

Appendix A

Brief Description of a Laboratory Report

(Adapted from Pechenik, 1997¹; pp. 52 - 140)

Complete guidelines for the preparation of lab reports are detailed in Chapter 3, “Writing Lab Reports,” of Pechenik’s *A Short Guide to Writing about Biology, 3rd ed.* For your convenience, below we summarize the major points expected in each section of a laboratory report, using quotes from Pechenik’s manual and pointing to its key pages. This brief summary is not meant to substitute for a thorough reading of this valuable guide, but rather remind you of the most pertinent features expected in your report.

Title

“A good title summarizes, as specifically as possible, what lies within the Introduction and Results sections of the report” (p. 116 - 117).

Abstract

“The abstract... must completely summarize the essence of your report: why the experiment was undertaken; what problem was addressed; how the problem was approached; what major results were found; what major conclusions were drawn.... in a single paragraph” (p. 118 - 119).

Introduction

In the Introduction, you should explain why you did the study and provide any necessary background information to understand why this is significant (p. 108 - 116).

Results

Summarize your findings, using tables, graphs, and words. Consult Pechenik for directions on properly preparing tables and graphs (pp. 67 - 87), *verbalizing* your results (*very important*; pp. 87 - 95), and including statistics (pp. 134 - 136) in your report.

Materials and Methods

As Pechenik notes, “describe your methodology in detail sufficient to permit your experiment to be repeated exactly as originally performed” (p. 61). Consult Pechenik (p. 61 - 66) for determining the correct level of detail required for this section.

¹Pechenik, J. (1997). *A Short Guide to Writing about Biology* (3rd ed.). New York: Harper Collins.

Discussion

As noted in Pechenik (p. 99):

In this section..., you must interpret your results in the context of the specific questions you set out to address and any relevant broader issues [...while...] considering the following issues:

1. What did you expect to find, and why?
2. How did your results compare with those expected?
3. How might you explain any unexpected results?
4. How might you test these potential explanations?

Consult Pechenik for how to “state your expectations explicitly” (pp. 99 - 100) and, very importantly, how to explain unexpected results (pp. 100 - 102), as well as specific examples of Discussion sections (pp. 102 - 108).

Acknowledgments

Give *specific* thanks to those individuals who assisted you in your investigation. (See Pechenik, p. 119.)

Literature Cited

As noted in Pechenik (p. 120), “present the complete citations for all the factual material you refer to in the text of your report.” Cite sources in the Introduction and Discussion sections (p. 95 - 98) and prepare your list of references (p. 120 - 123) exactly as described in Pechenik.

BIO220 Lab Report Checklist*

In the space below the secondary author should make comments concerning whether the lab report they received successfully did each relevant item in this list. This should include any brief comments that may be of help to the primary author. The primary author then reviews each comment and makes a check by those they have addressed.

Primary author	Comments from Secondary author
Title	
_____ Title gives a specific indication of what the study is about	
Abstract	
_____ Background is stated in one or two sentences	
_____ Clear statement of specific question addressed	
_____ Methods summarized in no more than three or four sentences	
_____ Major findings reported in no more than two or three sentences	
_____ Concluding sentence relates to statement of specific question addressed	
_____ Abstract is a single paragraph; if not can it be rewritten as one paragraph?	
Introduction	
_____ Clear statement of specific question or issue addressed	
_____ Logical argument provided as to why the question or issue was addressed	
_____ Every sentence leads to the statement of what was done in this study	
_____ All statements of fact or opinion are supported with a reference or example	
Materials and Methods	
_____ Methods are presented in the past tense	
_____ Design of study or experiment is clear and complete	
_____ Rationale for each step is self-evident or clearly indicated	
_____ Each factor mentioned is likely to have influenced the outcome of this study	
_____ every factor likely to have influenced to outcome is mentioned	
_____ Includes brief description of how data were analyzed (calculations made,	
_____ statistical tests used)	
Results	
_____ Results are presented in the past tense	
_____ Results are presented in active voice whenever possible	

- _____ All general statements are supported with reference to data
- _____ Major results are presented in words, but their implications are not discussed
- _____ The same data are not presented in both tabular and graphical form within the same report
- _____ Every table or graph makes an important and unique contribution to the report
- _____ Each figure or table has an informative caption or legend
- _____ Each figure or table is self-sufficient
- _____ The meaning of error bars on figures is clearly indicated in the caption
- _____ Numbers of individuals/numbers of replicates are clearly indicated in the graph, table, caption, or legend

Discussion

- _____ Data are clearly related to the expectations raised in the Introduction
- _____ Facts are carefully distinguished from speculation
- _____ Unusual or unexpected findings are discussed logically, based on biology rather than apology
- _____ All statements of fact or opinion are supported with a reference to the literature, data, or an example
- _____ Discussion suggests further studies that should be conducted, additional questions that should be posed, or ways that the present study should be modified in the future

Literature Cited

- _____ Citations are provided for every reference cited in the report and are in the correct format
- _____ Section includes no references that are not cited in the report
- _____ Each citation includes names of all authors, title of paper, year of publication, volume number, and page numbers

Acknowledgements

- _____ People are mentioned by first and last names, and their specific contributions are noted

General

- _____ Text of report is double-spaced (or at least easy to read)
- _____ First page shows name of author, name of lab section or instructor, and date submitted
- _____ All pages are numbered

* From Pechenik's A Short Guide to Writing about Biology, 3/E, p. 138 - 140.