TITLE IN ALL CAPS
Author’s Name as in Path@Penn
A DISSERTATION
in
Official Graduate Group Name
Presented to the Faculties of the University of Pennsylvania
in
Partial Fulfillment of the Requirements for the
Degree of Doctor of Philosophy
YEAR

Supervisor of Dissertation
Supervisor’s Typed Name, Full Faculty Title and Affiliation

Graduate Group Chairperson
Graduate Group Chairperson’s Typed Name, Full Faculty Title

Dissertation Committee
Committee Member’s Typed Name, Full Faculty Title and Affiliation
Committee Member’s Typed Name, Full Faculty Title and Affiliation
Committee Member’s Typed Name, Full Faculty Title and Affiliation
Write your dedication text in italics here.
ACKNOWLEDGEMENT

Write your acknowledgement text here.
## TABLE OF CONTENTS

ACKNOWLEDGEMENT ................................................................. iv

ABSTRACT .............................................................................. v

LIST OF TABLES ..................................................................... viii

LIST OF ILLUSTRATIONS ....................................................... ix

CHAPTER 1 : UNIVERSITY OF PENNSYLVANIA PH.D. DISSERTATION LATEX TEMPLATE ............................................. 1

1.1 Introduction ....................................................................... 1
1.2 Getting Started ............................................................... 1
1.3 Margins .............................................................................. 2
1.4 Template Tips ................................................................. 2
1.5 Getting Help and Giving Feedback ...................................... 3
1.6 Acknowledgments ............................................................ 3

CHAPTER 2 : TABLES AND FIGURES ........................................ 4

2.1 Tables ............................................................................ 4
2.2 Figures ............................................................................ 4

CHAPTER 3 : EQUATIONS ......................................................... 7

CHAPTER 4 : APPENDICES ....................................................... 8

CHAPTER 5 : CITATIONS AND BIBLIOGRAPHY ...................... 9

5.1 Getting Started ............................................................. 9
5.2 Default Template Settings ............................................... 9
5.3 Customization ............................................................... 9
5.4 Recommended Resources ................................................ 10
LIST OF TABLES

TABLE 2.1 Example Table .............................................................. 4
LIST OF ILLUSTRATIONS

FIGURE 2.1 Lemur photograph .............................................. 5
FIGURE 2.2 Lemur bar chart on landscape page ...................... 6
1.1. Introduction

This template aims to fulfill University format requirements when one follows the instructions, resolves errors and warnings, and does not change the style file or font settings. Your graduate group may have additional formatting requirements like specific citation and bibliography styles. Check with your advisor and edit the template as needed. Please consult the Office of the Provost dissertation Formatting FAQs for the most up-to-date requirements and policies.

1.2. Getting Started

The template requires TeX Live 2022 and is optimized for pdfLaTeX and the LaTeX editor Overleaf. Other LaTeX editing programs may require you to compile the document more than once. To claim your free Overleaf Pro account, go to the Penn Libraries Overleaf Portal and click on the green “Log in through your institution” button.

Click here if you have a question about Overleaf, and they’ll make sure it reaches the right person. Click here for their help page to learn how to use Overleaf and LaTeX. See Chapter 1.5 for additional resources.

1.2.1. Packages

The template automatically loads the packages it requires to function. See the PackagesLoaded-byTemplate.tex file for a complete list of all the packages loaded by the template. You may manually load other packages if you wish, and Overleaf will give you a warning message when you compile your document if your package conflicts with one of the template’s packages. If you receive a warning, you can consult the specified package documentation on CTAN for a possible resolution.

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1If you are using another LaTeX template, please make sure it complies with all University formatting requirements.
1.3. Margins

As of January 2023, the margins must be 1 inch on each side. Remember to resolve all overfull or underfull warnings to help ensure your dissertation meets the margin requirements.\footnote{This is a common source of errors – please double check the margins before submitting your final dissertation.} Click here to learn how to identify and resolve the warnings. Common causes of warnings include

- LaTeX CANNOT automatically break long mathematical expressions or parenthetical references across multiple lines. Chapter 3 demonstrates two methods for manually splitting equations.

- You can manually control the hyphenation by using the \texttt{\textbackslash hyphenation\{\}} hints command. For example, write \texttt{\textbackslash hyphenation\{rep-re-sent-a-tive\}} in the preamble to tell LaTeX where it can break the word “representative.”

- The verbatim environment and the \texttt{\textbackslash verb} command remove LaTeX’s formatting controls. There may be instances that require you to manually adjust line breaks.

- The breaklinks option of the hyperref package is activated, however there may be instances of URLs running into the margins that require your manual intervention.

1.4. Template Tips

1.4.1. Chapters, sections, and subsections

Create chapters with the \texttt{\textbackslash chapter} command, sections with the \texttt{\textbackslash section} command, and subsections with the \texttt{\textbackslash subsection} command. If you use the \texttt{\textbackslash MakeUppercase} command to autocapitalize chapter titles, carefully check each title and its table of contents entry for compliance with University formatting requirements. You may wish to split chapters into separate .tex files for easier document management. You can use the \texttt{\textbackslash include\{\}} command to add the chapters to your main .tex file. Click here to learn more.

If a chapter or section title contains math expressions or other symbols, the hyperref package may give a PDFDocEncoded warning when you compile your document. Use the \texttt{\textbackslash texorpdfstring}
command to edit the corresponding PDF bookmark text to resolve the warning. For example, the
section title “Lemurs Wrote $E = mc^2$ in Mud on the Riverbank” should be coded

\section{Lemurs Wrote \texorpdfstring{$E=mc^2$}{E=mc2} in Mud on the Riverbank}

1.4.2. Page orientation

The template’s default page orientation is portrait. Use the landscape environment to create land-
scape pages. Page number location and margins will automatically update like page 6.

1.5. Getting Help and Giving Feedback

Questions about LaTeX?

- Click here to connect with LaTeX resources, tutorials, and more.

Want to give feedback on the template?

- Click here to share it with us.

1.6. Acknowledgments

The University of Pennsylvania Ph.D. Dissertation LaTeX Template was initiated by Dr. Beth
S. Wenger, Associate Dean for Graduate Studies, School of Arts and Sciences. It was developed
by Lauren Gala, Penn Libraries with assistance from Dr. Julia Hartmann and Dr. Man Cheung
Tsui, Department of Mathematics, and Bridget Rothera, Graduate Division School of Arts and
Sciences. Portions of the code and text were reprinted or adapted with permission from Ratcliffe
S.J. (2017) Penn Biostat LaTeX Template: PhD dissertation modified from Dissertation Template
for Wharton PhD Candidates in LaTeX.
CHAPTER 2

TABLES AND FIGURES

2.1. Tables

The captions of tables inside the table environment (see Table 2.1) will display in the List of Tables. Use the \label to label tables.

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>5</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powers</td>
<td>504</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>540</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Powers</td>
<td>gcd</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>lcm</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2.1: Example Table

2.2. Figures

The captions of figures inside the figure environment (see Figure 2.1) will display in the List of Illustrations. Use the \label to label figures.³

³This also includes photographs, maps, schemes, diagrams, etc.
LaTeX takes into account line and page breaks when determining where to place floating objects like figures and tables on a page. You can override LaTeX’s placement decisions by using the float package options. Consult the float package documentation to learn how to gain more control over where and how float objects display.
Figure 2.2: Lemur bar chart on landscape page
CHAPTER 3

EQUATIONS

The template automatically loads several math packages like amsmath, amssymb, and amsfonts. The split and the multiline environments allow you to split an equation over multiple lines. Equation 3.1 is written in the split environment, and Equation 3.2 is in the multiline environment. Notice the differences in how the two environments align the equations and where they place the equation number.

\[ A = \frac{\pi r^2}{2} = \frac{1}{2} \pi r^2 \]  

\( p(x) = 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 + 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 \]
\[ + 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 - 12x^2y^4 - 12xy^5 + 2y^6 - a^3b^3 \] (3.2)
Appendices are optional. Use the `\chapter` command inside the custom `append` environment to insert appendices. Use the `\ref{ }` command to reference appendices in your text.
LaTeX bibliography packages and citation management programs enable you to efficiently cite and format bibliographic references. You can manage bibliographic entries in a separate bibliography database file (*.bib) or you can embed the entries directly into the main .tex file. While the LaTeX template was built for the former approach, you can modify it to accommodate latter.

5.1. Getting Started

Please watch this short video to learn the principles underpinning the template bibliography before proceeding.

5.2. Default Template Settings

The commands written in sampledissertation.tex load the natbib package in its preamble and reference the bibliographic entries stored in bibliography.bib.

This is an example inline citation (Heard, 2020). If you want to cite two publications in one place like (McGoogan, 2020; Wright, 2014), write one citation command. You can add a prenote or postnote (Lake, 1979, p. 78) to a citation.

5.3. Customization

Citation and bibliography formatting commands are written in the main .tex file for your convenience. You can edit the relevant code in the .tex file to produce citation and bibliography styles appropriate for your field. If you wish to make significant to changes to the structure of the bibliography, you may need to edit the bibliof environment defined in upennstyle.sty.

5.3.1. Styles and formatting

The natbib package, selected format and style options, and example citations are for demonstration. In addition to natbib, other packages and accompanying documentation are free to download from CTAN. Always consult the package documentation for additional citation and bibliography commands and formatting options. Remember that the available commands and styles differ between
packages.

5.3.2. Embedded bibliography

You can edit the template to manage your bibliography directly in the .tex file obviating the need for a separate .bib file. Replace the `\bibliography` command in the biblio environment with the list of bibitems and edit relevant code elsewhere in the template as needed.

5.4. Recommended Resources

- Click here to learn how to manage citations and bibliographies in LaTeX documents
- Click here to learn citation best practices and how to use citation management programs
- Click here to watch a short introduction to citing and formatting references with natbib
APPENDIX A

TITLE OF APPENDIX A

The content of Appendix A begins here. Use the \chapter command to insert additional appendices.

A.1. Section Name of Appendix A

Use the \section command to create sections.
APPENDIX B

TITLE OF APPENDIX B

The content of Appendix B begins here.

