

**Thesis and Dissertation Writing Instructions
Academic Year 2016-2017**

**Instructions for the preparation of theses and dissertations at the South
Dakota School of Mines and Technology (SDSM&T)**

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INSTRUCTIONS FOR THE PREPARATION OF THESES AND DISSERTATIONS AT SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY (SDSM&T)

1. INTRODUCTION

These instructions are effective for all theses and dissertations completed April 12, 2017, or later.

Master's and professional theses and doctoral dissertations are placed in the Devereaux Library collection at the South Dakota School of Mines and Technology (SDSM&T). This manual contains the requirements and regulations of the Office of Graduate Education and the Faculty for uniform style and format of these documents. The standards are flexible to be consistent with the specialized requirements of primary publications in individual fields.

Division of responsibilities for preparing a thesis or dissertation:

- Faculty regulations pertaining to procedures for the supervision, approval, and defense of theses and dissertations are described in the current SDSM&T Academic Catalog. Both student and advisor are responsible for following these procedures.
- The student is responsible for preparing a thesis or dissertation following formatting guidelines described below.
- The Office of Graduate Education has responsibility for monitoring the physical format of theses and dissertations to make certain that the format conforms to university guidelines and that the quality of the master copy of the manuscript will allow satisfactory reproduction. All thesis and dissertation documents should be submitted to the Graduate Office prior to submission to the library for reproduction.

1.1 Checklist of Approval, Reproduction, and Binding Procedures for Theses and Dissertations

1. Research and write.
2. Schedule your defense. Your thesis/dissertation, once defended, must be approved by your committee. The defense *Examination Scheduling Request* form and the *Grad Ed Deadlines* chart are available on the Grad Ed website "Forms" page. Pay particular attention to the last day possible to submit your document to the Grad Ed Office. Submitting on or before this date will allow enough time to submit the document to the Grad Ed Office to check it over, for you to make any corrections necessary, and then to submit it to the library for final printing and binding. Check early on with

your committee members about their availability, not only for your defense, but also for follow-up. This is particularly important during the summer due to faculty workshops, field camps and travel schedules. Email an illustration to the Grad Ed Office to be used in your defense notice. The Grad Ed Office will email the notice to your fellow graduate students and to the SDSM&T campus community.

3. Following your defense, make whatever corrections/revisions your committee requires. Check that your margins and page numbers are correct and that you have included your vita page, which must be referenced in the table of contents.
4. Make sure the title page/signature page lists all committee members, Department Head or Program Coordinator, and Graduate Education Dean. Refer to directions on website as noted above.
5. Contact the Devereaux Library's Coordinator of Library Operations for paper specifications, including directions for oversize pages. If you want an estimate of your duplication costs, contact the Coordinator to set up an appointment. Be prepared to provide details as to the number of pages, number that are color, if oversized maps or CD pockets are required, etc. Best if you make an appointment to meet with the Coordinator to discuss all details ahead of time and then again when you are ready to submit your document. Contact: library@sdsmt.edu
6. Print your title page/signature page on the same archival quality paper stock that you will be using for your final document.
7. Obtain all signatures on the title page (printed on archival paper as referenced above) except the Graduate Education Dean's signature. This title page serves as written confirmation by your committee members that they approve your final work.
8. Scan the signed title page with all signatures except the Dean's and include it with your electronic copy (in Word or PDF) of your T/D.
9. The Graduate Office is piloting a new way to process thesis/dissertation (T/D) handling through the final steps by creating a D2L course titled Thesis/Dissertation Final Submission. You have been enrolled in this course automatically and should see it the next time you log into D2L. This is not a regular course; you don't get credit, and you don't have to pay anything. The main goal is to make it easier to ship those large T/D files around as we go through the review process. It will also save you from having to print a proofreading copy.
10. Log into D2L. Submit the T/D document (a single PDF or Word file) including the signed title page to the "Proofreading" Dropbox folder in D2L.
If you are unfamiliar with D2L, stop by the Grad Office and we will be glad to walk you through it.

11. We will notify you with an email when the proofreading is complete. You will be able to download the marked file and your abstract (the abstract will have been read separately by the Dean as well as by the proofreader), from the same Dropbox folder.
12. Make the proofreading corrections to create your final document. Log in to D2L and upload the final document to the “Final” Dropbox folder.
13. Print your final, corrected document on archival paper. Take the document, including the signed title page, to the Grad Ed Office. The Dean will then review the thesis/dissertation and sign the title/signature page, if warranted.
14. You will be notified to come to the Grad Ed Office to pick up your document once the Dean has reviewed and signed it.
15. Complete the Thesis/Dissertation Order Sheet that was given to you by your committee at the time of your defense. Obtain required signatures. Take to the Devereaux Library the signed order sheet, check-out sheet, final thesis/dissertation (with title page), and required number of CDs. The CDs must contain a PDF of all supplemental elements of the thesis/dissertation in addition to the original files. Pay for the printing and binding and make sure that you obtain the required library staff signature on the check-out sheet.
16. Return the signed library check-out sheet to the Grad Ed Office. This is an important step to insure your diploma is released.
17. The library arranges for theses/dissertations to go to the bindery three times a year. When yours has been printed and bound, the Devereaux Library will take care of distributing all copies.

2. CONSTRAINTS ON USE OF COPYRIGHTED THESIS/DISSERTATION CONTENT

2.1 Use of Works Previously Published by Others

The author of the thesis or dissertation must sign the title page certifying that the document is the author's original work. The use of material copyrighted by others must be properly acknowledged and, unless it falls within the doctrine of fair use, may be used only with written permission of the copyright owner. A copy of the owner's written permission must accompany the document in its final form.

2.2 Works Previously Published When Thesis/Dissertation Author is Co-Author

A statement must be made (in footnote or in text) indicating the portions of previous work done by the author.

3. COPYRIGHTING THESES OR DISSERTATIONS

3.1 Ownership

The ownership rights to theses and dissertations created by students is governed by SD BOR policy 4:34 and the following SD Mines policy.

SD BOR Policy 4:34 (2).A.1&2 is:

- A. *Subject to the exceptions permitted, and on the conditions stated, in §§ 4 and 6 of this policy, the Board will own employee created intellectual property developed in the course of performing employment duties or as a direct result of activities supported by funds controlled by or administered under the authorization of the Board or undertaken in facilities or using resources controlled by or administered under the authorization of the Board.*
 1. *Special rules govern copyrights for creative artistic works and scholarly writings; copyrights vest with creators unless the works or writings arose under the circumstances described in §§ 4(B) or 4(D) and subject to retention of a no-cost, nonexclusive, world-wide license to use for nonprofit education, research and any other purposes related to Board operations or programs.*
 2. *Students contributing to sponsored research or faculty-directed research, as described in § 3(K), will be deemed to be gratuitous employees, and insofar as concerns their use or creation of intellectual properties, they will enjoy rights to share in revenues guaranteed creators under this policy and be charged with all responsibilities of employees under this policy.*

SD Mines Policy, based on SD BOR Policy4:34 is:

Copyright ownership of theses and dissertations resulting from research which is performed in whole or in part by the student with financial support in the form of wages, salaries, stipend or grant by SDSM&T shall be determined in accordance with the terms of the support agreement, or in the absence of such terms, shall become the property of the University.

Graduate students must, as a condition of their degree award, grant royalty-free permission to the School to reproduce, use, and publicly distribute copies of their thesis or dissertation.

3.2 Registration and Deposit

Copyright registration of theses and dissertations is optional.

The United States Copyright Act of 1976 adopts the principle of automatic copyright. Works created after 1 January 1978 are copyrighted under federal statute upon creation. While registration with the United States Copyright Office and use of a copyright notice are not conditions for securing initial copyright for these works, registration and notice are still important to ensure full protection of rights under the law. If copyright registration is desired by the copyright owner, all copies should carry a copyright notice (i.e. the word “Copyright” or a symbol—e.g., © 2003 Jane Smith) and the words “All Rights Reserved” beneath the notice.

3.3 Further Information on Copyright Law

Inquiries regarding federal copyright law, institutional copyright policy, and copyright matters in general may be directed to the Vice President for Research.

4. SPECIFIC REQUIREMENTS

A chart summarizing the format of thesis and dissertation manuscripts is given on the next page.

The required components of an M.S. thesis or Ph.D. dissertation include:

- title page,
- abstract,
- acknowledgements,
- table of contents,
- list of tables,
- list of figures,
- body of thesis (see below),
- bibliography,
- appendices (if there are any, they must be present for committee review),
- vita.

Arrangement of Thesis and Dissertation manuscripts (all of these components are required)

Page	Format of Page Number	See pages	Comments/helpful hints
Title/Signature Page	Not numbered	14-16	Specific format required; see pages 13 & 14 for example
Abstract	Lower case Roman numerals	17	250-350 words
Acknowledgements	Lower case Roman numerals	19	
Table of Contents	Lower case Roman numerals	19	The table of contents of this document is an example of proper formatting
List of Tables	Lower case Roman numerals	19	Same formatting as table of contents
List of Figures	Lower case Roman numerals	19	Same formatting as table of contents
Body	Arabic numbers (starting with 1)		Includes the introduction, methods, theory, results, and conclusions
Bibliography	Arabic numbers	13	
Appendices	Arabic numbers		Label appendix sections with upper case letters (example: "Appendix A: Spectroscopic Data")
Vita	Arabic numbers	19	

The body of the thesis or dissertation may be in one of two formats:

Conventional Format: In the conventional format, the body of the thesis or dissertation **MUST** have the following chapters, numbered with Arabic numerals, or their discipline-specific equivalent if approved by the student's graduate committee. Additional chapters, variations on the below chapter titles, and additional inclusion of one or more journal articles are all acceptable if approved by the student's graduate committee.

- Introduction
- Theory and/or Literature Search
- Methods
- Results
- Conclusions

Compilation of Journal Articles Format: In the compilation of journal articles format, the body of the thesis or dissertation **MUST** have the following chapters, numbered with Arabic numerals, or their discipline-specific equivalent if approved by the student's graduate committee. Additional chapters and variations on the below chapter titles are acceptable if approved by the student's graduate committee. M.S. theses in this format typically have at least 2 journal articles, and Ph.D. dissertations in this format typically have at least 4 journal articles. However, it is up to the discretion of the graduate committee as to the number, quality and length of journal articles that are acceptable.

- Introduction
- One or more journal articles. Note that published journal articles must properly attribute the owner of the copyright.
- Conclusions
- Bibliography that only cites references in the non-journal article chapters, while each journal article must include a self-contained bibliography. The student must place a disclaimer at the top of the thesis or dissertation bibliography that says:
 - "This bibliography is limited to the non-journal article chapters of this thesis/dissertation. All journal articles in this thesis/dissertation have a self-contained bibliography."
- An appendix with documentation for permission to reproduce the above copyrighted articles.

All pages must have the following format (additional information can be found on pages 5-7):

- Recommended font is Times New Roman
- 12 pt minimum font (10 pt minimum for captions)
- Numbered as outlined above
- 1" margin on the top, bottom, and right (includes page number)
- 1.5" margin on the left
- Print on one side of the page only (no duplex printing)
- Page numbers in the upper right hand corner, ¾" from the top and right side

4.1 Master Copy Preparation

Theses and dissertations must be electronically printed and error-free, since the master copy is kept as a permanent record of research and academic achievement by the student, and is used for reproduction.

4.2 Paper

The paper used in the master copy must meet institutional standards for reproduction and archival quality. Please contact the Devereaux Library for paper specifications: library@sdsmt.edu

4.3 General Rules for Illustrations

All copies deposited in the Devereaux Library must be fully illustrated. Illustrations may be oriented lengthwise on the page, but must be placed in such a manner that when the thesis is held in reading position, the bottom of such an illustration and its caption will be at the right side of the page. All page size (8½ x 11) illustrations must conform to margin limitations as indicated under Item 4.7 (Style and Margins). Large tables, charts, maps, etc., must be folded no larger than 7 x 10 inches with plate number and/or title in bottom right corner, to allow trimming of the bound volume without damaging the material. The library will make the necessary reproductions of all illustrations that are no larger than 11 x 17 inches. For larger illustrations, the appropriate number of copies must be supplied. Under no circumstances are any continuous-tone photographs to be used.

Images and charts reproduced using digital printers should be printed directly on the proper paper using archival-quality inks/dyes/toner.

4.4 Figures, Maps, Graphs and Illustrations

Figures, maps, graphs and illustrations must be left-justified. Captions for all figures, maps, graphs and illustrations must be within margin and font limitations as set forth under Item 4.7 (Style and Margins). All captions must be placed at the bottom or on the right-hand side of an illustration and left-justified. Captions should be in a different font to distinguish from the body of text. Only the first word of each sentence of captions should be capitalized. Add 1 or 2 empty lines after captions to enable readers to readily differentiate captions from narrative text.

Figures, maps, graphs, and illustrations are, in most cases, produced electronically. If not, the following instructions apply.

To prepare a good original by hand:

1. Draw on high quality reproducible paper or film.
2. Draw with black, waterproof (non-transferring) India ink. Do not use felt tip pens.
3. All lines should be dark, crisp and clear.
4. Drawing should be clean of any film.
5. When shading, use dark, clear patterns.
6. Do not use blue line. Not all blue lines can be reproduced.
7. When creating thesis drawings larger than 8 1/2" x 11" (i.e. – such as geographic maps) they are to be folded down to a 7" x 10" format. Place identifying information (plate, title, preparer's name) in the bottom or bottom right corner so it can be easily displayed when folded.

4.5 Tables

Tables must be centered (center justified). Captions must also be centered (center justified) and must be placed above the table. Add 1 or 2 empty lines after tables to enable readers to readily differentiate the resumption of narrative text. Oversized tables that are larger than 8 1/2" x 11" (i.e. geographic maps) are to be folded down to a 7" x 10" format.

4.6 Use of Acronyms

At the first usage of an acronym spell out entire name/phrase for which an acronym is to be used and follow with the acronym in parentheses. Avoid off-color or otherwise inappropriate acronyms.

4.7 Style, Margins and Page Numbers

Fonts used should be clean and easily readable. The recommended font style is Times New Roman. Minimum font size is 12 pts. Minimum font size for captions is 10 pts. The same font should be used for the principle text throughout the work, although other fonts and styles may be employed for smaller segments.

All pages in the document should be numbered, with the exception of the title page. Use the roman numeral i (one) for the first page after the title page. Use the Arabic numerical number 1 (one) for the first page of the body. Upper case letters should be used to number appendixes. Page numbers must be in the same font and size as the body of the text and placed on all pages, including the Abstract and the Table of Contents.

Page numbers must be in the upper right-hand corner, $\frac{3}{4}$ inch down from the top, and $\frac{3}{4}$ inch from the right-hand side.

Margins are to be $1\frac{1}{2}$ inches on the left side and 1 inch on the other three sides. The same margins apply to both landscape and portrait page orientation. Margins are to be blank—without punched holes, writing, or other marks. The margins set in many word processing packages may not measure the same on the printed page. Measure the margins on printed test pages and adjust the software settings accordingly to meet the above requirements.

Pages which have printed text only must be oriented in the same manner as the pages of this instruction manual, often called “portrait.” When necessary, graphs, photographs, tables, and figures may be oriented facing to the right. The manuscript is to be double-spaced with paragraph indentation and tables typed in accordance with format of journals in the candidate’s particular discipline and printed on one side of the paper only.

4.8. Style References

The bibliographic style used in the thesis or dissertation is determined by the candidate’s department or professional society and by consultation with the candidate’s major professor. The Office of Graduate Education encourages preparation of theses/dissertations in a format suitable for submission for publication in leading journals in the candidate’s field.

The following section provides examples for citing a wide variety of sources in the American Psychological Association (APA) style, a commonly used style similar to the bibliographic styles used in many disciplines. In some fields, styles may differ considerably. The candidate should follow a format required by the publication to which he/she plans to submit the work. However, if there is no specific format in a given field, and the candidate’s department has no specific guidelines, use of this APA style is encouraged; however, every discipline has its own protocols and students may, with the consent of their committee, use the style guidelines of their discipline.

The American Psychological Association (APA) recommends an author/date style of in-text citations. These citations refer readers to a list of references at the end of the paper. APA in-text citations provide at least the author’s last name and the date of publication. For direct quotations, a page number is given as well. In APA style, the alphabetical list of works cited is entitled **References**. The general principles are as follows:

1. Invert *all* author names and use initials instead of first names. With two or more authors, use the word *and*. Separate the names with commas.
2. Use all authors’ names; do not use “et”

3. Place the date of publication in parentheses immediately after the last author's name. **Examples:** (Levy, 1997). (National Institute of Mental Health [NIMH], 1999) and in later citations (NIMH, 1999)
4. Underline titles and subtitles of books; capitalize only the first word of the title and subtitle (as well as all proper nouns).
5. Do not place titles of articles in quotation marks, and capitalize only the first word of the title and subtitle (and all proper nouns). Capitalize names of periodicals as you would capitalize them ordinarily. Underline the volume number of periodicals.
6. Use the abbreviation *p.* (or *pp.* for plural) before page numbers of newspaper articles and works in anthologies, but do not use it before page numbers of articles appearing in magazines and scholarly journals.
7. You may use a short form of the publisher's name as long as it is easily identifiable.
8. Alphabetize your list by the last name of the author (or editor); if there is no author or editor, alphabetize by the first word of the title other than *a*, *an* or *the*.
9. In many applications using APA, the first line is indented, subsequent ones full width—like a paragraph. This is the style that appears in the APA manual. However, some APA applications employ the hanging indent (first line full width, subsequent lines indented).

BOOKS (check capitalization for this book section)

[**Note:** When the author is an organization, the publisher is often the same organization. In such a case, give the publisher's name as "Author."]

[**Note:** Use author's name for first and subsequent entries. Arrange entries by date, *earliest* first.]

(BASIC FORMAT FOR A BOOK)

Schaller, G. B. (1993). *The last panda*. Chicago: University of Chicago Press.

(TWO OR MORE AUTHORS)

Eggen, P. D. and Kauchall, D. (1992). *Educational psychology: Classroom Connections*. New York: Merrill.

Caplow, T., Bahr, H. M., Chadwick, B. A., Hill, R., and Williamson, M. H. (1982). *Middletown families: Fifty years of Change and Continuity*. Minneapolis: University of Minnesota Press.

(CORPORATE AUTHOR)

Fidelity Investments. (1993). *Fidelity Brokerage Services handbook*. Boston: Author.

(UNKNOWN AUTHOR)

The Times atlas of the world (9th ed.). (1992). New York: Times Books.

(EDITORS)

Fox, R. W., and Lears, T. J. F. (Eds.). (1993). *The power of Culture: Critical essays in American history*. Chicago: University of Chicago Press.

(TRANSLATION)

Miller, A. (1990). The untouched key: Tracing childhood trauma in creativity and destructiveness (H. & H. Hannum, Trans.). New York: Doubleday. (Original work published 1988)

(EDITION OTHER THAN FIRST)

Cavanaugh, J. C. (1993). *Adult development and aging* (2nd ed.). Pacific Grove, CA: Brooks/Cole.

(WORK IN AN ANTHOLOGY)

Ochs, F., and Schieffelin, B. (1984). Language acquisition and socialization: Three developmental stories. In R. Schweder & R. Levine (Eds.), *Culture theory: Essays in mind, self, and emotion* (pp. 276–320). New York: Cambridge University Press.

(TWO OR MORE WORKS BY THE SAME AUTHOR)

Davis, F. (1973). *Inside intuition: What about nonverbal communication*. New York: McGraw-Hill.

Davis, F. (1978). *Eloquent animals: A study in animal communication*. New York: Coward, Geoghegan.

ARTICLES IN PERIODICALS

[**Note:** Cite works according to the usual style, and arrange them alphabetically by title. Add lower-case letters beginning with “a,” “b,” and so on within parentheses immediately following the year.

(ARTICLE IN A JOURNAL PAGINATED BY VOLUME)

Block, N. (1992). Begging the question: Against phenomenal consciousness. *Behavioral and Brain Sciences*, 15, 205–206.

(ARTICLE IN A JOURNAL PAGINATED BY ISSUE)

Searle, J. (1990). Is the brain a digital computer? *Proceedings of the American Philosophical Association*, 64(3), 21–37.

(ARTICLE IN A MAGAZINE)

Caputo, R. (1993, August). Tragedy stalks the Horn of Africa. *National Geographic*, 184, 88–121.

(ARTICLE IN A DAILY NEWSPAPER)

Goleman, D. (1993, July 13). New treatments for autism arouse hope, skepticism. *The New York Times*, pp. C1, C11.

(LETTER TO THE EDITOR)

Fuller, K. S. (1993). The issue of ivory [Letter to the editor]. *Audubon*, 95(4), 12.

(REVIEW)

Blaut, J. M. (1993). [Review of the book *Global capitalism: Theories of societal development*]. *Science and Society*, 57(1), 106–107.

(TWO OR MORE WORKS BY THE SAME AUTHOR IN THE SAME YEAR)

Eckholm, Erik. (1985a, June 25). Kanzi the chimp: A life in science. *The New York Times*, pp. C1, C3.

Eckholm, Erik. (1985b, June 24). Pygmy chimp learns language skill. *The New York Times*, pp. A1, B7.

OTHER SOURCES

[**Note:** No end punctuation is used at the end of the URL.]

(DISSERTATION ABSTRACT)

Pellman, J. L. (1988). Community integration: Its influence on the stress of widowhood. (Doctoral dissertation, University of Missouri, 1988). *Dissertation Abstracts International*, 49, 2367.

(GOVERNMENT DOCUMENT)

U.S. Bureau of the Census. (1989). *Statistical abstract of the United States* (109th ed.). Washington, DC: U.S. Government Printing Office.

(PROCEEDINGS OF A CONFERENCE)

Waterhouse, L. U (1982). Maternal speech patterns and differential development. In C. E. Johnson & C. L. Thew (Eds.), *Proceedings of the Second Annual International Study of Child Language* (pp. 442–454). Washington, DC: University Press of America.

(RADIO OR TV PROGRAM)

MacNeil, R. (Interviewer). (1991, August 22). [Interview with G. F. Kennan]. *The MacNeil/Lehrer NewsHour* (Program 4144). New York and Washington, DC: PBS.

(VIDEOTAPE)

National Geographic Society (Producer). (1987). *In the shadow of Vesuvius* [Videotape]. Washington, DC: National Geographic Society.

(ONLINE: ARTICLE FROM A NEWSPAPER ON THE WEB)

Lewis, R. (1995, December 24). Chronobiology researchers say their field's time has come. *The Scientist*, 9, p. 14 [On-line newspaper]. Retrieved December 30, 1997, from the World Wide Web: http://web.the-scientist.library.upenn.edu/jr1995/chrono_951211.html

(ONLINE: ARTICLE FROM A JOURNAL OR MAGAZINE ON THE WEB)

Broydo, L. (1998, January 13–18). The clean cleaner cover-up. *Mother Jones*, January/February 1998. *Mother Jones the Mojo Wire*. [Magazine, selected stories on-line]. Retrieved January 15, 1998, from the World Wide Web: http://www.mojones.com/mother_jones/JF98/homeplanet.html

(ONLINE: ANNOUNCEMENT POSTED ON THE WEB)

National Institute of Mental Health. (1997, May 15). *Mammalian clock gene closed*. [Press release posted on the World Wide Web]. Bethesda, MD: Author. Retrieved December 30, 1997, from the World Wide Web: <http://www.nimh.gov/events/prnorth.htm>

(ONLINE: MATERIAL FROM AN FTP SITE)

Beck, A. (1994, July 2). Glass, a fractal gif. [On-line graphic]. Swedish University Network SUNET. Retrieved January 17, 2000: <ftp://ftp.sunet.se/pub/pictures/fractals/>

(ONLINE DOCUMENT WITHOUT A PRINT VERSION)

Wallach, D. S. (1993, September 22). FAQ: Typing injuries (2/5): General info. [On-line]. Available FTP: <rtfm.mit.edu>

(COMPUTER SOFTWARE)

Transparent Language Presentation Program (Version 6 for Windows) [Computer software]. (1999). Hollis, HH: Transparent Language.

(ABSTRACT ON CD-ROM)

Marcus, H. F., & Kitayama, S. (1991). Culture and the self: Implications for group dynamics [CD-ROM]. *Psychological Review*, 88(2), 224, 253. Abstract from: SilverPlatter File: PsycLIT Item: 78-23878.

(INFORMATION SERVICES: ERIC)

Chiang, L. H. (1993). Beyond the Language: Native Americans' nonverbal communication. (ERIC Document Reproduction Service No. ED 368 540).

(INFORMATION SERVICES: NEWSBANK)

Wenzell, R. (1990). Businesses prepare for a more diverse work force. (Newsbank

Document Reproduction Service No. EMP 27:D12).

4.9 Bibliographic Style

The author may use either footnotes or references to a bibliography at the end of the thesis or dissertation. As stated above, bibliographic style (footnotes, references, citations, etc.) and type (mathematical notation, symbols, etc.) should be those consistent with the guidelines established by the candidate's department or professional society. The style of the principal abstracting journal of the candidate's discipline is otherwise a good guide. Whenever possible, periodical titles should be abbreviated according to the standards outlined by the American National Standards Institute.

Some specific journals and bibliographies in various disciplines are:

American National Standards Institute, Inc., American National Standard for the Abbreviation of Titles of Periodicals. 1970. (Z39.5-1969—which is a revision of Z39.5-1963).

Atmospheric Sciences: J. of the Atmospheric Sciences; Meteorological and Geostrophysical Abstracts

Chemical Engineering: Chemical Abstracts; Engineering Index.

Chemistry: Chemical Abstracts; Analytical Abstracts.

Civil Engineering: ASCE Publications Abstracts; Engineering Index.

Electrical Engineering: Electrical and Electronic Abstracts; Engineering Index.

Electronics and Communications Abstracts Journal.

Geology and Geological Engineering: Annotated Bibliography of Economic Geology; Bibliography and Index of Geology; Bibliography of North American Geology; Geological Society of America, Bulletin; Geophysical Abstracts.

Mathematics: American Mathematical Monthly; American Mathematical Society Proceedings; Mathematical Reviews.

Mechanical Engineering: American Society of Mechanical Engineers, Transactions. Series A to J; Engineering Index; Mechanical Engineering.

Metallurgical Engineering: American Institute of Mining, Metallurgical and Petroleum Engineers, Transactions. American Society of Metals, Transactions; Engineering Index; Metals Abstracts; Chemical Abstracts.

Mining Engineering: Geological Society of America, Bulletin; Mining

Engineering: Engineering Index, IMM Abstracts, Energy Research Abstracts.

Paleontology: Camp, Charles Lewis, Bibliography of Fossil Vertebrates, 1954-1958, Geological Society of America (New York), 1964. (Z6033/.P2/C342); Bibliography and Index of Geology.

Physics: Nuclear Science Abstracts; Solid State Abstracts Journal; Physics Abstracts; Physical Review A-D.

4.10 Title Page

The title page must show the title, degree program, author, whether the document is a master's thesis or a doctoral dissertation, its purpose, name of the college, date defended, and signature approvals of the Graduate Advisory Committee, the head of the major department or program coordinator of a multi-disciplinary program, and the Dean of the Graduate Education. Names should be printed below signatures. Examples of M.S. and PhD. title pages follow.

For the signature lines of SD Mines faculty committee members, there are some cases where the faculty member's departmental affiliation does not fully express their close affiliation with an interdisciplinary graduate program . In such cases it is acceptable to list both the faculty member's home department and their interdisciplinary affiliation. SD Mines has four interdisciplinary graduate programs: Materials Engineering and Science, Biomedical Engineering, Atmospheric and Environmental Sciences and Nanoscience and Nanoengineering.

For the signature lines of external committee members, their institutional affiliation (if any) should be listed.

In all cases the committee member's highest degree should be listed.

Note that 12 point font is the required standard for theses and dissertations. If you are unable to fit your committee signatures onto one page, please treat the position titles as captions and reduce the font to 10 points.

The Metaphysics and Mythology of Coffee

By

Joseph Highly Caffeinated

A thesis submitted to the Graduate Division
in partial fulfillment of the requirements for the degree of

Master of Science in Chemical Engineering

South Dakota School of Mines and Technology
Rapid City, South Dakota

Date Defended: April 1, 2017

Approved by:

Major Professor – Kofi R. Bean, Ph.D., Department of
Chemistry and Applied Biological Sciences

Date

Graduate Division Representative – Kaldi T. Goatherd,
Ph.D., Department of Humanities

Date

Committee Member – Skin E. Latte, Ph.D., Department
of Chemical and Biological Engineering

Date

Head of the Department of Chemical and Biological
Engineering – Dee Caff, Ph.D.

Date

Dean of Graduate Education – Maribeth H. Price, Ph.D.

Date

The Metaphysics and Mythology of Coffee

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Committee Member – Skin E. Latte, Ph.D., Department of Chemical and Biological Engineering	Date
Committee Member – Van L. Mocha, Ph.D., Department of Chemistry and Applied Biological Sciences	Date
Committee Member – Chai T. Drink, Ph.D., Biological Engineering Department	Date
Head of the Department of Chemical and Biological Engineering – Dee Caff, Ph.D.	Date
Dean of Graduate Education – Maribeth H. Price, Ph.D.	Date

4.11 Thesis and Dissertation Titles

Theses and dissertations can be valuable reference works when they can be easily located. Titles must be informative, meaningful, and descriptive—rather than just indicative of the content of the material. For example, it would be well to avoid such phrases as:

“Factors affecting...”

“Some causes and effects of...”

“An experiment on...”

NOTE: The method, process, instrument, device, etc., developed or used should be identified in the title if it's a significant part of the research.

Authors of master's theses and doctoral dissertations must substitute, in the title, appropriate words for formulas, symbols, superscripts, Greek letters, etc. For example, the term “Fission-Fragment Synthesis of $K Mn(CN)$ ” is to be written as “Fission-Fragment Synthesis of Potassium Manganicyanide.” This facilitates readability when the work is included in thesis and dissertation abstracts.

4.12 Abstracts

The format of the abstract at South Dakota School of Mines and Technology is as follows:

- A. Must be on a single, separate page, adhering to margin requirements.
- B. Text will be single-spaced.
- C. The Abstract page comes after the Title Page and before the Table of Contents.

An abstract should be informative. It should not state: “this is discussed,” “that was investigated,” or “conclusions are given.” Be as specific on each point as space allows. Avoid stating what the material is about. Concentrate instead on what work has been done. For example, do not write: “the gravity anomalies in the area are discussed.” Rather, state that: “A gravity high of 25 milligals suggests that”

The most common convention is to report your information impersonally. This, however, is a convention and students should consult with their major professor and graduate committee on possible exceptions. Typically, the restriction on the use of the word “I” and “we” makes it easy to ensure passive voice that is common in abstracts.

Example: “On 30 June a sunspot almost 20 times the size of the planet Earth was observed on the east limb of the sun.”

The abstract must summarize the following four major elements of the full document:

- Objectives of the research
- Methods used in the research
- Results of the research
- Conclusions and recommendations

The preparation of a good abstract is an art to be acquired through care, thought, and practice. It should convey a maximum amount of information with a minimum number of words, and this requires more writing and re-writing than does almost any other part of the work.

Example:

Abstract

^{67}Cu is a high-priority medical research radioisotope because, unlike other medical radioisotopes, it simultaneously emits a beta particle that is useful for cancer therapy and a gamma ray that is useful for diagnostic medical imaging. These dual emissions enable, in principle, real-time imaging of the effectiveness of cancer treatment. Initial research with the use of ^{67}Cu shows great promise in the treatment of non-Hodgkins Lymphoma, Ovarian, Bladder and Colorectal cancers. However, ^{67}Cu has not been regularly supplied to medical researchers for several reasons. First, ^{67}Cu is difficult and expensive to produce with conventional proton accelerators. Second, the purity of the ^{67}Cu that has been produced has been unreliable.

To assess an alternative production technique, we investigated the production of ^{67}Cu using bremsstrahlung gamma rays (photons) from conventional, copper-clad electron linear accelerators (linacs). These gamma rays, in turn, induce the nuclear reaction $^{68}\text{Zn} + \gamma \rightarrow ^{67}\text{Cu} + \text{p}$. The threshold energy for this photo-nuclear reaction requires photons of at least 9 MeV but, for high yields, a substantial portion of the photons should have energy greater than 20 MeV. Experimental measurements and theoretical calculations were completed to assess the production rate of this photo-nuclear process with bremsstrahlung from fixed-power 1 kW electron beams, with electron beam-energy ranging from 20 to 50 MeV.

Our results showed that copious quantities of ^{67}Cu can be produced with conventional copper-clad electron linacs, and that the cost of photo-nuclear production is less than that of production with proton accelerators. In addition, we found good agreement between our theoretical calculations and experimental measurements. These results also showed that the photo-nuclear production of ^{67}Cu increases monotonically with fixed-power electron beam energy. The incremental gain in photo-production, for fixed beam power, however, decreases as electron beam energy increases and the photo-nuclear production rate appears to approach a plateau of approximately 25 $\mu\text{Ci/g-kW}$.

We conclude that photo-nuclear production of ^{67}Cu via the $^{68}\text{Zn} + \gamma \rightarrow ^{67}\text{Cu} + \text{p}$ reaction is potentially a viable alternative to current technique with proton accelerators. Further research is needed, however, to assess more realistic conditions associated with the tradeoffs between beam power and beam energy in copper-clad conventional electron linacs. Furthermore, research is needed to investigate the ^{67}Cu purity issues associated with the separation of minute quantities of copper ($\approx 1 \mu\text{g}$) from much larger samples of zinc ($\approx 100\text{g}$).

4.13 Vita

A vita page, not over one page in length, is to be included as the last page of all theses and dissertations deposited in the Devereaux Library. The vita is to be written in the third person and could contain the following information:

- A. Place and date of birth.
- B. Place and date of high school graduation.
- C. Place and date of college graduation—with degree and major.
- D. Place and date of receipt of master's degree—with major.
- E. Vocational and professional experience (not summer jobs)—including dates, nature of position, and school or organization.
- F. Military experience, with indication of professional relevance—if any.
- G. Scholarly publications, exhibits of creative work, membership in professional organizations and honorary societies.

4.14 Acknowledgements

If included, place the acknowledgements between the abstract and the table of contents. Note that externally funded projects generally contractually require an acknowledgement of their financial support.

4.15 Table of Contents

Use the table of contents at the beginning of this document as an example of this page. The list of tables and list of figures should also follow this format.

5. GRAMMAR ASSISTANCE AND HELPFUL WEBSITES

Helpful website addresses for research and writing tips:

- <http://www.wsu.edu/~brians/errors/errors.html>
 - For help on grammar mechanics
- <http://word.tips.net/>
 - Helpful tips on Microsoft Word
- <http://owl.english.purdue.edu/owl/>
 - Website includes an online writing lab and tips for ESL writers
- <http://www.sdsmt.edu/Campus-Life/Ivanhoe-International-Center/Current-International-Students/>
 - Contains a list of ESL web resources on the SDSM&T Ivanhoe International Center's website
- <http://library.sdsmt.edu/quicklink.html>
 - As a member of the South Dakota Library Network [SDLN], holdings of the Devereaux Library as well as those of most South Dakota libraries are available online via the network. Search for specific journals in the library collection, or search holdings of more than 55,000 libraries worldwide.
 - EndNote is a commercial reference management software package, used to manage bibliographies and references when writing essays and articles. Normally EndNote costs hundreds of dollars per user; however, EndNote software is available at no charge to our students, faculty and staff through a state contract. Please contact the library if you are interested in this software.
- www.latex-project.org
 - LaTeX is a document preparation system for high-quality typesetting. It is most often used for medium-to-large technical or scientific documents but it can be used for almost any form of publishing.

PROOFREADERS' MARKS

Symbol	Meaning	Example
☞ or ☞ or ☞	delete	take it out
⊂	close up	print as <u>one</u> word
☞	delete and close up	<u>close</u> up
^ or > or ˆ	caret	insert here <i>(something)</i>
#	insert a space	put one [^] here
eg#	space evenly	space evenly [^] where [^] indicated
stet	let stand	let marked text stand as set
tr	transpose	change <u>order</u> the
/	used to separate two or more marks and often as a concluding stroke at the end of an insertion	
[set farther to the left	L too far to the right
]	set farther to the right	too far to the left
~	set as ligature (such as)	encyclopaedia
=	align horizontally	<u>alignment</u>
	align vertically	 align with surrounding text
x	broken character	imperf <u>ct</u>
□	indent or insert em quad space	
¶	begin a new paragraph	
Ⓟ	spell out	set <u>5 lbs.</u> as five pounds
cap	set in CAPITALS	set <u>nato</u> as NATO
sm cap or s.c.	set in SMALL CAPITALS	set <u>signal</u> as SIGNAL

<i>lc</i>	set in lowercase	set South as south
<i>ital</i>	set in <i>italic</i>	set <u>oeuvre</u> as <i>oeuvre</i>
<i>rom</i>	set in roman	set <u>mensc</u> as mensch
<i>bf</i>	set in boldface	set <u>important</u> as important
= or -/ or $\hat{=}$ or /M/	hyphen	multi-colored
$\frac{1}{N}$ or <u>en</u> or /N/	en dash	1965–72
$\frac{1}{M}$ or <u>em</u> or /M/	em (or long) dash	Now—at last!—we know.
∨	superscript or superior	$\overset{2}{\pi}$ as in π^2
∧	subscript or inferior	$\underset{2}{\text{H}}$ as in H_2O
∧ or ∨	centered	∩ for a centered dot in $p \cdot q$
↵	comma	
↵	apostrophe	
⊙	period	
; or ;/	semicolon	
: or Ⓜ	colon	
«» or «»	quotation marks	
(/)	parentheses	
[/]	brackets	
OK/?	query to author: has this been set as intended?	
↓ or ↓ ¹	push down a work-up	an unintended mark
Ⓜ ¹	turn over an inverted letter	inve t ed
wf ¹	wrong font	wrong si z e or styl e