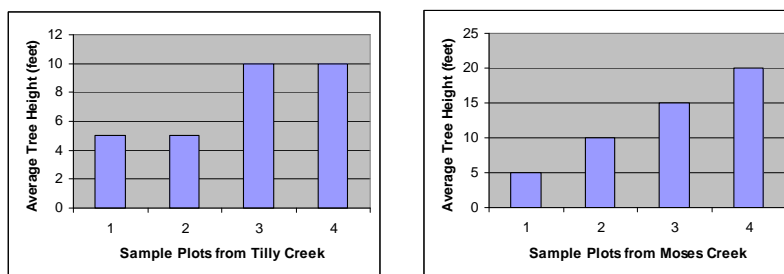


Figure 1. Comparison of trends in average tree height among four sites at Tilly Creek and Moses Creek, Jackson County, North Carolina. [Information in the captions and the figures should include enough detail to allow the figures or tables to make sense on their own.]

Discussion:

This is where you interpret what your results mean. Explain why you got the results you did. For example, in Figure 1 above, *why* do you think the average tree heights were not distributed the same at Tilly Creek compared to Moses Creek? Perhaps the sample plots were only on North and South aspects at Tilly Creek while they were on North, East, South and West aspects at Moses Creek. You should state this but also describe WHY tree heights might differ on different aspects. Literature is often used in the discussion section to support your interpretations. This may or may not be required by your instructor. Remember, it is important to cite the IDEAS that you borrow from other sources.

Conclusion:

You should summarize your key findings in a conclusion. The objective is to highlight the important points that you observed or learned. These should have been identified previously in the results and discussion section (s). The conclusion is NOT a place to introduce new thoughts or ideas. For short lab reports you may not need a separate conclusion section, but instead can make your concluding statements in a single paragraph at the end of the discussion section.

Literature Cited or References:

Again, in scientific writing, it is important that you cite the sources of your information. When citing references you must use the APA format both in the text and on a Literature Cited page. You can find a complete listing of the guidelines for this format online on the Hunter Library website at http://www.wcu.edu/writingcenter/isource.asp?page=apa_format.html. Some of the more common situations are presented below:

Citing information within your paper.

All citation information in parenthesis

- Research has shown that men and women use generic pronouns in different ways (Martyna, 1978).

Authors name(s) are used in a sentence

- According to Stanford (1981), numerous differences...
- Rogers and Rosen (1989) found...

Author plus date mentioned in sentence followed by page number (when text is quoted)

- Kwitzel (1976) notes that "humanistic values in literature, science, ethics and society cut across religious commitments and are common possessions of the culture" (p. 5).

Citing works in the Literature Cited section: (The following demonstrates how to reference common types of works, go to the website referenced above for all other types of sources):

Books

Nilsen, A. P., Bosmajian, H., Greshuny, H.L., & Stanley, J.P. (1977). *Sexism and language*. Urbana, IL: National Council of Teachers of English.

Articles in journals with continuous pagination throughout annual volumes

Sklar, E. S. (1983). Sexist grammar revisited. *College English*, 45, 348-358.

NOTE: The first issue for the year starts with page 1, and each subsequent issue picks up numbering where the last issue ended, resulting in higher and higher page numbers.

Articles in journals with separate pagination for each issue

Kamin, J. (1979). Writing: Painting with words. *Journal of Basic Writing*, 2(3), 91-95.

NOTE: "2(3)" indicates the volume and issue numbers, respectively. Because each issue starts with page 1, the issue number is essential information for a reader interested in finding the source.

Basic web sites:

Author/editor. (Year). Title. Retrieved [access date], from URL

NOTE that if there is no date given, use (n.d.).

Prizker, T. J. (n.d.). An early fragment from central Nepal. Retrieved June 8, 1995, from
<http://www.ingress.com/~astanart/pritzker/pritzker.html>

NOTE that if there is no author, you begin a citation with the title.

Example:

GVU's 8th WWW user survey. (n.d.). Retrieved August 8, 2000, from

http://www.cc.gatech.edu/gvu/user_surveys/survey-1997-10/

Internet article based on a print source:

VandenBos, G., Knapp, S. & Doe, J. (2001). Role of reference elements in the selection of resources by psychology undergraduates [Electronic version]. *Journal of Bibliographic Research*, 5, 117-123.

NOTE that this citation form is only used when the article appears online in its original form, i.e. the article has been electronically scanned and has no changes in format.

Document available on university program or department

Evaluation of writing quality

Reports with "A" writing quality have:

- * a logical progression of ideas
- * clear topic sentences
- * cohesive paragraphs
- * uses transitions between paragraph
- * references to supporting evidence are used - tables, figures, data, or literature
- * almost no word choice or grammatical errors

Reports with "B" writing quality have:

- * a logical progression of ideas
- * some clear topic sentences
- * some cohesive paragraphs
- * occasionally uses transitions between paragraph
- * usually uses references to supporting evidence are used - tables, figures, data, or literature
- * few word choice or grammatical errors

Reports with "C" writing quality have:

- * somewhat illogical progression of ideas
- * lacks clear topic sentences
- * somewhat incohesive paragraphs
- * does not use transitions between paragraph
- * weak use of references to supporting evidence - tables, figures, data, or literature
- * several word choice or grammatical errors

Reports with "D" writing quality have:

- * illogical progression of ideas
- * lacks clear topic sentences
- * incohesive paragraphs
- * does not use transitions between paragraph
- * does not use references to supporting evidence - tables, figures, data, or literature
- * several word choice or grammatical errors that make the paper difficult to read or understand

Reports with "F" writing quality has the characteristics of a "D" paper with no sign of organizational or grammatical competency