

TAMUthesis User Guide v1.0

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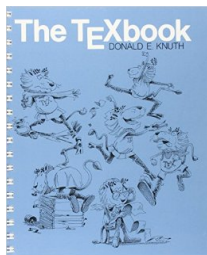
April 15, 2015

Overview

- 1 Introduction
 - What's T_EX
 - What's L^AT_EX
 - What's TAMUthesis
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T_EX = $\tau\epsilon\chi$ [*tek*]

- A typesetting system designed by Donald Knuth¹
- Produce high-quality books with reasonable programming
- compatible with Windows/Linux/Mac and give the same PDF result
- Advantage: Equation

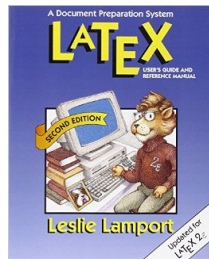
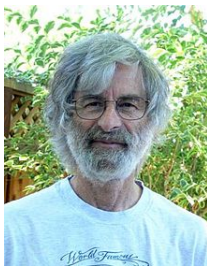


$$\mathcal{A}(u) = \int_{\Omega} (1 + |\nabla u|^2)^{\frac{1}{2}} dx_1 \dots dx_n \quad (1)$$

¹Stanford University

L^AT_EX = L^Amport T_EX['l_atek] (or ['l_eitek])

- Simplify T_EX by integrating macros.
- L^AT_EX is T_EX in nature.
- It's most widely used T_EX macro. Lots of international institute, conference, journal (IEEE) supports it.
- Many University have L^AT_EX thesis template.



TAMUthesis = Texas A&M University Thesis Template

- The Thesis Office, Office of Graduate and Professional Study, TAMU leads the effort to develop this template.
- Provide an NON-MS WORD approach for students to format thesis.
- Benefit: Focus on thesis content instead of formatting.

THE INTRODUCTION AND USAGE OF THIS THESIS TEMPLATE FOR TEXAS A&M UNIVERSITY

A Thesis
by
FAN GAOFENG

Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirement for the degree of
MASTER OF SCIENCE

Chair of Committee, Edgar Sanchez-Suarez
Co-Chair of Committee, Jose Silva-Martinez
Committee Members, Samuel Palerm
Aydin Ilker Karadas
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Kannan Estroff
Head of Department, Miroslav M. Begovic

May 2015

Major Subject: Electrical and Computer Engineering

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Figure: Cover

Figure: Table of Content

Advantage of Using \LaTeX for thesis writing

Feature	Using MS WORD	Using \LaTeX
Learning Curve	Straightforward	Read lshort ² for 2 hours
Advance Feature	Not Easy to handle	Read lshort for 2 hours
Troubleshooting	Blog/MS website	Forum/senior user support

Table: MS WORD V.S. \LaTeX

- Using MS WORD to write thesis needs you to adjust the format.
- \LaTeX take care all the format problems.
- Most people are not familiar with advanced feature in WORD, these features are also not easy to use, e.g. Insert TOC in WORD.

²The Not So Short Introduction to \LaTeX , Or \LaTeX in 157 minutes.

L^AT_EX defines four standard template

- article
- book
- report
- letter

L^AT_EX defines four standard template

- article
- book
- report
- letter

Example L^AT_EX code

```
\documentclass[12pt]{book} %document class/font size
\author{SuperMan} %claim the author
\title{Battle with BatMan} %claim the Title
\begin{document} % Start Main Content
\maketitle %create the title page
  \chapter{Introduction} %Chapter 1 Name
    \section{First Section Title}%Section 1.1 Name
      \subsection{First Subsection Title}
    \chapter{2nd Chapter Title}
  \appendix %start appendix
    \chapter{Appendix Chapter Title}
\end{document} %end of document
```


L^AT_EX Command & Environment

Command

- `\textbf{Bold Font}` => **Bold Font**
- `{\large larger font is 14pt}`
=> larger font is 14pt
- Command below changes the vertical space.
- `\vspace{-1ex}`
- `\vspace{2ex}`

L^AT_EX Command & Environment

Command

- `\textbf{Bold Font}` => **Bold Font**
- `{\large}` larger font is 14pt
=> larger font is 14pt
- Command below changes the vertical space.
- `\vspace{-1ex}`
- `\vspace{2ex}`

Environment

`\begin{equation*}`

`a^{2}-b^{2}=(a+b)(a-b)`

`\end{equation*}`

$$a^2 - b^2 = (a + b)(a - b)$$

L^AT_EX Command & Environment List

Table: Common Command Summary

<code>\chapter</code> Chapter Title	<code>\section</code> Section Title	<code>\subsection</code> Subsection Title	<code>\subsubsection</code> Subsubsection Title
<code>\textbf</code> bold font	<code>\textit</code> <i>italic font</i>	<code>\emph</code> <i>emphasized</i>	<code>\textsc</code> SMALL CAPS
<code>\raggedright</code> left align	<code>\raggedleft</code> right align	<code>\centering</code> center align	<code>\indent</code> indentation
<code>\footnote{}</code> footnote ³	<code>\item</code> list item	<code>\caption{}</code> fig/tab title	<code>\includegraphics{}</code> insert graphics
<code>\label{}</code> label for refer	<code>\cite{}</code> reference cite[1]	<code>\ref{}</code> Ref to 2	<code>\eqref{}</code> equation ref(2)

³footnote

L^AT_EX Command & Environment List

Table: Common Command Summary

<code>\chapter</code> Chapter Title	<code>\section</code> Section Title	<code>\subsection</code> Subsection Title	<code>\subsubsection</code> Subsubsection Title
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<code>\raggedright</code> left align	<code>\raggedleft</code> right align	<code>\centering</code> center align	<code>\indent</code> indentation
<code>\footnote{}</code> footnote ³	<code>\item</code> list item	<code>\caption{}</code> fig/tab title	<code>\includegraphics{}</code> insert graphics
<code>\label{}</code> label for refer	<code>\cite{}</code> reference cite[1]	<code>\ref{}</code> Ref to 2	<code>\eqref{}</code> equation ref(2)

Table: Common Environment

table	figure	equation
itemize	enumerate	description

³footnote

L^AT_EX Equation Demo

$$WAD(S_n) = \begin{cases} +1 & \text{if } E(S_n) > \varepsilon_2 \\ -1 & \text{if } E(S_n) < \varepsilon_1 \\ \text{sign}(zcr(S_n)) - \varepsilon_{zcr} & \text{if } \varepsilon_1 \leq E(S_n) \leq \varepsilon_2 \end{cases} \quad (2)$$

L^AT_EX Equation Demo

$$WAD(S_n) = \begin{cases} +1 & \text{if } E(S_n) > \varepsilon_2 \\ -1 & \text{if } E(S_n) < \varepsilon_1 \\ \text{sign}(zcr(S_n)) - \varepsilon_{zcr} & \text{if } \varepsilon_1 \leq E(S_n) \leq \varepsilon_2 \end{cases} \quad (2)$$

Example (Code for Equation above)

```
\begin{equation}
WAD(S_{\{n\}}) = \Bigg\{
\begin{array}{ccc}
+1 & \text{if} & E(S_{\{n\}}) > \varepsilon_2 \\
-1 & \text{if} & E(S_{\{n\}}) < \varepsilon_1 \\
\text{sign}(zcr(S_n)) - \varepsilon_{zcr} & \text{if} & \varepsilon_1 \leq E(S_{\{n\}}) \leq \varepsilon_2
\end{array}
\end{equation}
```

L^AT_EX Equation Demo 2

$$\begin{bmatrix} p_{11} & p_{12} & \dots & p_{1n} \\ p_{21} & p_{22} & \dots & p_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ p_{m1} & p_{m2} & \dots & p_{mn} \end{bmatrix}$$

L^AT_EX Equation Demo 2

$$\begin{bmatrix} p_{11} & p_{12} & \dots & p_{1n} \\ p_{21} & p_{22} & \dots & p_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ p_{m1} & p_{m2} & \dots & p_{mn} \end{bmatrix}$$

Example (Code for Equation left)

```
\begin{equation*}
\begin{bmatrix}
p_{11} & p_{12} & \ldots & p_{1n} \\
p_{21} & p_{22} & \ldots & p_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
p_{m1} & p_{m2} & \dots & p_{mn}
\end{bmatrix}
\end{equation*}
```


L^AT_EX Table Demo

Table: Table Demo

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

L^AT_EX Table Demo

Table: Table Demo

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Example (Code for Table above)

```

\begin{table}
\caption{Table Demo}
\begin{tabular}{| c | c | c |}
\hline
\textbf{Treat} & \textbf{Resp 1} & \textbf{Resp 2} \\ \hline
Treatment 1 & 0.0003262 & 0.562 \\ \hline
Treatment 2 & 0.0015681 & 0.910 \\ \hline
Treatment 3 & 0.0009271 & 0.296 \\ \hline
\end{tabular}
\end{table}

```

Theorem & Verbatim

Theorem (Mass–energy equivalence)

$$E = mc^2$$

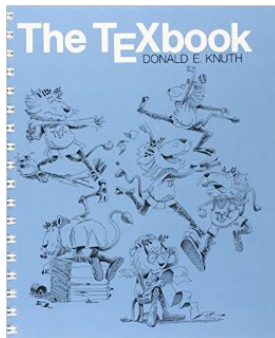
Example (Theorem in Verbatim code)

```
\begin{theorem}[Mass--energy equivalence]
$E = mc^2$
\end{theorem}
```

Figure

Example (Figure L^AT_EX Code)

```
\includegraphics{pic/YourPiCName.bmp}
```



Citation & Reference

Start to learn L^AT_EX by read the book[1].

Example (Citation)

```
Start to learn \LaTeX~by read the book\cite{Tobi2014}.
```

Citation & Reference

Start to learn L^AT_EX by read the book[1].

Example (Citation)

Start to learn \LaTeX~by read the book\cite{Tobi2014}.

JabRef supports Windows/Linux/Mac for Reference Management.

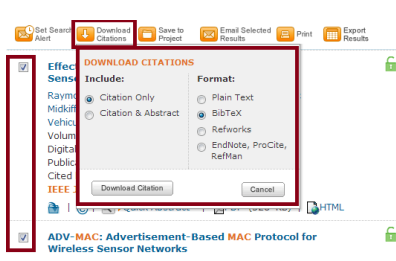


Figure: IEEE bibtex citation download

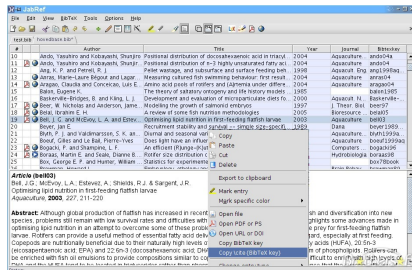


Figure: copy citation from JabRef and paste into L^AT_EX

References



Tobias Oetiker (2014)

The Not So Short Introduction to L^AT_EX 2_ε

or L^AT_EX 2_ε in 157 minutes Version 5.04, Oct 29, 2014.

TAMUthesis L^AT_EX Main Body

Example (TAMUthesis L^AT_EX Main Body 1)

```
\documentclass[SectionMethod, ListStyleI]{TAMUthesis}  
%TAMUthesis is the customized document class.  
%\documentclass[ChapterMethod, ListStyleII]{TAMUthesis}  
\begin{document}  
%use include command to include another tex file.  
\include{data/cover} %include file cover.tex  
\maketitle %creates title page  
\frontmatter %front page style, roman page number etc.  
\include{data/Abstract}  
\include{data/Dedication}  
\include{data/Acknowledgment}  
\include{data/Nomenclature}
```

Continue on next page.

TAMUthesis L^AT_EX Main Body

Continued from Previous Page.

Example (TAMUthesis L^AT_EX Main Body 2)

```
\TAMUTableofContentsFormat      %TOC format control command
      \TAMUTocAddWordPage %Toc=Table of Content
      \tableofcontents      %Generate Table of Content here

\TAMUListOfFiguresFormat
      \TAMULofAddWordPage
      \listoffigures

\TAMUListOfTablesFormat
      \listoftables
```

Continue on next page.

TAMUthesis L^AT_EX Main Body

Continued from Previous Page.

Example (TAMUthesis L^AT_EX Main Body 3)

```
\mainmatter %Thesis Main Content Format control command
\include{data/chapterI}
\include{data/chapterII}
\include{data/chapterIII}
\include{data/chapterIV}
% \include{data/myNewChapterName.tex}
%include reference file, managed by JabRef
\TAMUReferenceFormat %Reference layout control
\bibliographystyle{ieeetr} %Reference use IEEE format
\bibliography{data/myReference}
```

Continue on next page.

TAMUthesis L^AT_EX Main Body

Continued from Previous Page.

Example (TAMUthesis L^AT_EX Main Body 4)

```
\appendix
\TAMUAppendixFormat %TAMUthesis Appendix Layout Control
%comment the line below if claiming ChapterMethod
\begin{appendices}
    \include{data/Appendix} %include file Appendix.tex
%comment the line below if claiming ChapterMethod
\end{appendices}
\end{document} %END OF TAMUthesis
```

End of TAMUthesis L^AT_EX Main Body

TAMUthesis_L^AT_EX_Template_Ver2.2 Folder Structure

Recommend to use **MikTeX**, apply the command XeLaTeX to compile. The TAMUthesis L^AT_EX Package contains the below key files.

- TAMUthesis.cls %The document class definition file.
- TAMUthesis_Template_Ver2p2.tex %Main file, top level structure.
- data[folder]

Abstract.tex

Chapter1.tex

...

- tabe[folder]

table1.tex

table2.tex

- graphic[folder]

pic1.jpg

graphic2.png

- kanjix.map %empty file, for a warning fix in L^AT_EX.

The End