

BIOSC 1881
Animal Physiology Laboratory Writing Practicum
Spring Term 2003

Instructor: Dr. Richard Sherwin
L-3 Clapp Hall
624-4269
dsherwin+@pitt.edu

Meetings: by appointment

Course Description:

The purpose of this course is to improve the student's scientific writing abilities, an important attribute in communicating within the scientific community. Each student is required to write and revise a 10-12 page (double-spaced) paper. The topic of the paper will be one of the laboratory experiments done in the Animal Physiology Laboratory (BIOSC 1880). **The experiment chosen must be different than the ones the student is doing for grades in the Laboratory course (BIOSC 1880)!** The papers must be typed and have one inch margins on all sides. If using a word-processor, please use 12 point Times font. In addition to the 10-12 pages of text, your paper must include a reference list with a minimum of 5 entries.

Schedule:

- January 15 Meet with the instructor after the laboratory period to choose which experiment will be written.
- January 29 Begin to write the Introduction and Methods & Materials sections of the paper.
- February 12 Meet with instructor to turn in Introduction and Materials & Methods & solve any problems that may arise and present a preliminary list of references.
- March 19 Interim draft due at the beginning of Lab. (25% of final grade) Peer Review of entire paper.
- April 9 Meet with the instructor.
- April 16 **FINAL PAPER is due at the beginning of the Laboratory**
Late For every day that the interim draft or final paper is late,
Policy: a penalty of 20% of the points for that item will be subtracted from the total possible points for that item. Thus, handing in an

assignment two days late will mean that its maximum value is only 60% of its original value.

References: Writing Papers in the Biological Sciences 3ed., Victoria E. McMillan, Bedford/St. Martin's Publishers

A good source of references is Medline, which is accessible on the www at: <http://www4.ncbi.nlm.nih.gov/PubMed/>

Go to this site, then type in the topic (e.g. enzyme kinetics, membrane action potential etc.) then click on the Search button. As biology majors, you may all use the Hughes computing laboratory, located in 120 Clapp Hall.

A good book that helps in writing a scientific paper is on reserve in Langley Library. The book is "How To Write & Publish a Scientific Paper" by Robert Day.

Grading Policy:	<u>Evaluated item</u>	<u># of points</u>	<u>% of final grade</u>
	Interim Draft	50 points	25%
	Meetings with Instructor (3)	50 points	25%
	Final Paper	100points	50%
	Total	200 points	100%

THE FINAL PAPER MUST BE ACCOMPANIED BY THE INTERIM DRAFT!!!

MANUSCRIPT FORMAT

BIOSC 1881- Animal Physiology Laboratory Writing Practicum

General Instructions:

Margins, spacing & indentations:

- Use 1-inch margins on all sides of the page. Left justify the text.
- Double-space the entire paper except for individual entries in the References section. Each reference entry is single-spaced, with a double space between entries.
- Indent the first line of a paragraph 1/4-inch from the left margin (you can set this on a word processing program).

Pagination:

- Include your name & page number on each page of your paper except the title page. Your surname & the page number should appear in the upper right-hand corner of each page (you may use the Header function in a word processing program).
- The Title page is not numbered, but does count as page 1, so your abstract begins on page 2 (you can suppress the Heading on the first page in most word processing programs).

Font & Punctuation:

- Type the paper in 12 point Times or New Roman font. You may use a larger font for section headings (Abstract, Introduction etc.) and subject headings within the body of the paper.
- Underlining and **bold** and *italic* font styles may be used where appropriate to distinguish or highlight certain text. Remember that scientific names of organisms are *italicized*.
- Within a sentence, one space follows all punctuation marks.

Titles, Headings and Subheadings:

- The title is placed about 5 inches down from the top of the page and centered. The First, and all Major Words, Should be Capitalized.
- All headings and subheadings should begin at the left margin. The first, and all major, words should be capitalized.
- The heading text should stand out from the rest of the document (by font size, underlining or *italics*), and headings and subheadings should be distinguishable from each other (also by font size and style).
- If subheadings are used, you must have at least two subheadings under each heading.
- Do not add extra spaces above or below headings or subheadings unless it is necessary to prevent the separation of the heading or subheading from its accompanying text (for example, at page breaks). There should be one hard return above a heading and one hard return below the heading.

Figures and Tables:

- Figures and tables may be used. They should be presented on a separate page or pages following the References section.
- All figures and tables must include a label (Figure 1, Table 2), a title and an original legend in which the source is cited. It is not acceptable to simply add copies of figures and tables from your sources to your paper.
- References (citations within the body of your paper) to figures and tables should be appropriately positioned within the text.

Length:

- The final paper will be a total of 8-10 pages in length, including the Introduction, Methods & Materials, Results and Conclusions. The Title page, Abstract, References and Illustrations (Tables and Figures) do not count toward the page limit. To be counted as a page, the text on it must include a full paragraph.
- Each section of the paper (Introduction, Methods & Materials, Results and Conclusions) should immediately follow each other in the text and should **not** be started on new pages.

MANUSCRIPT FORMAT

BIOSC 1881- Animal Physiology Laboratory Writing Practicum

Specific Instructions:

Title Page:

- The title page should include the paper's title, your name, course title and the date. This information should be centered and approximately 5 inches from the top of the page.
- Titles should be short (12-15 words), interesting and specific. Use keywords in the title. Remember to Capitalize the First, and Each Major, Word in the Title.
- Remember that this page counts as page one, but is not numbered.

Abstract:

- Place the heading "Abstract" at the left-hand margin above the first sentence of this section.
- The Abstract appears on its own page, following the Title page and before the Introduction.
- The Abstract should be a complete paragraph no more than one-half page in length.
- The Abstract briefly and concisely summarizes the paper, including the thesis and the conclusions.

Introduction:

- Place the heading "Introduction" at the left-hand margin above the first sentence of this section.
- Summarize the current understanding of the physiological phenomenon under investigation. Include definition of terms & description of pertinent physiological mechanisms. (Give the reader an introduction to the physiological processes being investigated.)
- Include enough background to demonstrate the relevance of the topic to physiological understanding and end the introduction with the thesis statement (e.g. This paper will demonstrate the key role of enzymes & enzymes inhibitors to the rate of an enzyme catalyzed reaction).

Methods & Materials:

- Place the heading "Methods & Materials" at the left-hand margin above the first sentence of this section.
- The methods used should be clearly explained so that a person unfamiliar with your work will understand & be able to repeat what you have done.
- Materials used may be presented as a list.
- For equipment used, explain how it works & what the use of the equipment allows you to evaluate or measure.

Results:

- Place the heading “Results” at the left-hand margin above the first sentence of this section.
- If the experiment had more than one part, separate the results of each section & address each section.
- Include the data (in table &/or graphic form) and a verbal description of what the data indicate.
- Include any mathematical calculations that you did in this section.

Conclusions:

- Label the conclusions section at the left-hand margin above the first sentence of this section.
- The conclusion should begin by restating the physiological principle under investigation from the introduction and then briefly recap the major points supporting it.
- Describe how the results support the current understanding of the mechanism of the physiological phenomenon being investigated.
- Describe any deviations in the data that do not support the current mechanisms & reasons for the discrepancy.
- The conclusions should end by “opening the door” to future questions and studies.

Citations:

- Citations should be incorporated into the text using the format found in the Journal of Physiology.
- If a paper has one or two authors, both surnames are listed, followed by the year in parentheses.
- If a paper has three or more authors, then only the first author’s name is used in the citation

References:

- Begin the References section on a new page.
- Label the References section at the left-hand margin, above the first entry.
- Sources should be organized alphabetically by the surname of the first author.
- If the same first author has multiple papers that you are citing, then use reverse chronological order to list these entries (oldest to most recent).
- Sources listed in the Reference section should use the format used in the Journal of Physiology. Note that in the Reference section, all authors are listed, regardless of the number of authors.
- The first line of each entry should begin at the left-hand margin. Subsequent lines should be indented 1/4 inch (Hanging Indent).
- Use single-spacing within individual entries and double-spacing between them.
- Remember that only sources that you have read in their entirety can be listed in your References section.

Tables and Figures:

- Tables are numbered and appear in the order in which they are cited in the text (Table 2 follows Table 1).
- The Table number and title appear above the table, while the legend and citation appear below the table.
- Figures are also numbered and appear in the order in which they are cited.
- The figure number, title, legend and citation all appear below the figure.
- Photocopies of figures and tables are acceptable as long as you write a new and original title and legend relevant to your paper. Do not use the original title and legend.
- Use a separate page for each figure and table. If the tables are very short, you may put two on a single page.

Abbreviations:

- If you are using a standard abbreviation, use the full-length description at the first use, followed by the abbreviation in parentheses. Subsequently you may use only the abbreviation. For example: The compound action potential (CAP) is response that a whole nerve makes to a stimulus of threshold value. Reproduced and adapted with permission from Dr. L. Daniels, University of Pittsburgh.

BIOSC 1881-Animal Physiology Laboratory Writing Practicum Grading Scheme for the Interim Draft (Peer Evaluated)

Format (2 points)

- Margins, page numbers etc. should be as outlined in the guidelines provided.
- Overall length, as well as length of each section, should be within the guidelines provided.

Abstract (2 points)

- Should introduce the general topic and summarize the entire paper in a concise format.

Introduction (10 points)

- Should provide ample background to demonstrate the importance of and interest in this topic.
- Should end with the thesis or topic sentence, stating the major goal of the paper.

Methods & Materials (5 points)

- Should be clear & concise.

Results (5 points)

- Should be reported in table &/or figure form as well as in narrative.
- When writing this section, the narrative should just report results. Do not analyze or try to account for the results as supporting or not supporting the physiological (biological) principles being investigated. This will be done in the Conclusions section of the paper.

Conclusions (22 points)

- Start with a reminder of the original thesis.
- Recap the results of the paper that supported the thesis statement.
- State what remains to be determined, where the field is going next.
- Suggest things to be modified in future experiments. To remedy any data that does not support the commonly accepted physiological position.

Citations and References (2 points)

- Research is adequately cited throughout the paper
- Format is correct for both citations in the text and references in the reference list.

Proofreading (2 points)

- Check your spelling!
- Check that you have defined all abbreviations, italicized scientific names, not duplicated or deleted words.

BIOSC 1881-Animal Physiology Laboratory Writing Practicum

Grading Scheme for the Final Paper

<u>Points</u>	<u>Item</u>	<u>Evaluation</u>
1	Title:	Appropriate
5	Abstract:	A short summary of the work done.
20	Introduction:	Summarize the current understanding of the physiological phenomenon under investigation. Include definition of terms & description of pertinent physiological mechanisms. (Give the reader an introduction to the physiological processes being investigated.)
5	Methods & Materials:	Description of methods & materials used, including function & purpose of equipment used.
10	Results:	Include the data (in table &/or graphic form) and a verbal description of what the data indicate.
30	Conclusions:	Describe how the results support the current understanding of the mechanism of the physiological phenomenon being investigated. Describe any deviations in the data that do not support the current mechanisms & reasons for the discrepancy.
4	Citations:	Complete & correct format
5	References:	Complete, correct format

The following items will constitute 24 points of the total of 100 points.

<u>Points</u>	<u>Item</u>	<u>Evaluation</u>
2	Proofreading:	Spelling, scientific names, no missing or duplicated words
10	Organization:	Headings and subheadings used appropriately, Content: claims documented by evidence, clear and understandable
6	Writing Clarity:	Clear, concise, precise
2	Format:	Title page, pagination, spacing, heading format, margins

SOME OTHER THINGS TO CONSIDER AS YOU WRITE YOUR PAPER

1. Paragraphs & sections are organized by a topic idea.
2. Chosen experiment is clearly delimited in the “Introduction” section.
3. The paper summarizes current state of knowledge about the experimental topic.
4. The information presented reveals a sound enough understanding of key/basic principles of the experiment to support more detailed research within the topic.
5. The paper Identifies several (>1) unresolved issues, questions, dilemmas facing researchers in this field that could serve as a future work.
6. Document has directionality, it is not a collection of paragraphs summarizing the work done.
7. Your conclusions are summarized in a 1 paragraph “Conclusion” section.
8. Citations (in text) and References (at end) are used appropriately and formatted using the Name-Year system.
9. Reasonable care has been taken to prepare a neat, readable document.
10. The document adheres to Manuscript Format Guidelines.

Peer Evaluation Guidelines of First Drafts

1. SIGN the paper on the first page with your name.
2. As you read, jot in the margin the TOPIC of each PARAGRAPH.
3. LOOK at the TOPIC SENTENCE. Let the author know if it did a good job introducing the topic. If it did not seem to introduce the topic then make a suggestion to fix the topic sentence.
4. If a term is used you do not know: circle the confusing term and put a “?” next to it.
5. If you find a repetition of a sentence, find the two repetitive sentences and circle them. Suggest one to be deleted or reworked.
6. If one paragraph does not seem to flow smoothly into the next, write “unclear transition”.
7. If you see typos or other errors, edit them using your Editors’ sheet.
8. In text citations, pick three (3) and make sure they are really in the reference list at the back. Put a checkmark to let the author know you did this.
9. Do you feel that you were given enough introductory information to understand this paper? Write a note to the author and tell him/her how you feel.
10. If there were figures, did it help you understand the topic? Let the author know! Would an additional figure have helped you? If so, suggest a figure to the author.
11. Write a note at the end to tell the author what you especially liked about the paper. Did you like the tone of the paper, its “Scientific voice”? Was it serious? Were you convinced?
12. What you should see in this first draft:
 - a. Topic sentences signaling to the reader what is coming.
 - b. Defined terms to inform the reader.
 - c. Clear overall structure with a beginning that introduces the topic of research, a middle that provides information necessary for the reader to understand the topic with possible questions regarding the research and an end that suggests answers or resolution of the research. The product should feel open-ended, the author is still gathering information about the problem.
 - d. No detailed discussion of methods.

- e. Any figures should have detailed legend so that the figure could “stand alone”.

Peer Evaluation Guidelines

First Draft Evaluation**Author's Name** _____**Reviewer's Name** _____

	Not Satisfactory	Satisfactory	Better than Satisfactory	Excellent	Score
INTRODUCTION	Does not give any information about what to expect in the report (3pts.)	Gives very little information (5 pts.)	Gives too much information-more like a summary (7 pts.)	Presents a concise lead-in to the report (10pts.)	
METHODS & MATERIALS	Not sequential, most steps are missing or are confusing (2 pts.)	Some of the steps are understandable; most are confusing & lack detail (3 pts.)	Most of the steps are understandable; some lack detail or are confusing (4 pts.)	Presents easy-to-follow steps which are logical & adequately detailed (5pts.)	
DATA & RESULTS	Data table &/or graph missing information & are inaccurate (2 pts.)	Both complete, minor inaccuracies (3pts.)	Both accurate (4 pts.)	Data table & graph neatly completed & totally accurate (5pts.)	
CONCLUSIONS	Presents an illogical explanation for findings does not address any questions suggested in introduction (8 pts.)	Presents an illogical explanation for findings & addresses few questions (12 pts.)	Presents a logical explanation for findings & addresses some of the questions (18 pts.)	Presents a logical explanation for findings & addresses most of the questions (22 pts.)	

	Not Satisfactory	Satisfactory	Better than Satisfactory	Excellent	
CITATIONS & REFERENCES	Citations missing (0 pts)	Citations not accurate & format incorrect (1 pt.)	Format or citations accurate, but not both (1 5pts.)	Format & citations accurate (2 pts.)	
FORMAT, PROOFREADING	Very frequent grammar	More than two errors	Only one or two errors	All grammar & spelling &	

G & GRAMMAR	format &/or spelling errors (1 pt.)	(2 pts.)	(3 pts)	format are correct (4 pts.)	
ABSTRACT	Abstract missing (0 pts.)	Needs work on presentation and summarization (1 pt.)	Not as concise a summary (1.5 pts.)	Concise summary of topic (2 pts.)	
				TOTAL POINTS	


Editors' marks

"lc" or ~~C~~apital make lower case

caps or capital make upper case

ital italicize words

 or tr transpose

 close up space



insert space



delete

^

insert

stet leave it stand



paragraph

wiggly line



this sentence, phrase, word is awkward or unclear & I am not sure what you mean to say.

[Citation]



insert these words, phrase or a Citation here