

Writing in Biology

Guiding Principles

Writing in Biology must be clear and concise. It must present relevant information, and it must explain why that information is important. Experiments must be replicable, so materials and methods must be reported with precision.

Types of Writing in Biology

The scientific paper is an absolute standard for much writing in Biology, but many assignments at Whitman will only address a specific sub-type of biological writing. Tutors may expect to see lab reports, figure captioning exercises, partial scientific papers or full scientific papers. Scientific writing is often highly structured, with specific functions for specific sections. Tutors unfamiliar with scientific writing will do best to concentrate upon the Introduction and Discussion.

Structure of the Scientific Paper in Biology

Introduction: This lays out prior scientific work on the question and explains what the present paper will contribute. It is especially important that the introduction communicate the importance of the work being done. Tutors can take advantage of their own ignorance of Biology (if any), by helping the writer clarify the project to the tutor through an engaging introduction.

Methods: This is an information-rich section of the paper which should only report what the writer has actually done. It may be difficult for a tutor to offer much help on this section, though one may always check for clarity. Convolved sentences are especially common the Methods section. It is OK for sentences in this section to contain much information, but they must also be clear.

Results: This should only report actual results and should avoid the temptation to interpret those results. Many students confuse the Results section with the subsequent Discussion section. The Results section is only for the report of data acquired during the work. This section may often include figures, and tutors can give special attention to the captioning of figures. See the ancillary document “Effective Caption Writing for Scientific Figures” by Professor Withers.

Discussion: Here the writer can offer an interpretation of the data. Non-scientific tutors can profitably help writers with this section. Interpretations offered in this section must demonstrably arise from the information provided in the Results section. Hedging (“maybe”, “possibly”) is especially common in the Discussion. Tutors can help writers advance their claims with confidence while avoiding overstatement. Writers must show how they came to their interpretation and what issues remain to be investigated.

Tips for Tutors

Different Styles for Different Instructors and Disciplines

Conform closely to the instructor's example documents. Two examples are included here as ancillary documents. There are significant differences in the styles preferred by different scientific disciplines. Chemistry usually prefers the passive voice and a highly impersonal style; Biology often prefers the active voice. Writers may consult a professor's published work to get a better idea of the preferred style.

Cohesion between Sentences and Sections

Tutors can profitably work on linking sentences and sections. The sequence of sections is often determined by the paper's structure, but writers must work to show how one sentence or section leads to another and how subsequent sentences or sections arise from earlier information. Writers may often work from outlines. Tutors may not understand the science, but they can help writers clarify the sequence of ideas within the outline.

The Importance of Figures and Tables

In scientific writing figures and tables are crucial visual representations of data. Writing tutors can work with their clients on gracefully presenting this visual information and on providing the written captions which will make the visuals easily understood.

Scientific Writing Must Be Engaging

Scientific writing should not be wooden and cold! Tutors should encourage writers to determine what is engaging and important about the work, and to communicate that to the reader.

References

This document was composed in 2014 by Dana Burgess based upon interviews with Whitman Biology professors Ginger Withers and Timothy Parker and with Whitman Senior Biology student Abby Sloan. Supporting documents were provided by Professors Withers and Parker.