



Medical Laboratory Sciences Standards for Written Work

Requirements and Recommendations

for the Department of Medical Laboratory Sciences

Andrews University

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I. General Format Guidelines

A. Intended use of this resource

1. This resource is intended to aid in the proper formatting of all forms of written work such as scientific term papers, essays, report papers, research proposals, research papers, etc.
2. The guidelines presented in this document should be applied to all papers in MLS courses, unless other specific instructions are given by the course instructor.

B. Formatting guidelines for Medical Laboratory Sciences (MLS)

1. The editorial style that has been approved by the MLS Department follows the American Psychological Association (APA) formatting style with a few stylistic modifications to ensure organizational clarity and readability.
2. This resource, revised according to the 6th edition of the *APA Manual*, offers examples for the general format of APA research papers, in-text citations, endnotes/footnotes, and the reference page. For more information, please consult the *Publication Manual of the American Psychological Association*, 6th edition.

C. General APA Formatting Guidelines

1. The paper/essay must be typed, double-spaced on standard-sized paper (8.5" x 11") with 1" margins on all sides.
2. The font should be one that is clear and highly readable. The MLS Department recommends using 11 or 12 pt. Times New Roman or similar font.
3. Include a **page header** (also known as the "**running head**") at the top of every page.
 - a) To create a **page header/running head**, insert page numbers flush right. Then type "TITLE OF YOUR PAPER" in the header flush left using all capital letters.
 - b) The **running head** is a shortened version of your paper's title and cannot exceed 50 characters including spacing and punctuation. The MLS Department does not require the use of a running head; however, it may be required for publication.

II. Research Paper Format

A. Title Page – for all papers that are 2 pages or longer

1. Format

- a) Center text.
- b) Font must be the same as the font used in the body of the paper.

2. General structure

- a) The title page should contain the **title** of the paper, the **author's name**, and the **institutional affiliation**. Include the page header (described above) flush left with the page number flush right at the top of the page. Please note that on the title page, the page header/running head should look like this:

Running head: TITLE OF YOUR PAPER

- b) Pages after the title page should have a running head that looks like this:

TITLE OF YOUR PAPER

- c) Page numbering – Top right of page, starting with the second page of the text. When applicable, preliminary pages should be enumerated using lowercase roman numerals.

3. Title

- a) Type the **title** in the upper half of the page capitalizing each major word. Conjunctions, articles, and short prepositions are not considered major words; however, capitalize all words containing four letters or more. APA recommends that the title be no more than 12 words in length and should not contain abbreviations or words that serve no purpose.
- b) It is acceptable for the title to take up one or two lines. All text on the title page, and throughout your paper, should be double-spaced.
4. "Presented in partial fulfillment of the requirement of" - beneath the title, type "Presented in partial fulfillment of the requirement of" Course # and name.
5. Author(s) – type the **author's name**: first name, middle initial(s), and last name. Do not use titles (Dr.) or degrees (Ph.D.).
6. Institutional affiliation - beneath the author's name, type the **institutional affiliation**, which should indicate the location where the author(s) conducted the research.

7. Date

B. Abstract

1. Begin typing on a new page. The abstract page should already include the **page header** (described above). On the first line of the abstract page, center the word "Abstract" (no bold, formatting, italics, underlining, or quotation marks).
2. Beginning with the next line, write a concise summary of the key points of your research. (Do not indent.) The abstract should contain in the least the research topic, research question(s), participants (listed in alphabetical order), methods, results, data analysis, and conclusions. Also include possible implications of the research and future work that may be connected with the findings.
3. The abstract should be a single paragraph double-spaced between 150 and 250 words.
4. It is acceptable and desirable to list keywords in the paper as part of the abstract. To do this, indent as when starting a new paragraph, type *Keywords:* (italicized), and then list your keywords. Listing your keywords will help researchers find your work in databases.

C. Body of text

1. General guidelines

- a) Headings and subheadings - are not required, but may be used if they aid in organization of the paper.
- b) Major headings are centered and typed in all capital letters. Second level headings are centered, with upper and lower case letters. If more subheadings are necessary, then side-headings are used. Do not bold headings. Regardless of the style used, it should remain consistent throughout the paper.

2. Components (refer to page 9 for a detailed description of each component)

- a) Introduction
- b) Literature review
- c) Methods
- d) Results
- e) Discussion and Conclusion
- f) Acknowledgements/Contributors

3. References in text (In-text citations)

- a) Cite the author and date of any document used in the preparation of the text. This citation style allows for a prompt and brief identification of the source for readers and enables them to locate the source of information in the alphabetical reference list at the end of the paper.

Govind & Sen (2009) have suggested that cellulosic sugars found in agricultural waste hold the key to a sustainable source for biofuels production.

Energy from cellulosic sugars found in agricultural waste and many common household wastes such as plant clippings, paper, and cardboard, as well as discarded industrial materials such as waste timber may provide a way to replace fossil fuels (Govind, 2009).

- b) Examples:

- (1) A Work by Two Authors: Name both authors in the signal phrase or in the parentheses each time you cite the work. Use the word "and" between the authors' names within the text and use the ampersand in the parentheses.

Research by Wegener and Petty (1994) supports...

(Wegener & Petty, 1994)

- (2) A Work by Three to Five Authors: List all the authors in the signal phrase or in parentheses the first time you cite the source.

(Kernis, Cornell, Sun, Berry, & Harlow, 1993)

In subsequent citations, only use the first author's last name followed by "et al." in the signal phrase or in parentheses. In *et al.*, *et* should not be followed by a period.

(Kernis et al., 1993)

- (3) Six or More Authors: Use the first author's name followed by et al. in the signal phrase or in parentheses.

Harris et al. (2001) argued...

(Harris et al., 2001)

4. Quotations, paraphrasing, and summarizing

- a) Quotations must be identical to the original, using a narrow segment of the source. They must match the source document word for word and must be attributed to the original author.

- (1) When to use quotations?

- (a) Use a direct quote when the quoted material will add to, illuminate, explain or illustrate the point you are making, or when the author's words best highlight the problem you are addressing.

- (2) Short quotations - If you are directly quoting from a work, include the author, year of publication, and the page number for the reference (preceded by "p."). Introduce the quotation with a signal phrase that includes the author's last name followed by the date of publication in parentheses.

According to Jones (1998), "Students often had difficulty using APA style, especially when it was their first time" (p. 199).

Jones (1998) found "students often had difficulty using APA style" (p. 199); what implications does this have for teachers?

If the author is not named in a signal phrase, place the author's last name, the year of publication, and the page number in parentheses after the quotation.

She stated, "Students often had difficulty using APA style" (Jones, 1998, p. 199), but she did not offer an explanation as to why.

- (3) Long quotations - Place direct quotations longer than 40 words in a free-standing block of typewritten lines, and omit quotation marks. Start the quotation on a new line, indented 1/2 inch from the left margin (i.e., in the same place you would begin a new paragraph). Type the entire quotation on the new margin, and indent the first line of any subsequent paragraph within the quotation 1/2 inch from the new margin.

Maintain double-spacing throughout. The parenthetical citation should come after the closing punctuation mark.

Jones's (1998) study found the following:

Students often had difficulty using APA style, especially when it was their first time citing sources. This difficulty could be attributed to the fact that many students failed to purchase a style manual or to ask their teacher for help. (p. 199)

- b) Paraphrasing involves putting a passage from source material into your own words. A paraphrase must also be attributed to the original source. Paraphrased material is usually shorter than the original passage, taking a somewhat broader segment of the source and condensing it slightly. If you are paraphrasing an idea from another work, you only have to make reference to the author and year of publication in your in-text reference, but APA guidelines encourage you to also provide the page number (although it is not required.)

According to Jones (1998), APA style is a difficult citation format for first-time learners.

APA style is a difficult citation format for first-time learners (Jones, 1998, p. 199).

- c) Summarizing involves putting the main idea(s) into your own words, including only the main point(s). Once again, it is necessary to attribute summarized ideas to the original source. Summaries are significantly shorter than the original and take a broad overview of the source material.

5. Figures/Tables

a) General guidelines

- (1) Necessity - Visuals must be used to assist communication, not to use up space, or disguise marginally significant results behind a screen of complicated statistics. Ask yourself this question first: Is the table or figure necessary? Would simple descriptive statistics in text not in a table suffice?
- (2) Relation of Tables or Figures and Text - Because tables and figures supplement the text, specify in the text what the reader should look for when reviewing the table or figure. Focus on the most important point the reader should draw from them and leave the details for the reader to examine on his/her own.
- (3) Documentation – If and when using figures, tables and/or data from other sources, be sure to properly document your sources.
- (4) Integrity and Independence - Each table and figure must be intelligible without reference to the text, so be sure to include an explanation of every abbreviation (except the standard statistical symbols and abbreviations). In addition, all tables and

figures must be properly labeled (use a brief but explanatory title) and cross-referenced with the text.

- (5) Organization, Consistency, and Coherence - Number all tables sequentially as you refer to them in the text (Table 1, Table 2, etc.), likewise for figures (Figure 1, Figure 2, etc.). Abbreviations, terminology, and probability level values must be consistent across tables and figures in the same article. Likewise, formats, titles, and headings must be consistent. Do not repeat the same data in different tables.

b) Table structure

- (1) Numbers - Number all tables with arabic numerals sequentially. Do not use suffix letters (e.g. Table 3a, 3b, 3c); instead, combine any related tables. If the manuscript includes an appendix with tables, identify them with capital letters and Arabic numerals (e.g. Table A1, Table B2).
- (2) Titles – Just like the title of the paper itself, each table must have a clear and concise title. When appropriate, you may use the title to explain an abbreviation parenthetically. Example: *Comparison of Median Income of Adopted Children (AC) v. Foster Children (FC)*
- (3) Headings - Keep headings clear and brief. The heading should not be much wider than the widest entry in the column. Use of standard abbreviations can aid in achieving that goal. All columns must have headings, even the stub-columns (see example structure), which customarily lists the major independent variables.
- (4) Body – This is where the data is recorded. In reporting the data, consistency is paramount. Numerals should be expressed to a consistent number of decimal places that is determined by the precision of measurement. Never change the unit of measurement or the number of decimal places in the same column.

D. Reference list

1. List in alphabetical order (by the last name of the first author of each work), but do not enumerate.
2. The reference list must be double-spaced.
3. All entries should have a hanging indent (one-half inch from left margin)
4. Complete references should include: Author(s), year, title, edition, issue number, inclusive page numbers imprint place and name of publisher, volume number. (See *APA Manual*, pages 222-226 for specific examples).
5. Authors' names are inverted (last name first); give the last name and initials for all authors of a particular work for up to and including seven authors. If the work has more than seven authors, list the first six authors and then use ellipses after the sixth author's name. After the ellipses, list the last author's name of the work.
6. If you have more than one article by the same author, single-author references or multiple-author references with the exact same authors in the exact same order are listed in order by the year of publication, starting with the earliest.

7. Present the journal title in full.
8. Maintain the punctuation and capitalization that is used by the journal in its title. For example: *ReCALL* not *RECALL* or *Knowledge Management Research & Practice* not *Knowledge Management Research and Practice*.
9. Capitalize all major words in journal titles.
10. When referring to books, chapters, articles, or Web pages, capitalize only the first letter of the first word of a title and subtitle, the first word after a colon or a dash in the title, and proper nouns. Do not capitalize the first letter of the second word in a hyphenated compound word.
11. Italicize titles of longer works such as books and journals.
12. Do not italicize, underline, or put quotes around the titles of shorter works such as journal articles or essays in edited collections.
13. Examples:

a) Single Author: Last name first, followed by author initials.

Apple, F. S. (2009). A new season for cardiac troponin assays: It's time to keep a scorecard. *Clinical Chemistry*, 55(7), 1303-1306. doi: 10.1373/clinchem.2009.128363

b) Two Authors: List by their last names and initials. Use the ampersand instead of "and."

Henriques-Normark, B. & Normark, S. (2010). Commensal pathogens, with a focus on *Streptococcus pneumoniae*, and interactions with the human host. *Experimental Cell Research*, 316(8), 1408-1414.

c) Three to Seven Authors: List by last names and initials; commas separate author names, while the last author name is preceded again by ampersand.

Hockenberry, M. J., McCarthy, K. S., Taylor, O. A., Hesselgrave, J., Berhardt, M. B., Daves, M., & Kamdar, K. (2012). Using Improvement Science to Promote Evidence-Based Practice in a Childhood Cancer and Hematology Center. *Journal of Pediatric Oncology Nursing*, 29(1), 5-13. doi: 10.1177/1043454211434203

d) More Than Seven Authors: List by last names and initials; commas separate author names. After the sixth author's name, use an ellipsis in place of the author names. Then provide the final author name. There should be no more than seven names listed.

Porzig, A., Matthay, K. K., Dubois, S., Pampaloni, M., Damon, L., Hawkins, R., . . . Fitzgerald, P. (2012). Proteinuria in Metastatic Pheochromocytoma is Associated with an Increased Risk of Acute Respiratory Distress Syndrome, Spontaneously or After Therapy with ¹³¹I-Meta-iodobenzylguanidine (¹³¹I-MIBG). *Hormone and Metabolic Research*, 44(7), 539-542. doi: 10.1055/s-0032-1311634

e) Organization as Author

Centers for Disease Control and Prevention. (2012).

f) Unknown Author

Merriam-Webster's Collegiate Dictionary (10th ed.). (1993).
Springfield, MA: Merriam-Webster.

- e) Personal Communication: For personal communications such as interviews, letters, e-mails, and person-to-person conversations, cite the communicator's name, the fact that it was a personal communication, and the date of the communication. While APA formatting does not list personal communication in the reference list, the MLS Department requires that all personal communication, in addition to being include in text (in-text citation), also be include in the reference list.

In-text citation:

(D. Hernandez, personal communication, January 4, 2012).

B. Montgomery reported that many of their clients have made good progress (personal communication, April 21, 2012).

Reference list:

Montgomery, L. (2012). *Chryseobacterium indologenes*.
Microbiology Department: South Bend Medical Foundation, South Bend, IN.

- f) Article form and online periodical: Online articles follow the same guidelines for printed articles. Include all information the online host makes available, including an issue number in parentheses.

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Online Periodical*, volume number (issue number if available). Retrieved from <http://www.someaddress.com/full/url/>

- g) Article form and online periodical with DOI assigned: Because online materials can potentially change URLs, APA recommends providing a Digital Object Identifier (DOI), when it is available, as opposed to the URL. DOIs are an attempt to provide stable, long-lasting links for online articles. They are unique to their documents and consist of a long alphanumeric code. Many-but not all-publishers will provide an article's DOI on the first page of the document.

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Journal*, volume number, page range.
doi:0000000/000000000000

- h) Article form and online periodical with no DOI assigned: Online scholarly journal articles without a DOI require the URL of the journal home page. Remember that one goal of citations is to provide your readers with enough information to find the article; providing the journal home page aids readers in this process.

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Journal*, volume number. Retrieved from <http://www.journalhomepage.com/full/url/>

- i) Abstract: If you only cite an abstract but the full text of the article is also available, cite the online abstract as other online citations, adding "[Abstract]" after the article or source name.

Barr, P. M., Wei, C., Roger, J., Schaefer-Cuttillo, J., Kelly, J. L., Rosenberg, A. F.,... Friedberg, J. W. (2012). Syk inhibition with fostamatinib leads to transitional B lymphocyte depletion [Abstract]. *Clinical Immunology*, 142(3), 237-242.

- j) Newspaper article:

Author, A. A. (Year, Month Day). Title of article. *Title of Newspaper*. Retrieved from <http://www.someaddress.com/full/url/>

- k) Book:

Mahon, C., Lehman, D.C., & Manuselis, G. (2011). *Textbook of Diagnostic Microbiology*. 4rd ed. Philadelphia: W. B Saunders Co.

- l) Electronic books:

De Huff, E. W. (n.d.). *Taytay's tales: Traditional Pueblo Indian tales*. Retrieved from <http://digital.library.upenn.edu/women/dehuff/taytay/taytay.html>

Davis, J. (n.d.). *Familiar birdsongs of the Northwest*. Available from <http://www.powells.com/cgi-bin/biblio?inkey=1-9780931686108-0>

III. Research Proposal

A. General guidelines

1. The proposal should have sufficient information to convince the readers that you have an important research idea, that you have a good grasp of the relevant literature and the major issues, and that your methodology is sound.
2. In general, a research proposal contains all the key elements involved in the research process, with sufficient information for the readers to evaluate the proposed study. A well written proposal also provides a strong foundation for the final research paper.
3. In the proposal, the future tense is used, except when discussing background literature. In the introduction it is appropriate to use either present or past tense as applicable.

B. Proposal components

1. Title page (of the research proposal)

1. This contains the full particulars pertaining to the following appear: the name of the researcher(s), course, and the following wording: "Research proposal in preparation of a research project" (with the following proposed detail):"..... "
2. **Title** - It should be concise and descriptive. For example, the phrase, "An investigation of . ." could be omitted. Often titles are stated in terms of a functional relationship, because such titles clearly indicate the independent and dependent variables. However, if possible, think of an informative but catchy title. An effective title not only pricks the reader's interest, but also predisposes him/her favorably towards the proposal.

2. Abstract

It is a brief summary, no more than 300 words. It should include the research question, the rationale for the study, the hypothesis (if any), the method, and the main findings. Descriptions of the method may include the design, procedures, the sample, and any instruments that will be used.

3. Introduction

1. The main purpose of the introduction is to provide the necessary background or context for your research problem. How to frame the research problem is perhaps the biggest problem in proposal writing.
2. In this section, the writer emphasizes the importance of the proposed research and describe the research topic or theme. This is usually done in one or two paragraphs.
3. The introduction typically begins with a general statement of the problem area, with a focus on a specific research problem, to be followed by the rational or justification for the proposed study. The introduction generally covers the following elements:
 - a) States the research problem. This is often referred to as the purpose of the study.
 - b) Provides the context and set the stage for your research question in such a way as to show its necessity and importance.

- c) Presents the rationale of your proposed study and clearly indicate why it is worth doing.
 - d) Briefly describes the major issues and sub-problems to be addressed by your research.
 - e) Identifies the key independent and dependent variables of your experiment. Alternatively, specify the phenomenon you want to study.
 - f) States your hypothesis or theory, if any.
 - g) Defines the scope of your research. The scope is the delimitation or boundaries of your proposed research. This is necessary to provide a clear focus.
 - h) Provides definitions of key concepts (optional) .
4. Literature Review - Sometimes the literature review is incorporated into the introduction section. However, most professors prefer a separate section, which allows a more thorough review of the literature. This is the case for this project. The literature review serves several important functions:
- 1. Ensures that you are not "reinventing the wheel".
 - 2. Gives credits to those who have laid the groundwork for your research.
 - 3. Demonstrates your knowledge of the research problem.
 - 4. Demonstrates your understanding of the theoretical and research issues related to your research question.
 - 5. Shows your ability to critically evaluate relevant literature information.
 - 6. Indicates your ability to integrate and synthesize the existing literature.
 - 7. Provides new theoretical insights or develops a new model as the conceptual framework for your research.
 - 8. Convinces your reader that your proposed research will make a significant and substantial contribution to the literature (i.e., resolving an important theoretical issue or filling a major gap in the literature).
5. Methods - This section is very important because it tells your "Research Committee" how you plan to tackle your research problem. It will also provide your work plan and describe the activities necessary for the completion of your project. The guiding principle for writing the Method Section is that it should contain sufficient information for the reader to determine whether the methodology is sound. Some even argue that a good proposal should contain sufficient details for another qualified researcher to implement the study.

For quantitative studies, the method section typically consists of the following sections:

- 1. Design -Is it a questionnaire study or a laboratory experiment? What kind of design do you plan to use?
- 2. Subjects or participants - Who will take part in your study? What kind of sampling procedure will you use?
- 3. Instruments - What kind of measuring instruments or questionnaires will you use? Why are you choosing them? Are they valid and reliable?
- 4. Procedure - How will you plan to carry out your study? What activities) will it involve? How long will they take?

6. Results - Obviously, you do not have results at the proposal stage. However, you need to have some idea about what kind of data you will be collecting, and what statistical procedures will be used in order to answer your research question or test your hypothesis.
7. Discussion & Conclusion - It is important to convince your reader of the potential impact of your proposed research. You need to communicate a sense of enthusiasm and confidence without exaggerating the merits of your proposal. That is why you also need to mention the limitations and weaknesses of the proposed research, which may be justified by time and financial constraints as well as by the early developmental stage of your research area.
8. Acknowledgments/Contributors
9. Sources/References - include a short list of sources. For example, list those sources which were consulted during the literature survey/review to demarcate the research problem.

IV. References

The following resources have been used in the preparation of this document:

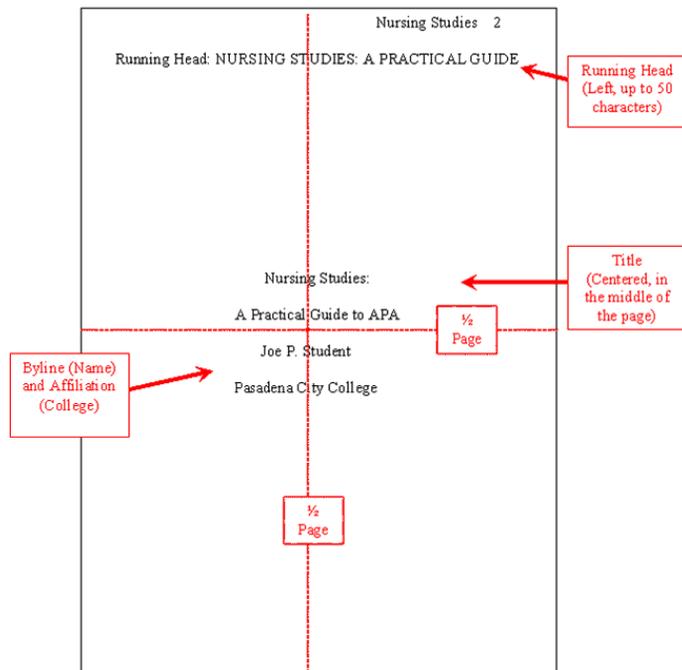
American Psychological Association [APA]. (2010). *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association.

Andrews University. (2011). Andrews University Standards for Written Work (12th ed., Updated). Available from <https://www.andrews.edu/grad/documents/andrews-university-standards-for-written-work-as-of-october-2011.pdf>

Purdue University. (2017). OWL Purdue online writing lab. Available from <http://owl.english.purdue.edu/owl/resource/560/01/>

Appendix

Title Page Sample



Abstract Sample

DISTANT INTERCESSORY PRAYER AND TASK PERFORMANCE 2

Abstract

In an extension of research demonstrating causal effects of intercessory prayer for physical healing in a medical setting, the present study experimentally examined the effects of intercessory prayer for improved task performance in an employment setting. Trained customer service representatives either did, or did not, receive (over a 14-day period) daily intercessory prayer for the specific needs and challenges of their workplace. Speed of call handling was evaluated for each customer service representative. The specific dependent measures were number of calls per hour and number of seconds per call. No statistically significant differences between prayer and non-prayer groups were found for either calls per hour or seconds per call. Recommendations for research in this new area of study center on methodological issues, including the selection of relevant dependent measures.

Literature Review Sample

Title for Literature Review Paper
Student Name
College/University
Class and section
Date
(page break)

Title for Literature Review Paper

Introduction

Establish your argument/thesis.
Describe organization of paper what will be covered in paper.

Body of paper

Reorder notes to group material by content.
Use topic headings and subheadings. Headings should reflect what the section is about.

Headings should be left justified on a separate line (not bolded).
Subheadings are left justified and italicized.

Synthesize material in each section.
Summarize the overall findings or conclusions.

Point 1, Point 2, Point 3, etc.

Conclusions

Summarize entire paper at the end.
Discuss conclusions and future directions.
(page break)

References

Author Last, F. (Year). Title ABCD12345. *Journal from the American Psychological*

Association, edition number, page numbers.

Author Last, F. (Year). Title. *Journal*, edition number, page numbers

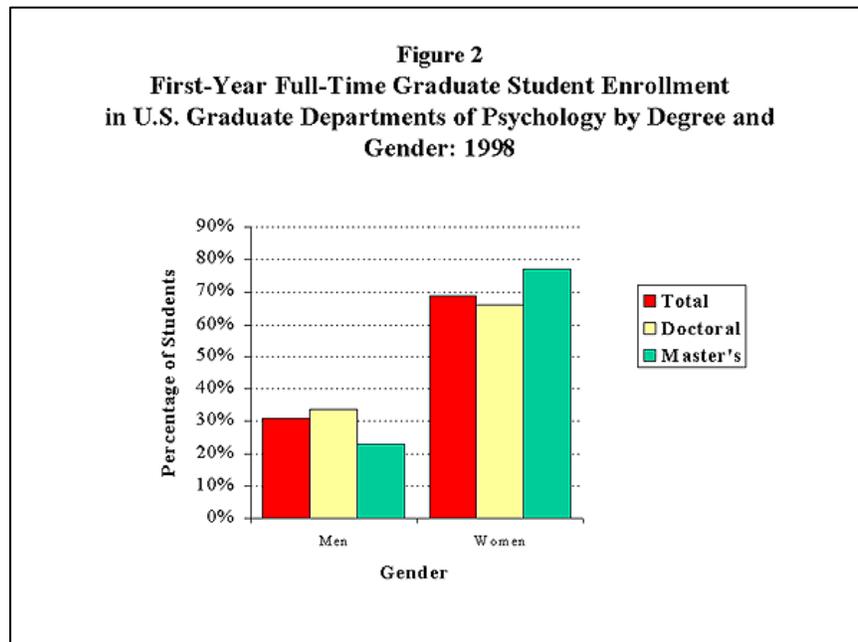
Note: Due to space constraints, line spacing and other formatting requirements are not followed in this example.

Figure/Table Sample

Table 1			
<i>Dogs Scoring Above Average on Intelligence by Breed and Gender</i>			
Breed	Male	Female	%
Dachshund	123	234	17.6
Terrier	456	567	31.1
Siberian Husky ^a	789	891	51.3
Totals (N = 3060)	1368	1692	

Note. Average score = 150. No animals were harmed during testing.

^aThree huskies (one male, two female) escaped before testing was completed and are therefore included in the table.



Reference Page Sample

American Psychological Association [APA]. (2011). *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association.

Andrews University. (2008). Andrews University Standards for Written Work (11th ed.). Available from www.andrews.edu/grad/documents/sww11.pdf

Apple, F. S. (2009). A new season for cardiac troponin assays: It's time to keep a scorecard. *Clinical Chemistry*, 55(7), 1303-1306. doi: 10.1373/clinchem.2009.128363

McKenzie, J.F., Pinger, R.R and Kotecki, J.E (2008): An Introduction to Community Health. (6th edition). Jones & Bartlett Publishers, Inc.

Purdue University. (2012). OWL Purdue online writing lab. Available from <http://owl.english.purdue.edu/owl/resource/560/01/>

Pasadena City College. (2012). APA guidelines. Available from <http://www.pasadena.edu/hstutoringlab/apa/titlepage.cfm>

Vanguard University. (2012) APA style guide. Available from <http://psychology.vanguard.edu/wp-content/uploads/2010/12/abstract.pdf>