Writing a Thesis or Dissertation for University of Idaho with LaTeX

A Thesis
Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science
with a
Major in Nuclear Engineering
in the
College of Graduate Studies
University of Idaho
by
Joe Vandal

Approved by:
Major Professor: Major Professor, Ph.D.
Committee Members: Committee One, Ph.D.; Committee Two, Ph.D.
Department Administrator: Department Chair, Ph.D.

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Abstract

This is a template that will help you use LaTeXto write your thesis. The document will talk a lot about the functionality and conveniences of this template but is not a standalone tutorial. If you need to learn how to use LaTeX, check out Dr. Trefor Bassett. He has a great playlist on YouTube to teach you the basics and much more. If you happened across this document without the template, you can find more at https://github.com/sjroot97/UI-Thesis-Dissertation.

Acknowledgements

Dr. Borrelli forced me to learn LaTeXwhen I took his Nuclear Engineering basics class. I am glad to be free of the frustrations of Microsoft Word. When I started writing my thesis [1], the official template provided by CoGS was deprecated. It now longer exists. I brought it up to what I understand is modern standards. My thesis got accepted with minimal hacky fixes. Hopefully this will help you pass your formatting check too.

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Dedication

To my mother, <Mom>, who planted and nurtured my love of science. To my father, coach, foreman, tech support, and #1 fan, <Dad>, who kindled my engineering spirit. To my cats, <Name> and <Name>, who stayed up with me all those long nights. Thank you for your endless support.

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CoGS College of Graduate Studies.

NRC Nuclear Regulatory Commission.

Statement of Contribution

Chapter 3 is a multi-authored article that was submitted to and accepted by <Journal> [2]. The author of this thesis was the primary author of the article, <writing the original draft manuscript and conceptualizing the methodology>. The co-authors offered the following valuable collaborative efforts in support of publication of the work:

- **Second Author** Revisions, support and guidance
- **Third Author** Writing, revisions, and response to reviewer comments, assistance in conceptualization, support in development and verification, case study selection
- **Last Author** Revisions, guidance and supervision, case study selection

I am grateful for their contributions.

Chapter 1: Introduction

ShowFrame

Chapter 2: Body

Chapter 3: A Paper that is Also a Thesis Chapter

Chapter 4: Conclusions

References

[1] Root, Sam J., 2024 5. Dynamic System Modeling and PID Controller Design for a Molten Salt Microreactor. Master's thesis, University of Idaho.

[2] Vandal, Joe, Author, Second, Author, Third, Author, Last, 2023. A paper that is also a thesis chapter. Journal of Idaho 100, 123456. ISSN 0029-9876. doi:10.1016/j.nucengdes.2023.123456.

Appendix A: Codes

The package ‘slither’ in the ./rcs folder provides code blocks for python or serpent. If you need to include other languages I am sure you can find a package to do that. Slither could probably be modified with some level of difficulty to include MCNP code as well. The documentation may help. https://github.com/sjroot97/Slither-LaTeX-package

A.1 Python

Code 1: Hello!

```
1    print("Hello World") #comment
2    try:
3       a=2/x
4    except ZeroDivisionError:
5       print('undefined')
```

Inline codes like `import numpy` or `x =1`

Or, include code in the best way, by inputing it from a file.

Code 2: F strings

```
1 x =4
2 print(f"The numeral four: {x}")
3 #comment
```

A.2 Serpent

Code 3: Fuel

```
    /*
    Enriched (4%) Uranium Metal
    */
    mat fuel     -10.1
    92235.03c    -0.04
    92238.03c    -0.96
    'string'
```

Inline codes like `surf s1 sqc 0.0 0.0 100.0.`

Or input from a file.

Code 4: Physics Cards

```
%./cards/physics.txt
% _____________________Physics cards_____
set power 1e7 %10MWth
set pop 1000000 500 100 1
%dep daystep 1 1 1 1 1
%set mcvol 10000000
%set nbuf 10
%set printm 1 1e-10
%set inventory "all"
%set pcc leli 10 10
set acelib "endfb71r1_p2" "endfb71r1" "jeff31u"
%set declib "sss_jeff31.dec"
%set nfylib "sss_jeff31.nfy"
det EnergyDetector dm Salt4 de EnergyGrid
ene EnergyGrid 3 500 1e-11 2e1
```