

L^AT_EX: An Introduction *

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Abstract

This brief introduction to L^AT_EX covers installing the necessary programs, starting new documents, creating a BibTeX file, inserting tables and figures, and producing a pdf file. Hopefully these instructions will provide you with the tools necessary to create a conference paper or journal article using L^AT_EX.

*This document was created using L^AT_EX. The raw T_EX commands are available upon request at Michael.Jensen@asu.edu.

Introduction

L^AT_EX is a computer typesetting program used for creating professional looking documents containing advanced figures, tables, and mathematical notation. Unlike Microsoft Word, L^AT_EX operates in a command-driven environment in which the final product is not always visible. This means that getting used to the world of L^AT_EX takes some time. Despite the initial change of scenery and the learning curve one must overcome in order to use L^AT_EX, the benefits of using L^AT_EX far exceed the costs associated with getting comfortable with it. Some of these benefits include:

- It is free and can be installed on all operating systems (Windows, Linux, OS X)
- It is highly customizable and creates professional looking documents
- All equations, tables, figures and citations can be labeled so that cross referencing is done automatically
- Inserting mathematical notation is very easy
- It can format your bibliography according to journal specifications

This introduction to L^AT_EX will cover several broad topics including installing the necessary programs, beginning new documents, typesetting text, creating a BibTeX file, and producing a PDF document. Hopefully by the end you will find that you have the necessary skills to create the equivalent of a conference paper or journal article using L^AT_EX. Before we get started, here are the things you will find on the installation disc I have provided:

- A folder titled “Protex” (used for installing the necessary programs)
- The jpeg2ps.exe program (used for converting .jpeg files to .ps or .eps files)
- Several manuals which may come in handy for answering your T_EX related questions
- A PDF file of this document

Installation¹

1. Insert the CD and open the “Protex” folder.
2. Next, open the “Install” folder.
3. Select the pdf file titled “protex-install-en” (you may choose one of the other pdf files if you prefer instructions in a language other than English).

¹These directions are for installing the various T_EX programs on a Windows operating system using ProTeXt. For Mac users, visit <http://ii2.sourceforge.net/tex-index.html> or <http://ctan.math.utah.edu/tex-archive/systems/mac> to download the programs needed to run L^AT_EX.

Installing MiKTeX

1. On page 10 of the pdf file, you will find a link for installing MiKTeX (it says “click here to install MiKTeX”). Note: after clicking on the link, you may receive a warning message notifying you that the application is going to be launched by the pdf file and that it may contain harmful viruses. Rest assured that I have run this myself and nothing in this file will harm your computer. Check the “do not show this message again” box and click open.
2. You should now see the MiKTeX setup wizard appear. Click next.
3. The “Install” option should be selected by default. If it is not, select it and click next.
4. You should now see a menu asking you which package-set you would like to install. This is really personal preference, but I think the best bet is to select the “Large” option so the most popular packages are installed. The nice thing about MiKTeX is that it will automatically install packages you put in the preamble of your document if you do not already have them installed. So there is really no harm in installing the “Small” package-set if that is what you prefer. After you have made your selection, click next.
5. You will next see a menu asking you if you want all users to be able to access MiKTeX. Again, this is up to you. Once you have made your selection, click next.
6. The next window will tell you where MiKTeX will be downloaded from. The correct path should already be specified. Click next.
7. You will next see where MiKTeX is going to be installed on your computer. If you do not like the default path, you may choose to install the files wherever you would like.² Once you have determined where MiKTeX will be installed, click next.
8. Now you may choose the folder name for MiKTeX. If you do not like the default, change it and click next.
9. You will now be asked where intermediate files should be stored. Again, if you do not like the default path change it and click next. *Notice that it is not recommended to bypass the installation of this folder.*
10. You will now be asked if you would like to integrate existing TEXMF trees into your setup. This allows MiKTeX to access the files of other T_EX programs. Since this is your initial setup, I would skip this option as you can always change this at a later date. Click next.
11. You will now see a run down of everything to be installed. Click next.
12. The installation should begin. *Note: be patient, this can take a while.*

²Be sure to remember where you are saving these folders if you choose to change the default path!

13. When the installation is complete, click next and then finish. MiKTeX should now be installed.

Installing WinEdt³

1. On page 12 of the installation pdf you should see a link titled “click here to install WinEdt.” Click this link. *Note:* if you get the warning about harmful viruses again, just ignore it.
2. The WinEdt setup wizard should appear. Click next.
3. You should now be asked to accept the licensing agreement. Check the box which says “I accept the agreement” and then click next.
4. You will now see a web address you can visit to get help with WinEdt. Click next.
5. You will now be asked where you would like WinEdt to be installed. If you do not like the default path, change it and click next.
6. You should now see the start menu folder where the WinEdt shortcut will be saved. If you do not want a start menu folder created, check the box at the bottom of the screen and click next.
7. You will now be asked which additional tasks you would like the setup to perform. These are all personal preference, so feel free to uncheck any of the boxes. When you have made your selections, click next.
8. You should now see a run-down of everything to be installed. Click install.
9. When the installation has finished you will be asked if you would like to launch WinEdt. Uncheck this box and click finish. WinEdt should now be installed.
10. Below the WinEdt install link in the pdf file you will begin to see a list of plug-ins which can also be installed to enhance WinEdt. Read through these to determine if you would like any of them, then follow the instructions for installing them.

Installing Ghostscript and GSView⁴

1. On page 15 of the installation pdf you should see a link titled “click here to install ghostscript.” Click on this link.

³This will install a 30-day trial version of WinEdt on your computer. After 30 days you will be constantly reminded that you need to pay for a license. If you want a free word editing program, follow the instructions in the pdf file for installing TeXnicCenter or do an internet search for the program “WinShell.” While these programs are free, they do not contain all the features of WinEdt.

⁴Ghostscript and GSView are programs for inserting PostScript files into your documents. This is necessary in order to include figures in your papers or dissertation.

2. Whichever program you use to handle zip files should appear. Click “Setup” to begin the installation.
3. You should now see where GhostScript will be installed on your computer. If you don’t like the default path, change it and click install.⁵
4. When the installation is complete, the Ghostscript folder you just created should appear. Close this folder.
5. In the installation pdf, click on the link titled “click here to install GSView.”
6. Again, whichever program you use to handle zip files should appear. Click “Setup” to begin the installation.
7. The GSView install wizard should appear. Click next.
8. You should now see the copyright notice. Click next.
9. You will now be asked which file types you would like GSView to handle. Make sure the “Associate PostScript” box is checked. Do not check the “Associate PDF” box if you want to use Adobe Acrobat to view pdf files. Click next.
10. You will now be asked where to install GSView. If you don’t like the default path, change it and click next.
11. You should now see a message that a new directory will be created. Click next.
12. A window should appear telling you that a start menu folder will be created. I strongly encourage you to create this folder as it will make accessing the program much easier. Click finish.
13. After the installation is complete, click exit.
14. If the new Ghostgum folder you just created pops-up, close it.
15. GSView should now be installed.⁶
16. This final step is **very important!** ⁷ Open WinEdt and go to “Options” – > “Execution Modes...” On your left-hand side you will see a heading labeled “Accessories” with a list of programs under it. Click on the one that says “ps2pdf.” In the lower left-hand corner of the window you will see a button titled “Browse for executable...” Click it. In the window that appears select “My Computer” from the left-hand side menu. Then in the main window double click “Local Disc (C:).” Then

⁵It is very important that you remember where you have saved this program if you chose to change the default path. The final step of the installation requires that you access the gswin32c.exe file from WinEdt. In order to do this you must know where the GhostScript program is being saved.

⁶You will see a registration screen every time you start GSView if you do not buy a license. Unlike other programs, however, GSView is essentially free since it will never stop functioning if you don’t buy a license.

⁷*Note:* These directions will be different if you changed the default path when installing GhostScript.

open the folders titled “gs” – > “gs8.15” – > “bin” and select “gswin32c” (it has a ghost icon). Click open. Back in the execution modes window click ok. You should now be able to convert your .ps files to pdf files.

Beginning a New Document

1. To begin a new document, open WinEdt, go to “File” – > “New” – > “File” – > “Save As” and give your document a title. Make sure you save your document as a .Tex file.
2. Now you can begin defining the preamble of your document. The first thing you must decide is what kind of document you would like to create. The options you have are article, minimal, book, letter, report, and slides. Once you have determined which type of document you are creating, use the following command:

```
\documentclass[12pt]{enter document type here}
```

3. Now you must decide what packages you will need in order to format your document correctly.⁸ For example, in order to format your bibliography according to APSR standards, you will need to load the “harvard” package. Some of the more common packages include:

- graphicx (used for inserting PostScript figures in the document).
- rotating (used for rotating figures and tables).
- setspace (used for changing line-spacing throughout the document).
- supertabular (used for creating tables that span multiple pages).
- threeparttable (used for putting notes below tables).

4. Once you have decided which packages you need, insert them with the following command:

```
\usepackage{enter package name here}
```

5. At this point you can set the margins, text height, and text width. Refer to the raw T_EX commands below to see how this is done.
6. If you want your document to have a separate title page, it is a good idea to put in the title and authors at this point. To do the title use the following command:

```
\title{enter the title here}
```

For the author(s) use this command:

⁸A fairly complete list of L^AT_EX packages can be found at: <http://www-sop.inria.fr/apics/latex/styles-eng.html>.

```
\author{enter author(s) here}
```

7. Now you must begin your document by using the following command:

```
\begin{document}
```

8. Before you start typing the body of your document there are a few more things you need to define such as bibliography style, spacing, and whether you want page numbers. In addition, you need to make your title page. Here is a sample of what this may look like:

```
\bibliographystyle{apst}
\setcounter{page}{1}
\maketitle
```

9. You can now create an abstract using these commands:

```
\begin{abstract}
type your abstract here.
\end{abstract}
```

10. You can now begin typing the body of your document. If you want section headings use the following command⁹:

```
\section{enter section title here}
```

11. This is pretty much the basics of starting a new document. When you are done with the body of your document you must include a command to end it. In other words, all .Tex files end with the following command:

```
\end{document}
```

12. Here are the commands I used when I started this document:

```
\documentclass[12pt]{article}
\usepackage{graphicx}
\usepackage{epsfig}
\usepackage{rotating}
\usepackage{harvard}
\usepackage{setspace}
```

⁹Note: if you do not want your sections numbered use this command: `\section*{enter section title here}`

```

\usepackage{supertabular}
\usepackage[flushleft]{caption2}
\usepackage{threeparttable}
\usepackage{footmisc}
\usepackage{verbatim}
\topmargin 18pt \advance \topmargin by -\headheight \advance
\topmargin by -\headsep \textheight 8.9in \oddsidemargin 0pt
\evensidemargin \oddsidemargin \marginparwidth 0.5in \textwidth
6.5in \singlespace
\title{\vspace*{2.0in}\LaTeX{}: An Introduction{\vspace*{1.0in}}}
\thanks{This document was created using \LaTeX{}.
The raw \TeX{} commands are available upon request at
Michael.Jensen@asu.edu.}}
\author{Michael Jensen\ \ Arizona State University}
\date{May 10th, 2006}
\begin{document}
\bibliographystyle{apsr}
\setcounter{page}{1} \thispagestyle{empty}
\maketitle
\begin{abstract}
\end{abstract}
\vspace*{1.75in} \pagebreak[4]
\end{document}

```

Typesetting Text in L^AT_EX

Symbols

There are several things (more than I can go over here) that you will need to know in order to type your document in L^AT_EX. The first thing you must know is that certain symbols are reserved characters which have a special meaning. These symbols are:

$$\backslash \# \$ \% \^ \& - \{ \} \sim$$

In order to use these symbols in your document you will need to precede them with a `\`. The only time this will not work is in the case of the backslash itself since `\\` is the command to create a new line. To put a `\` in your document you must type `\backslash$`.

Line and Page Breaking

There are several commands you will need to know when it comes to line and page breaking. Table 1 below lists these commands.


```
\begin{center}
These lines have a
```

```
\vspace{.75in}
```

\$.75\$ inch space between them.

```
\end{center}
```

Horizontal spacing works the same way using the `\hspace{enter space here}` command.

Text Font and Size

If you do not care for the style or size of the default text you can change it at any point in the document. For example, \LaTeX is capable of creating `large`, `small`, `bold`, `italic`, or `slanted` fonts. In addition, several different text styles are available including Times New Roman and `Typewriter`. Table 2 lists several text related commands you may find useful.

Table 2: Text Fonts and Sizes

<code>\textbf</code>	Boldface text
<code>\textit</code>	<i>Italic text</i>
<code>\textsl</code>	<i>Slanted text</i>
<code>\underline</code>	<u>Underlined text</u>
<code>\textsc</code>	SMALL CAPS
<code>\textup</code>	Upright text
<code>\emph</code>	<i>Emphasized text</i>
<code>\textrm</code>	Times New Roman
<code>\texttt</code>	Typewriter
<code>\textsf</code>	Sans Serif
<code>\tiny</code>	<small>Tiny font size</small>
<code>\footnotesize</code>	Footnote font size
<code>\normalsize</code>	Normal font size
<code>\Large</code>	Large font size
<code>\Huge</code>	Largest font size

Note: Remember that the text you want modified must go within `{}`. For example, `\textbf{enter text here}`.

You can also justify your text

to the right,

to the left,

or put it in the center of the page

Here are the commands for doing this:

You can also justify your text
`\begin{flushright}`
to the right,
`\end{flushright}`
`\begin{flushleft}`
to the left,
`\end{flushleft}`
`\begin{center}`
or put it in the center of the page
`\end{center}`

Quotes

Quoting in \LaTeX is somewhat different than quoting in Microsoft Word or other typical word editing programs. Using the " marks on your keyboard will not work. Rather, you must surround a word or phrase with two grave accents (‘) and two vertical quotes (’). For example:

```
‘‘I Love \LaTeX’’
```

Produces:

“I Love \LaTeX ”

Block quotes can be included by using the following commands:

```
\begin{quote}  
enter the text of the quote here  
\end{quote}
```

Typesetting Mathematics

Perhaps one of the most amazing features of \LaTeX is how easy it is to insert advanced mathematical notation into your document. For example you can do fairly simple equations like:

$$y = x + 3$$

Or, fairly complex equations like:

$$\int_{x=0}^{\infty} e^{-x^2} dx = \frac{\sqrt{\pi}}{2}$$

Here are the commands for doing this:

```
\[
y=x+3
\]
```

Or, fairly complex equations like:

```
\[
\int_{x=0}^{\infty} e^{-x^2} dx
= \frac{\sqrt{\pi}}{2}
\]
```

Covering all the mathematical notation which can be inserted into your document is well beyond the scope of this short introduction, so please refer to one of the many online manuals, such as Oodeker, Partl, Hyna & Schlegl (2005), for more examples.

Accents and Special Characters

L^AT_EX has the ability to put accents and special characters into your document, but, like everything else, they require special commands. Table 3 lists the commands for creating these accents and special characters.

Table 3: Accents and Special Characters

<code>\'o</code>	ò	<code>\'o</code>	ó	<code>\o</code>	õ
<code>\=o</code>	ō	<code>\.o</code>	ó	<code>\"o</code>	ö
<code>\u o</code>	ö	<code>\v o</code>	ö	<code>\H o</code>	ő
<code>\c o</code>	ç	<code>\d o</code>	ø	<code>\b o</code>	ö
<code>\oe</code>	œ	<code>\OE</code>	Œ	<code>\ae</code>	æ
<code>\AE</code>	Æ	<code>\aa</code>	å	<code>\AA</code>	Å
<code>\o</code>	ø	<code>\O</code>	Ø	<code>\l</code>	ł
<code>\L</code>	Ł	<code>!'</code>	ı	<code>?'</code>	ı

Footnotes

Including footnotes in your document is easy using L^AT_EX. Simply place the `\footnote{enter footnote text here}` command where you want the superscript number to appear. If you want to footnote a section or subsection heading use the `\protect\footnote{enter footnote text here}` command. L^AT_EX will automatically number all footnotes for you. If you prefer to use endnotes instead of footnotes, you can load the package “endnotes” in the preamble of your document. This will convert all your footnotes to endnotes. It is important to remember that you still use the `\footnote{enter footnote text here}` command throughout your document when using the endnote package. When you have completed your document, enter the following commands before the `\end{document}` command in order to create your endnote page:

```
\newpage
\begingroup
\parindent 0pt
\parskip 2ex
\def\notesize{\normalsize}
\theendnotes
\endgroup
```

Bullets and Numbering

Inserting bullets and numbering into your document can be done using a couple simple commands (referred to in the \LaTeX world as “environments”). If you want indented bullets that look something like this:

- Bullets
- are
- easy
- in
- \LaTeX

The commands are:

```
\begin{itemize}
\item Bullets
\item are
\item easy
\item in
\item \LaTeX
\end{itemize}
```

The same thing can be done with numbers.

1. Numbers
2. are
3. easy
4. in
5. \LaTeX

And, here are the commands:

```

\begin{enumerate}
\item Numbers
\item are
\item easy
\item in
\item \LaTeX
\end{enumerate}

```

You can also insert a custom itemized list by using the “description” environment. So if you have a list of rules you want displayed, you can create something that looks like this:

Rule 1. Never say never

Rule 2. Mothers know best

Rule 3. What doesn’t kill you, makes you stronger

The commands used to create these rules look like this:

```

\begin{description}
\item[Rule 1.] Never say never
\item[Rule 2.] Mothers know best
\item[Rule 3.] What doesn’t kill you, makes you stronger
\end{description}

```

Creating a BibTeX File

In order to cite references in your document you must create a .bib file which includes all works you wish to cite. To do this, go to the WinEdt menu and click “File” – > “New” – > “File” – > “Save As” and give your BibTeX file a title. **Important!** Remember to change the file type to BibTeX when saving it. You can now begin inserting references into the BibTeX file by going to the WinEdt menu and clicking “Insert” – > “BibTeX items” and selecting the appropriate reference type. For example, selecting article yields the following:

```

@ARTICLE{*,
  AUTHOR =      {*},
  TITLE =      {*},
  JOURNAL =     {*},
  YEAR =       {*},
  volume =     {*},
  number =     {*},
  pages =      {*},
  month =      {*},
  note =       {*},
  abstract =   {*},
  keywords =   {*},
  source =     {*},
  file = F
}

```

Begin filling in the appropriate lines like so (delete the ones you do not need):

```
@ARTICLE{Smith2006,  
  AUTHOR =      {Smith, John},  
  TITLE =      {LaTeX is Great},  
  JOURNAL =     {The Advanced Journal for Super-Geeks},  
  YEAR =       {2006},  
  volume =     {1},  
  number =     {1},  
  pages =      {1-25},  
  month =      {May},  
}
```

You must do this for every item you want to reference in your \TeX file. I would suggest creating a master bibliography. It may take a while but it will save you a lot of time in the future if you plan on using \LaTeX a lot. In order to insert these references into your main \TeX file, you must put the `\bibliography{name of your .bib file}` command before the `\end{document}` command at the end of your \TeX file.

Citing References

Now that you have created a BibTeX file, you can begin referencing sources in your main \TeX file. The most important thing to remember is that you must have your BibTeX file open along with your main \TeX file in order to include these references in your document. Several simple commands can be used in order to reference a work in your BibTeX file. The most common is `\cite{}`. When you enter the open and closed `{}`, a window will pop-up displaying all of the references listed in your BibTeX file. Simply select the one you want and hit enter. To include page numbers in your citation, the command is as follows:

`\cite[pp.~enter page numbers here]{}`

Table 4 lists some common citation commands and shows how they will be displayed in the final document.

Table 4: Common Citation Commands

Command	Example
<code>\cite{}</code>	(Jones 1998)
<code>\citeasnoun{}</code>	Jones (1998)
<code>\citeyear{}</code>	(1998)
<code>\cite[pp.~page numbers]{}</code>	(Jones 1998, pp. 100-110)
<code>\citeasnoun[pp.~page numbers]{}</code>	Jones (1998, pp. 100-110)

Note: Putting multiple citations inside a single set of parentheses can be tricky. The best way I have found to do it is to enter multiple `\cite{}` commands and then delete everything but the reference. So in the end it would look something like `\cite{Jones1998,Smith2000,Brady1997}`.

Inserting Tables

You can insert very nice looking tables into your document using \LaTeX . Of course, you will need to practice making them a bit in order to get the hang of it. The most important thing is that you have a visual in your head before hand of what you would like the table to look like. This will help you determine how many columns, horizontal and vertical lines, and headings you will need. Table 5 is a sample of a basic table which can be created in \LaTeX .

Table 5: Sample Table

Variable	Coef.	S.E.
Party ID	.356	.113
Age	.465	.065
Income	.234	.112

Here are the commands used to create the table above:

```
\begin{table}[h]
\begin{center}
\caption{Sample Table}
\label{Table 5}
\begin{tabular}{l|lc r}
\hline
\hline
\textbf{Variable} & \textbf{Coef.} & \textbf{S.E.}\\
\hline
Party ID & .356 & .113\\
Age & .465 & .065\\
Income & .234 & .112\\
\hline
\end{tabular}
\end{center}
\end{table}
```

Here is an example of a table which uses headings above multiple columns (see Table 6):

Table 6: Sample Table Using Column Headings

	Strong Actor			Weak Actor		
	Inter	Intra	Extra	Inter	Intra	Extra
Total	23 (55%)	7 (64%)	77 (76%)	19 (45%)	4 (36%)	24 (4%)
Pre-1950	15 (55%)	3 (100%)	74 (81%)	12 (45%)	0 (0%)	18 (19%)
Post-1950	8 (53%)	4 (50%)	3 (33%)	7 (47%)	4 (50%)	6 (67%)

Here are the commands used for making the table above:

```
\begin{table}[h]
```

```

\caption{Sample Table Using Column Headings} \label{Table 6}
\begin{center}
\begin{tabular}{l c c c | c c c} &
\multicolumn{3}{c}{\textbf{Strong Actor}} & \multicolumn{3}{c}{\textbf{Weak Actor}} \\
\cline{2-7}
\textbf{} & Inter & Intra & Extra & Inter & Intra & Extra \\
\hline
\textbf{Total} & 23 (55\%) & 7 (64\%) & 77 (76\%) & 19 (45\%) & 4 (36\%) & 24 (4\%) \\
\textbf{Pre-1950} & 15 (55\%) & 3 (100\%) & 74 (81\%) & 12 (45\%) & 0 (0\%) & 18 (19\%) \\
\textbf{Post-1950} & 8 (53\%) & 4 (50\%) & 3 (33\%) & 7 (47\%) & 4 (50\%) & 6 (67\%) \\
\hline
\end{tabular}
\end{center}
\end{table}

```

Notice that there is an optional “[]” argument which can be included after the `\begin{table}` command. This feature allows you to tell L^AT_EX where to put the table. The options you have are:

- **h** insert the table where the code is
- **b** insert the table at the bottom of the page (if space is available)
- **t** insert the table at the top of the page (if space is available)
- **p** insert the table at the end of the document on a separate page

If you want to include notes at the bottom of your tables or footnotes within them, you will need to load the package “threeparttable” in the preamble of your document. Here is an example of a table (7) that was created using “threeparttable.”¹⁰

Table 7: Sample Table with Notes

	Evaluations of Pres. Bush			Evaluations of Sen. Kerry		
Variable	b	SE	Beta	b	SE	Beta
Debate Exposure	-.06	.23	-.01	.80**	.23	.08
Time of Interview	-.05	.04	.03	-.09*	.04	-.05
Party Attachment	-2.35**	.12	.51	2.33**	.12	.50
Ideology	-1.64**	.16	.27	1.89**	.16	.30
Constant	5.03**	.27		5.46**	.28	
R ²	.45			.48		
N	1032			1032		

Significance levels: † $p \leq .10$ * $p \leq .05$ ** $p \leq .01$

Note: All p-values are based on one-tailed tests since our hypotheses are directional.

¹⁰This table was provided courtesy of Sarah Gershon.

Here are the commands used to create the above table:

```

\def\onepc{${\ast\ast}$}
\def\fivepc{${\ast}$}
\def\tenpc{${\dag}$}
\def\legend{\multicolumn{3}{l}{\footnotesize{Significance levels
:\hspace{1em} $\dag$ .10\ \hspace{1em} $\ast$ .05\ \hspace{1em}
$\ast\ast$ .01\ \normalsize}}}
\begin{center}
\begin{singlSPACE}
\begin{threeparttable}[htbp]
\caption{Sample Table with Notes \label{Table 7}}
\begin{tabular}{l c c c | c c c}
\hline
\hline & & & & & & & \\
\multicolumn{3}{c|} {\textbf{Evaluations of Pres.
Bush}} & & & & & \\
\multicolumn{3}{c} {\textbf{Evaluations of Sen. Kerry}}\ \\
\hline
\hline
\textbf{Variable} & \textbf{b} & \textbf{SE} & \\
\textbf{Beta} & \textbf{b} & \textbf{SE} & \textbf{Beta} \\
\hline
Debate Exposure & -.06 & .23 & -.01 & .80\onepc & .23 & .08 & \\
Time of Interview & -.05 & .04 & .03 & -.09\fivepc & .04 & -.05 & \\
Party Attachment & -2.35\onepc & .12 & .51 & 2.33\onepc & .12 & .50 & \\
Ideology & -1.64\onepc & .16 & .27 & 1.89\onepc & .16 & .30 & \\
Constant & 5.03\onepc & .27 & & 5.46\onepc & .28 & & \\
& & & & & & & \\
R2 & .45 & & & .48 & & & \\
N & 1032 & & & 1032 & & & \\
\hline
\end{tabular}
\begin{tablenotes}[flushleft]
\begin{footnotesize}
\item Significance levels:
\hspace{1em} $\dag$ $p\le$.10$
\hspace{1em} $\ast$ $p\le$.05$
\hspace{1em} $\ast\ast$ $p\le$.01$\
\item \textit{Note}: All p-values are based on one-tailed tests since our
hypotheses are directional.\
\end{footnotesize}
\end{tablenotes}
\end{threeparttable}
\end{singlSPACE}
\end{center}

```

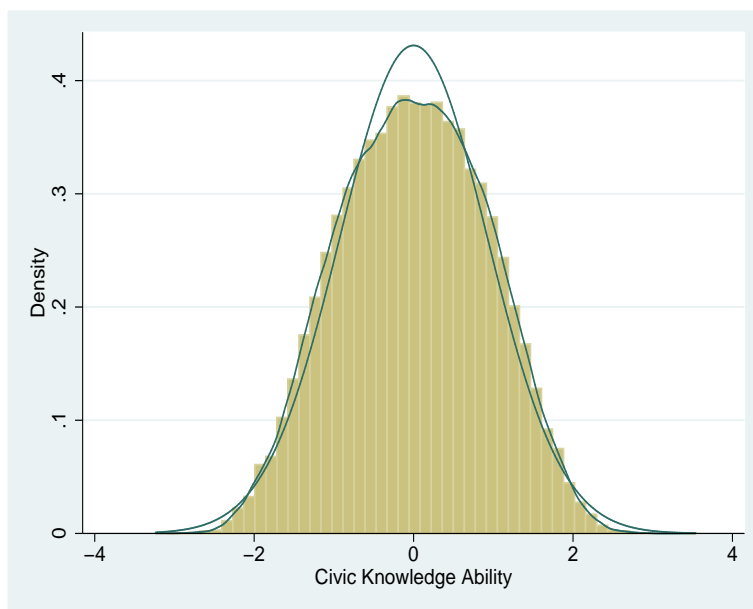
Once you have made a table and given it a label using the `\label{enter table label here}` command, you can easily reference it anywhere in your document by using the `\ref{}` command. Once you type the open and closed `{}` a pop-up window will appear listing all tables you have created. Simply click the one you want and hit enter. The nice thing about referencing tables this way is that L^AT_EX will automatically number all your tables for you. Another nice

thing about making tables in \LaTeX is its integration with the stats program “Stata.” After running a regression in Stata you can get the \LaTeX commands for putting the output into a table by using the OutTeX feature.¹¹ Simply type `outtex` in your Stata command window after you run your regression and the \LaTeX commands will appear in your Stata window. You can then simply copy and paste them into your \TeX file.

Inserting Graphics and Figures

You can include nice looking graphics and figures in your document when using \LaTeX . Unfortunately, this is probably the least straightforward thing to do in what is already an atypical document preparation environment. The first thing you need to know is that figures should be in PostScript (.ps) or Encapsulated PostScript (.eps) form. This means you will need a separate program to convert your existing figures if they are in a format other than .ps or .eps. On the installation disc, I have included the `jpeg2ps.exe` program for converting your jpeg files to .ps or .eps files.¹² Additional programs are available on the web for converting other file types to .ps or .eps. The other thing you must know is that you will have to load a package, such as “`epsfig`” or “`graphicx`,” in the preamble of your document in order for \LaTeX to read .ps or .eps files.

Figure 1: Sample Figure



¹¹You will probably have to download OutTex. Type “`findit outtex`” in your Stata command window. A pop-up window should appear. You can then click on the link to download OutTex.

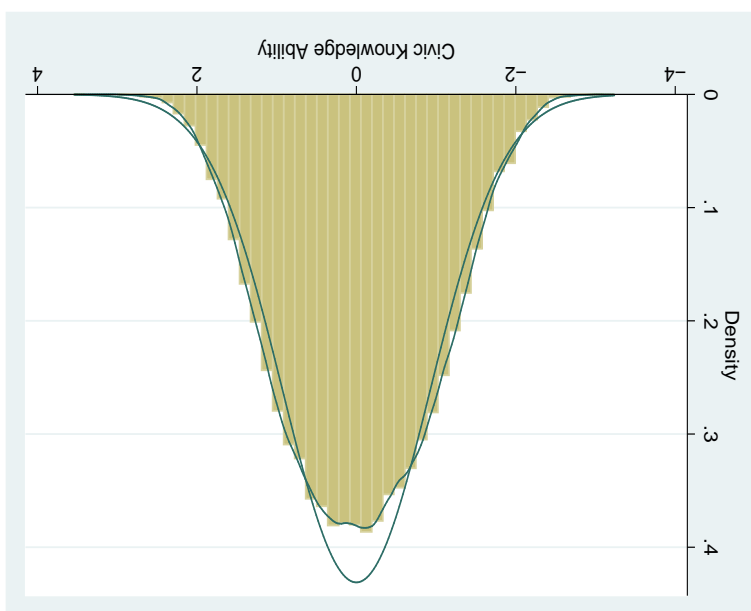
¹²Another useful tip is if you have created figures in Excel or Word, they can easily be saved as jpeg files by copying them into Microsoft Paint, going to “File” – > “Save As” and changing the file type to jpeg.

Inserting figures is much like inserting tables in that it uses a simple `\begin{figure}` environment command. You also have the option of adjusting the height and angle of the figure once you have inserted it into your document. Figures 1 and 2 are examples of what this may look like in your final document. The commands used to create Figure 1 look like this¹³:

```
\begin{figure}[h]
\caption{Sample Figure}\label{Figure 1}
\begin{center}
\includegraphics [height=8cm,width=10cm]{IdealCivic.eps}
\end{center}
\end{figure}
```

Here is that same figure rotated 180 degrees (See Figure 2).

Figure 2: Sample Figure Rotated



Here are the commands for Figure 2:

```
\begin{figure}[h]
\caption{Sample Figure}\label{Figure 2}
\begin{center}
\includegraphics [height=8cm,width=10cm,angle=180]{IdealCivic.eps}
\end{center}
\end{figure}
```

¹³Notice that the optional “[]” argument can be used for figures just like it is for tables.

An important thing to remember is that the .ps or .eps file of your figure must be saved in the same folder as your .tex file, or you will have to enter directory commands to get it to work. Like tables, you can easily reference your figures by using the `\ref{}` command. Again, when you type the open and closed `{}` you can select the figure from the pop-up window and simply hit enter to reference it.

Creating a PDF File

When you are finished typing out your raw .tex file, you can easily produce a PDF file by using WinEdt's top menu. Depending on whether you have references or figures, this process will vary. At its most basic (i.e. no references or figures) you simply hit the `LATEX` button once and then the `dvi- >pdf` button. Your default PDF viewing program should open and you should see your final document.¹⁴ If you have references in your .tex file, you will need to click on the top menu buttons in this order:

`"LATEX"` - > `"Bib"` - > `"LATEX"` - > `"LATEX"` - > `"dvi- >pdf"`

Here is the sequence for creating a pdf if you have figures:

`"LATEX"` - > `"dvi- >ps"` - > `"ps- >pdf"`

And finally, here is the sequence if you have references and figures:

`"LATEX"` - > `"Bib"` - > `"LATEX"` - > `"LATEX"` - > `"dvi- >ps"` - > `"ps- >pdf"`

Conclusion

Hopefully this document has provided you with the basic tools needed to get started with `LATEX`. There are also many online and published manuals which cover each of the areas listed here in much more detail, including Lamport (1994), Griffins & Higham (1997), and Oodeker et al. (2005)¹⁵. The most important thing to remember is that you never stop learning how to use `LATEX`. There are constantly new packages being developed to enhance the program. So if you are comfortable with entering the world of super-geeks, get online and start figuring out more than you ever wanted to know about `LATEX`. My last bit of advice for you is to always remember that Google is your best friend when you can't get something to work. *Good Luck!*

¹⁴If you get an error when you hit the `LATEX` button, pay attention to where it is getting caught up. Often it is a misplaced or missing symbol, or a misspelled word.

¹⁵This manual is include on the install cd I provided.

References

- Griffins, David F. & Desmond J. Higham. 1997. *Learning L^AT_EX*. Philadelphia, PA: Society for Industrial and Applied Mathematics.
- Lamport, Leslie. 1994. *L^AT_EX: A Document Preparation System*. Reading, Mass.: Addison-Wesley.
- Oodeker, Tobias, Hubert Partl, Irene Hyna & Elisabeth Schlegl. 2005. “The Not So Short Introduction to L^AT_EX 2_ε.” www.ctan.org/tex-archive/info/lshort/english/lshort.pdf.