



Department-by-Department Reference Guide

Writing in Biology Courses

A Sampling of Advice from Faculty

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1. *What kinds of writing assignments can I expect in Biology classes?*

Several teachers use short essay questions on their exams. Most out-of-class writing assignments fall into the following categories:

- > **Researched Essays** (about 10 pages): In-depth evaluations of recent information on a selected topic. You will be expected to do a literature search on the topic, read primary research reports and reviews, and present the information in the form of a mini-review.
- > **Short Essays** (2 pages): Short papers that connect a scientific topic discussed in current national media to concepts presented in the course
- > **Short Reports** (3-5 pages): Brief reviews of literature on a specific topic or reports of computer simulations of selected problems
- > **Laboratory reports** (variable in length and format): These are required in all laboratory courses. Most teachers expect a conventional report format consisting of these sections:
 - > **Introduction**, which states the goal of the experiment and places it in perspective
 - > **Results**, which compiles and presents the data, often in tabular and/or graphical form
 - > **Discussion**, which states the conclusions drawn from the data and explains the rationale for these deductions

2. *What qualities of writing are especially valued in Biology classes?*

In addition to the paper being free of spelling and grammatical errors, the most valuable attribute of a Biology paper is concise and clear presentation of the subject matter. A clear statement of the specific question, a concise survey of the literature, complete description of the methods of study and the results, and an incisive discussion to place the results in perspective are valued traits of a scientific paper. Note that scientific writing is concise, direct, and devoid of flowery metaphors.

If your paper contains more than a few pieces of numerical data, you will find excellent advice in *The Chicago Guide to Writing About Numbers* by Jane E. Miller.

3. *What citation conventions will I be expected to use in Biology papers?*

Citations to the literature that you have consulted in preparing a scientific paper are always required, but the format for citation of literature varies according to the course and teacher. Check with your instructor about the required format, and consult a handbook about the details of punctuation and the order in which to present information.

The Citation Formats section of this Web site provides information about the [two common formats for internal citations and references lists in Biology papers](#): (1)

citation-sequence format with numbered references and (2) **author-date** (name-year) format for internal citations. The formatting is also explained and illustrated in the [handbook for First-Year English](#) classes and in the manual published by the Council of Scientific Editors (formerly the Council of Biology Editors): *Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers. Sixth Edition* (1994), available in the reference area of Raynor Library for library use only. (A seventh edition is in preparation.) For guidance about using this format, click [here](#).

The citation-sequence and author-date format systems both require a list of full citations at the end of the paper. These citations must include the following: the name(s) of the author(s), year of publication, full title of the article (or book), the journal in which an article was published, volume number of the journal, and the first and last page numbers of the article (or, for a book, the name of the publisher and the city of publication).

4. *A note about sentence structure in scientific writing*

The following structural principles are generally recommended in scientific writing:

- > Follow a grammatical subject with a verb as soon as possible.
- > Choose the verb in each clause or sentence to articulate the action.
- > Provide context before giving new information of any type.
- > Place new information at the end of the sentence in the stress position, and the name of the person or the thing described at the beginning of the sentence in the topic position.
- > Place information that links backwards and contextualizes forward early in the sentence, in the topic position.

For additional guidance, see Gopen, George D., and Judith A. Swan. (1990). [The science of scientific writing](#). *American Scientist* 78: 550-558.

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