

EXAMPLE OF HOW TO USE THE COLORADO SCHOOL OF MINES
THESIS/DISSERTATION L^AT_EX TEMPLATE TO HELP
FUTURE GRADUATE STUDENTS WITH
THE FORMATTING.

by
Graduate A. Student

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A thesis submitted to the Faculty and the Board of Trustees of the Colorado School of Mines in partial fulfillment of the requirements for the degree of Master of Science (Engineering Systems).

Golden, Colorado

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Thesis Advisor

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Dr. Secondary B. Advisor
Thesis Advisor

Golden, Colorado

Date _____

Signed: _____

Dr. Big Boss
Department Head Title
Department of Physics

ABSTRACT

Here is the place where you will be adding an abstract for your document. The abstract should be between 200-300 words. The abstract is checked, and if your work count exceeds the 350 words it will produce an error.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

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LIST OF SYMBOLS

Average radius of cylindrical shell	c
activation energy of oxidation reaction of a-C in excited state	E_{act}^*
hello

General Nomenclature

absorption cross section	α_{σ}
------------------------------------	-------------------

LIST OF ABBREVIATIONS

Bio Force Gun, Model 9000 BFG9000

Colorado School of Mines CSM

Field flow fractionation-inductively coupled plasma-mass spectrometry FFF-ICP-MS

Mammoth Armed Reclamation Vehicle MARV

Stone of Jordan SoJ

ACKNOWLEDGMENTS

I would like to thank and acknowledge <advisor> <family> <funding sources> <committee>.

For those that shall follow after.

CHAPTER 1

INTRODUCTION

This is where you would place a fun and thoughtful introduction. For example I could address why it is so important that I am working on this Thesis L^AT_EX Template? Well, it is probably so that future students that take on the challenge of writing their thesis in L^AT_EX can get through the formatting a lot quicker, in that they don't have to worry about it at all.

Here I will also add some tips: (1) Keep everything organized by 'Type'. Note that all the chapters are added in separate files in the 'chapter' directory/folder. This is such that you can stay better organized. Similarly all the figures are in the 'figure' directory, feel free to make sub folders for each chapter, and all the supporting files such as the references or the abbreviation and symbol lists are in their own folder.

(2) As you start working on this document try and keep the formatting to the end, because every time you change the text, figures or tables might move, and it is just easiest to leave that till the end. Lastly (3) this document and the accompanying files are to help beginners and experts, so if you are comfortable just go a head and get going. There is always the help guide to fall back on, and if you save a copy of the original files you can always go back and look what I presented to you.

There are some hidden chapters that are uncommented (with the % in front of them) with a lot of figure and table examples that can be use full for you if you are not sure for to scale or add them properly. Relax, and good luck.

CHAPTER 2
MY FIRST CHAPTER WITH SOME GOOD CONTENT

After creating every new chapter or heading there must be one paragraph before you add a new section. If you forget to add text between 'headers' (such as chapters, subsections, subsubsections ...) there will be an error that pops up, and to fix it you just need to add text.

2.1 Level 1

This is what a subsection title looks like with some text following. Here ia a tip: Stay consistent. This counts for how you write your headers (all mayor words capitalize or only the first word). Below are some equations with some simple math here are tree different ways to reference equations: (1) using ref gives 2.1, (2) using eqref leads to (2.2)), (3) and using the template defined Eqref gives Equation 2.3. You can not just use option (1) without indicating you are referencing an equation. Choose one and stick with it, they want you to be consistent in the way you reference Tables, Figures and equations alike. Automatically 'Table' and 'Figure' are added in fort of a reference number when you use `ref{}` for tables and figures (see in later chapters).

$$E = mc^2 \tag{2.1}$$

$$\nabla \times \mathbf{E} = - \frac{\partial \mathbf{B}}{\partial t} \tag{2.2}$$

beginning a sentence right after the equation tells the documents that the paragraph is continuing and this sentence does not start with any indent.

$$\begin{bmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{bmatrix} \mathbf{v} = \lambda \mathbf{v} \tag{2.3}$$

We can now add a sub-sub section. This is also an example of an equation that is mid paragraph. If you eliminated the space between the math environment and the next line, then there should be no indent of the line right after the equation.

2.1.1 Level 2

This is what a sub-subsection looks like with some text following. Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque

a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

We can now add a sub-sub-sub section. But before we do that I need to add some text to check if the (a) ragged right is working, and (b) if the sub-sub-sub section will be pushed to the next page if the sub heading and 2 lines don't fit on the page. Ta-Da it works.

2.1.1.1 Level 3

This does not look appealing, so you are discourage going "three deep" with headings. This does not look appealing, so you are discourage going "three deep" with headings.

CHAPTER 3

THIS IS A LONG TITLE TO CHECK THE PROPER SPACING IN THE TABLE OF CONTENTS AND
INVERSE PYRAMID ON THE CHAPTER PAGE. LETS SEE IF IT WORKS PROPERLY

A chapter of simple examples of a figure, a reference and a table.

3.1 A Figure

Here we have a section to show off one of the xkcd comics. Figure 3.1 shows one of the comics showing the actual size of a number compared to the perceived size of a number.

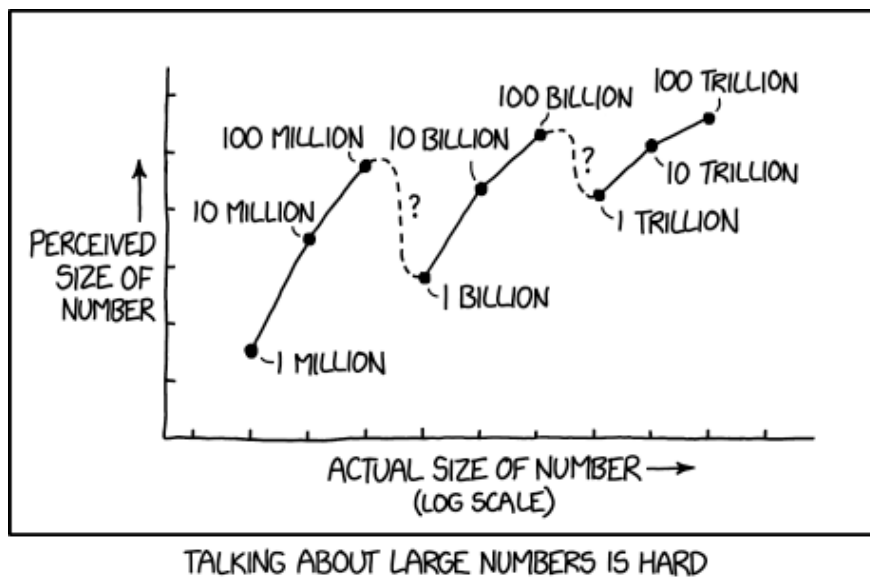


Figure 3.1 The trend of actual versus perceived size of a number. [1]. We are also going to add a relatively long caption to check if the List of Figures works properly at the beginning of the document.

3.2 Citing and referencing things

On other figure shown in Figure 3.2 shows a comic form [2]. If you want to group citations into one go, something you might do in the back ground section, you can do this by grouping multiple sources in your bibtex in the same 'cite' [1, 3-5].

You can also reference chapter, subsections or appendices al long as you place the label properly. Here I will reference you to see Appendix A.1 to check out how to add "longtabes" into your document, another example of that is shown in a hidden chapter on tables. If you think there was something important in a previous section that you can reference them back with, Section 2.1. Or reference a chapter like Chapter 1.

Foot notes are allowed depending on the department you are working with. Please check with your advisor if you should be adding foot notes or not. Just so you have an example here is a footnote¹.

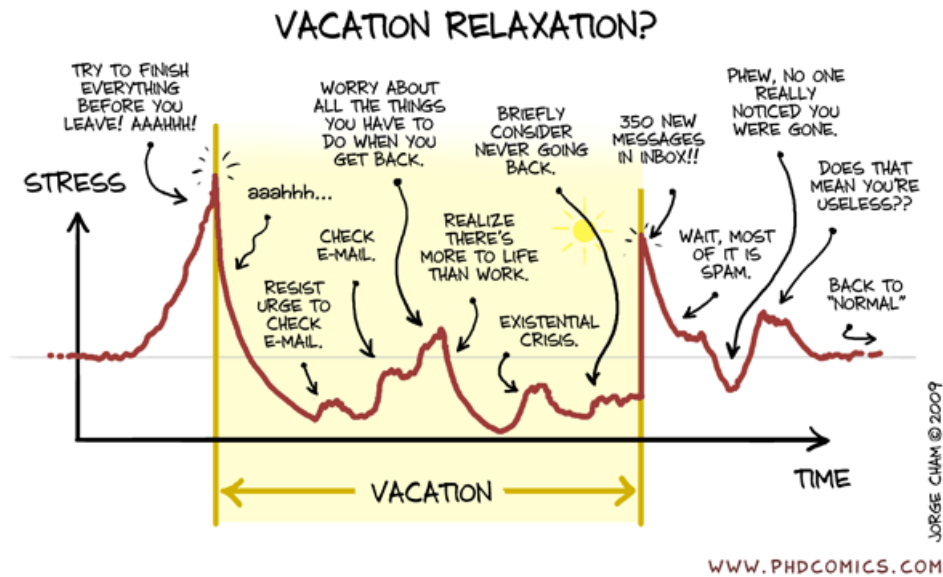


Figure 3.2 "Vacation Relaxation?" by Jorge Cham www.phdcomics.com. A nice comic from PHD Comic's. Learn more about the figure input notation in the Figure chapter, or in the hand book.

Filler Text. Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

3.3 Here is a test of a really long sub-header title that should automatically follow the rules for set for the Temple Guidelines and check if it properly shows up in the table of content.

Here is a paragraph of filler text. Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris. here is an extra sentence

¹here is a footnote

CHAPTER 4
YOUR JOURNAL PAPER TITLE GOES HERE

Modified from a paper to be published in The Journal of ABC².

Jane Jones^{3,4}, Sam Smith⁵, Ann Adams^{3,6}

4.1 Abstract

This is the abstract that is part of the paper. At the bottom of this page, beneath a 1.5" to 2" footnote line, can be footnotes with details of permission granted by the publisher of the paper, the author's titles and institution names, the relative contributions of each of the authors, et. If the abstract does not completely fill the page, the introduction also starts on this page. There are no page breaks between the different sections within the paper.

4.2 Introduction

The text of the introduction starts on the same page as the abstract, as long as there is room for at least two lines of text beneath the heading (This L^AT_EX template should look for this automatically.) The headings within this chapter will match the style used in the rest of the thesis. All pages of text within the paper are completely filled in.

4.3 Permissions

Make sure you have checked the journal permissions about reproducing your paper in your thesis. Make sure you put these permissions in the Appendix C.

4.4 The next section of the paper

A lot more information from the paper that is being added into this dissertation. I would add figure, tables and other materials the same way as I have been in the other section of the dissertation. The big difference between this and the other chapters is the very top with the Journal and authors centered on the page.

Here is another paragraph that is just filler text. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris.

²Reprinted with permission of J. of ABC, 25(1), 41-45.

³Graduate student and Associate Professor, respectively, at the Colorado School of Mines

⁴Primary researcher and author

⁵Different Institution and position

⁶Author for correspondence

Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

CHAPTER 5

THIS IS THE TITLE OF A PAPER INCLUDED IN A THESIS

Reproduced with the permission for The Journal of ABC. 6[1]text

Jane Jones, Sam Smith, Ann Adams

5.1 Abstract

This is the abstract that is part of the paper. If the abstract does not completely fill the page, the introduction also starts on this page. There are no page breaks between the different sections within the paper.

5.2 Introduction

The text of the introduction starts on the same page as the abstract, as long as there is room for at least two lines of text beneath the heading (This L^AT_EX template should look for this automatically.) The headings within this chapter will match the style used in the rest of the thesis. All pages of text within the paper are completely filled in.

The next chapter shows another example with some foot notes for the authors, and the permission form the journal. Here is another quick sentence to make this paragraph look longer than it actually is, and not adding any new information for you to use.

REFERENCES

- [1] Randall Munroe. Million, billion, trillion, Dec 2018. URL <https://xkcd.com/2091/>.
- [2] Jorge Cham. Vacation v. stress, 2009. URL <http://phdcomics.com/comics/archive.php?comid=1231>.
- [3] A. G. Reference, Magic Man, and Cool Cat. The Title of a GOOD Reference. *The Journal of Referency-Goodness*, pages 1–1000, 2009.
- [4] A. B. Reference and Cool Cat. The Title of a BAD Reference (j/k). *Science*, **1**(2):4, 2000.
- [5] Rockscience Inc. *Examine2D*. hello, world, Toronto, CA, 2013. A description, but not necessary.

SELECTED BIBLIOGRAPHY

¡Your selected bibliography would go here, a page break might also be necessary above!

APPENDIX A
MAGICAL ENCODING AWESOMENESS

Table A.1 shows how several symbols appear in the rendered document.

Table A.1 This is where we have fun testing encoding

	Normal	Math
The greater than:	\lessgtr	$>$
The less than:	\lessgtr	$<$
The tilde:	\sim	\sim

A.1 Test Appendix Sub-Section

Table A.2 is an example of a very large “longtable.”

Table A.2 Stratigraphy of the Granite Mountains and Lost Creek areas

Age	Formation ⁷	Thickness (feet) ⁸	Thickness (feet) ⁹	Thickness (feet) ¹⁰	Aquifer? ¹¹	Lithology
Quaternary	Alluvium	-	0-20	-	Yes	Sands and clays derived chiefly from the Tertiary formations in the area.
Paleocene	Fort Union	up to 3,000	4,650	6,500?	Yes	Consists of alternating fine to coarse grained sandstone siltstone and mudstone. Contains various layers of lignitic coal beds.
Cretaceous	Lance	1,700 to 2,700	2,950	4,000?	Yes	Interbedded sandstone, siltstone and mudstone. Gray to brownish gray. Locally carbonaceous. Sandstone is white to grayish orange.
Cretaceous	Fox Hills		550	1,800?	No	Consists of coarsening upward shale and fine-grained sand with thin coal beds near the top. Represents a transition from marine to non-marine environment. Grades into Lewis Shale at the base.
Cretaceous	Lewis Shale	1,250	1,200	1,050 to 2,000	No	Interbedded dark-gray and olive-gray shale and olive-gray sandstone.
Cretaceous	Mesaverde Group	0 to 1,000	800	300 to 500?	No	Gray to dark gray shales with interbedded buff to tan fine to medium grained sandstones.
Cretaceous	Steele and Niobrara Shales	Cody Shale 4,500 to 5,000	2,000 to 2,500	2,400 to 5,000	No	Steele shale is soft gray marine, Niobrara shale is dark gray and contains calcareous zones.
Cretaceous	Frontier	700 to 900	500 to 1,000	750 to 1,500	Yes	Gray sandstone and sandy shale.
Cretaceous	Dakota		300 to 400		Yes	Marine sandstone, tan to buff, fine to medium grained may contain carbonaceous shale layer.

⁷Only major unconformities shown, indicated by break in table.

⁸Generalized thicknesses from.

⁹Thicknesses shown are approximate and apply to Lost Creek vicinity only.

¹⁰Thicknesses shown are from a public screened dataset of logged formation tops from the 12 townships surrounding Lost Creek.

¹¹Aquifer designations – Lost Creek vicinity only.

Table A.2 Continued.

Age	Formation	Thickness (feet)	Thickness (feet)	Thickness (feet)	Aquifer?	Lithology
Jurassic	Nugget Sandstone	400 to 525	500		Yes	Grayish to dull red coarse grained cross-bedded quartz sandstone.
Triassic	Chugwater	1,275	1,500		No	Red shale and siltstone contains gypsum partings near the base.
Permian	Phosphoria	275 to 325	300		No	Black to dark gray shale, chert and phosphorite.
Pennsylvanian	Tensleep and Amsden and Madison	600 to 700	750		No	White to gray sandstone containing thin limestone and dolomite partings. Red and green shale and dolomite, sandstone near base.
Cambrian	Undifferentiated	900 to 1,000	1,000		No	Siltstone and quartzite, including Flathead sandstone.
Precambrian	Basement	-	-		No	Granites, metamorphic and igneous rocks.

Table A.3 Test of a small longtable on the alternate page.

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	G	H	I	J	K	L

A.2 This subsection will follow on a new page that is portrait

Here it is, just an example

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

APPENDIX B
SPECIAL COOLNESS

Here is an example of added MATLAB code for a .m file (located in supporting-files/). The code can be referenced (Listing B.1).

Listing B.1: A MATLAB “Hello World“ Example

```
% Below is the example code for the absolute most popular program EVER!  
disp('Hello World');
```

APPENDIX C

COPYRIGHT PERMISSIONS

See the .tex file for comments on Copyright Permissions

C.1 XKCD

Here is the copy right agreement form XKCD website, Figure C.1

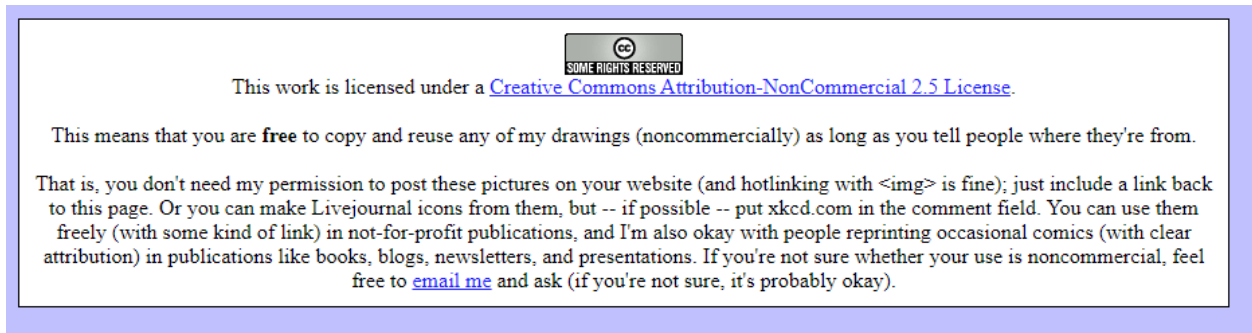


Figure C.1 Copy right permission stated on the XKCD website

C.2 Phdcomics

On their website (<http://phdcomics.com/about.php>) they state

Can I use one of your comics in my thesis/defense/website or graduate student newsletter? We'll be happy to grant you permission, but you MUST e-mail us at [questions\(at\)phdcomics.com](mailto:questions(at)phdcomics.com) to let us know how and which strips you are using (by sending this email, you obtain official permission to use the images). In all cases, the strips must have the following text printed next to them:

"Piled Higher and Deeper" by Jorge Cham www.phdcomics.com

I have send them the email, and can provide that proof if asked.

C.3 Journal Article 1

Here is were i present the permission from the Journal and co-authors for article 1 that I put into the thesis under Chapter 4.