

L^AT_EX

THE CLEAR PLASTIC BINDER OF SOCIAL SCIENCE RESEARCH

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WELCOME TO L^AT_EX

L^AT_EX is a document preparation system that is based on a WYSIWYM model (What you see is what you *mean*) rather than a WYSIWYG model (what you see is what you *get*) like that used by MSWord. Though some have called L^AT_EX a “solution without a problem” (Philosophicus, 1927), its ability to create long and complex documents is unparalleled. L^AT_EX uses its engine to transform .tex files—which are really just specially coded .txt files—into PDF files that, regardless of content, look highly professional. In other words, L^AT_EX is the clear plastic binder of social science research (*c.f.* “Bats aren’t bugs” strips in (Watterson, 1992)).

Figure 1: A+ Work Flow

$$\text{Your Work} + \text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} = \text{GUARANTEED A!}^*$$

* Grade not guaranteed.

To use this document as guide for L^AT_EX, you will need to refer to both the finished PDF file and the .tex file that created it. This means, of course, that you will need to have installed a TeX engine on your computer (See accompanying README file or just Google it). I have also included the .tex code in appendix of this document. Many other (and better) L^AT_EX guides exist. A list of them can be found at <http://latex-project.org/guides/>.

1 CITATIONS

When citing, there are a number of different cite commands that allow for different sentence structures. (Strongrule, 1992), Strongrule (1992), Strongrule, and (1992) were all created using a different versions of the `\cite` command (for above, specifically: `\cite`, `\citeA`, `\citeauthor`, and `\citeyear`). Multiple citations can be created by simply including two or more cite keys in the cite command separated by a comma: (Philosophicus, 1927; Strongrule, 1992).

For citations to work, you need an associated .bib file. This is the file that holds all the bibliographic information that your sources contain. Many PDF managers such as Mendeley will create .bib files for the various working folders/libraries you use. Most research databases and Google Scholar will also let you export citations in BibTeX format. For citations to populate throughout the document properly, your .bib file has to be in the same directory/folder as the .tex document or the L^AT_EX editor you use has to know where to find the .bib file (i.e., hard links in the .tex document).

2 LISTS

You can create a few different types of lists in L^AT_EX. Three examples are: `enumerate`, `itemize`, `description`.

2.1 ENUMERATE

I. Make a point

(a) Subpoint

(b) Subpoint

II. Make another point

2.2 ITEMIZE

- Just
- some
- unordered
- ideas

2.3 DESCRIPTION

Put brackets around the items you want bolded. With enough text, you can see that the paragraph is set up with a hanging indent.

Description is good for defining terms.

3 EQUATIONS

One of the strengths of L^AT_EX is its ability to create very nice equations. As is the case for the entire system, learning the various equation codes is a pain at first, but worth it in the end.

You can produce inline equations by surrounding the equation with `$...$`. An inline equation becomes a bit squished like so, $\lim_{N \rightarrow \infty} \Pr(|\Theta_N - \Theta| < \epsilon) = 1$, but inline is good if you only have one equation within a large body of text. To create full equations that are numbered, use the `\begin{equation}` command.

$$\lim_{N \rightarrow \infty} \Pr(|\Theta_N - \Theta| < \epsilon) = 1 \tag{1}$$

To create an equation without numbering, simply add an asterisk to the prior command (make sure you have the *amsmath* package in the preamble): `\begin{equation*}`. (Note that adding an asterisk is the general method for suppressing numbering in all L^AT_EX commands that normally add them.) This example equation only scratches the surface. There are many more types of equations that L^AT_EX can create. Having a handy symbol guide and a little patience is recommended.

4 TABLES

4.1 EVERYDAY TABLES

Tables in L^AT_EX are the jam. Table 1 is an easy one. Notice how Table 1 is small and without much text. Had we used more text, L^AT_EX would have kept it all on one line and pushed the table outside of the page margins. There are two ways to have the text wrap and/or set the table to the dimension you want. The first way is to use the *tabularx* package. With *tabularx* L^AT_EX can adjust the table to fit whatever dimensions you set. Table 2 is an example. If you are a control freak and absolutely need your table to be a certain size, you can also set your columns to be specific widths as in Table 3.

Table 1: Easy Table

1	2	3
A	B	C
a	b	c
α	β	γ

Table 2: Medium Table

1	2	3
A	B	C
a	b	c
α	β	γ

Table 3: Extra Medium Table

1	2	3
A	B	C
a	b	c
α	β	γ

4.2 CLEANER TABLES

Using `\hline` when creating tables is a pain, especially if you want lines that only cover part of the table. Furthermore, you end up with squished tables. The *booktabs* package makes this process easier. See Table 4 for an example of a slightly more complex, but more professional-looking table.

Table 4: Better Table

1	Group 1		Group 2	
	2	3	4	5
A	B	C	D	E
a	b	c	d	e
α	β	γ	δ	ϵ

4.3 LONG TABLES

Sometimes you have a table that is too long and must be spread over multiple pages. Since the whole point of L^AT_EX is that it automatically sets up your document, you need a table that will flow and break with the page as necessary. The *longtable* package allows you to do this. I'm not going to lie, it's a pain to set up. See Table 5.

Table 5: Long Table

Letter	Number	Greek
A	1	α
B	2	β
C	3	γ
D	4	δ
E	5	ϵ
F	6	ζ
G	7	η

Continued on next page...

... table 5 continued

Letter	Number	Greek
H	8	θ
I	9	ι
J	10	κ
K	11	λ
L	12	μ
M	13	ν
N	14	ξ
O	15	π
P	16	ρ
Q	17	σ
R	18	τ
S	19	υ
T	20	ϕ
U	21	χ
V	22	ψ
W	23	ω
X	24	
Y	25	
Z	26	

4.4 TABLES WITH EXTERNAL DATA

As you can see from the accompanying .tex file, I've created all the preceding tables by hand. While this works for one-off tables with data that don't change, you want to create tables that will change automatically if the data coming from a statistical package such as R or Stata change. The good news is that all you need to do to use an external table is link to it with the `\input` command in the body of the table. Table 6 is an example. Though it looks just like Table 4 in the formatted PDF, see the .tex file for the difference.

(Of course, I just saved the same data I created before in another .tex file; to produce the .tex data file automatically with your favorite statistical software is another matter. My suggestion is to have the stats software export the data in a .tex format with the least amount of column, row, and header information possible and use L^AT_EX to recreate it: it will look better that way IMNSHO. The *estout* package in Stata, with its suite of commands, would be one way to do this. The *texreg* library works in R.)

Table 6: Better Table (with External Data File)

1	Group 1		Group 2	
	2	3	4	5
A	B	C	D	E
a	b	c	d	e
α	β	γ	δ	ϵ

4.5 SIDEWAYS TABLES

Other times you need a wide table that is longer than the width of the page in landscape view. Make sure you have the rotating package called in the header of the document and simply use the `\sidewaysstable` to rotate it. See Table 7 on page 9.

Table 7: Sideways Table

	Group 1			Group 2	
	2	3	4	5	
1					
A	B	C	D	E	
a	b	c	d	e	
α	β	γ	δ	ϵ	

5 WITHIN DOCUMENT REFERENCES

Another great thing about L^AT_EX is its ability to create and follow internal links. When the document is set up correctly, the order of tables, figures, sections, etc., and the pages they fall on will not matter for in-text referencing. For example, if you decide to move Table 1 to new section, you won't need to relabel with a different number or change references to it or its page number. When referencing a table, simply use the `\ref` command with the label you have given the figure (using the `\label` you've given it within the figure). L^AT_EX will handle setting up the correct numbers. See the .tex file for examples throughout.

Similarly, the slick table of contents at the beginning of the document was created automatically with the `\tableofcontents` command at the beginning of the document.

6 BIBLIOGRAPHY

If you don't end up using L^AT_EX to write papers, you will never need to worry about a bibliography. If you are slightly mad (and mostly awesome), then you will use L^AT_EX for your all your finished papers.

To create a bibliography, simply include `\bibliography{nameofyourbibfile}` at the end of your .tex file. You probably also want to include `\bibliographystyle` so that you can control how the bibliography looks. To create this document, I've used the `apacite.sty` (.sty means style...I assume) within the `\bibliographystyle` brackets. I've also included the `\urlstyle{same}` command. This prevents the url links in the bibliography entries, should I have any, from formatting in monospace font. To use the `apacite.sty`, note that I've include the `apacite` package in the header of my .tex file.

REFERENCES

Philosophicus, P. (1927). The liberal LaTeX agenda. *The National Eschew*, 5(7), 23–40.

Strongrule, L. (1992). *Wizards don't walk: The case against slytherin' and all forms of bipedalism*. Muggle Press.

Watterson, B. (1992). *The Indispensable Calvin and Hobbes: A Calvin and Hobbes Treasury*. Andrews McMeel Publishing.

A DOCUMENT CODE

```
%% BEGIN PREAMBLE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% LaTeX documents have a preamble. It's where you set up all styles, commands,
% and packages. (As you can see, percent signs (%) are used to comment out
% sections in LaTeX documents.)

% This is one default document class; this should go at the top of the file
\documentclass[12pt]{article}

%% PACKAGES

% Packages are add-ons that allow you to modify the default structure of
% a LaTeX document. You call them up here. Most packages are automatically
% downloaded with the TeX distribution you have. Some have to be downloaded
% separately, but it's not a big deal. I don't really know why LaTeX doesn't
% just have these as options without calling up packages. Maybe just the
% history of the system or to save space. Below are just some examples.
% There are tons of packages.

\usepackage{times} % Times font
\usepackage{titlesec} % Titles can be formatted
\usepackage{tabularx} % This allows for more fluid tables (see below)
\usepackage{booktabs} % This helps make neater tables (see below)
\usepackage[margin=1in, paperwidth=8.5in, paperheight=11in]{geometry} % Margins
\usepackage{caption} % Captions more adjustable
\usepackage{fancyhdr} % Lets you make nice headers and footers
\usepackage{longtable} % Allows for table that floats across pages
\usepackage{rotating} % Allows for sideways tables
\usepackage{setspace} % Can set the spacing of discrete sections of the document
\usepackage{graphicx} % More control over figures (images)
\usepackage{apacite} % Sets up APA style in-text citation system for document
\usepackage{url} % Urls in APA bibliography do not change to monospace font
\usepackage{enumerate} % Gives you more control over lists
\usepackage{amsmath} % Much more powerful equation editor

%% COMMANDS

% LaTeX allows you to create your own commands. This is really nice if there
% is something you do a lot that normally requires a long or just annoying
% command structure. Below, I've just created commands that are shortened
% versions of longer ones.

\newcommand{\RR}{\raggedright\arraybackslash} % Allows left align in tables
\newcommand{\RL}{\raggedleft\arraybackslash} % Allows right align in tables
\newcommand{\indentitem}{\setlength\itemindent{1.5em}} % Manually add indent

%% STYLES

% Using the packages loaded above, I'm able to set up some general page styles.
\pagestyle{fancy} % Calls up the fancyhdr package above
```

```
% Right header with my name and the automatic page number
\fancyhead[R]{\scshape Benjamin Skinner $\vert$ \thepage}
% Left header with document title
\fancyhead[L]{\scshape \LaTeX{} Example Document}
% Nothing in the footer (i.e. remove automatic page numbers in footer)
\fancyfoot{}
\renewcommand{\headrulewidth}{0.4pt} % Sets the thickness of the header line

% Change font of section/subsection headers b/c I want to do so
\titleformat*{\section}{\Large\scshape} % To small caps
\titleformat*{\subsection}{\scshape} % To small caps, smaller font

% Setting up title page
\title{\huge\scshape \LaTeX{} \\\ {\Large The Clear Plastic Binder
      of Social Science Research}}\label{doc:title}
\date{{\scshape Last updated} \\\ \scshape{\today}}
\author{\scshape{\Large Benjamin Skinner}}

%% END PREAMBLE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%% BEGIN DOCUMENT %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\begin{document}
\maketitle % Takes the title commands in the preamble and places it in document
\tableofcontents
\thispagestyle{empty} % Removes header/footer from front page
\newpage

\section*{License} % License preamble section
% NB: * (an asterisk) turns off numbering; remove to turn it back on
{\parindent0pt % disables indentation for all the text until closing }

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it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
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MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details. \\\

You should have received a copy of the GNU General Public License
along with this document. If not, see \url{http://www.gnu.org/licenses/}.
}
```

```
\cleardoublepage % Making new page (not necessary when using APA document class)
```

```
\section*{Welcome to \LaTeX{}} % Start section
```

\LaTeX{} is a document preparation system that is based on a WYSIWYM model (What you see is what you {\itshape mean}) rather than a WYSIWYG model (what you see is what you {\itshape get}) like that used by MSWord. Though some have called \LaTeX{} a ``solution without a problem" \cite{philosophicus1927agenda}, its ability to create long and complex documents is unparalleled. \LaTeX{} uses its engine to transform .tex files---which are really just specially coded .txt files---into PDF files that, regardless of content, look highly professional. In other words, \LaTeX{} is the clear plastic binder of social science research ({\itshape c.f.} ``Bats aren't bugs'' strips in \cite{watterson1992indesp}).

```
\begin{figure*}[h!]
\caption{A+ Work Flow}
\noindent \includegraphics[width=\linewidth]{aplus.eps}
\end{figure*}
```

To use this document as guide for \LaTeX{}, you will need to refer to both the finished PDF file and the .tex file that created it. This means, of course, that you will need to have installed a TeX engine on your computer (See accompanying README file or just Google it). I have also included the .tex code in appendix of this document. Many other (and better) \LaTeX{} guides exist. A list of them can be found at <http://latex-project.org/guides/>.

```
% NB: LaTeX automatically creates hyperlinks in the digital document
% when http:// is used.
```

```
\section{Citations}
```

When citing, there are a number of different cite commands that allow for different sentence structures. \cite{strongrule2012wizards}, \citeA{strongrule2012wizards}, \citeauthor{strongrule2012wizards}, and \citeyear{strongrule2012wizards} were all created using a different versions of the {\tt \textbackslash{cite}} command (for above, specifically: {\tt \textbackslash{cite}}, {\tt \textbackslash{citeA}}, {\tt \textbackslash{citeauthor}}, and {\tt \textbackslash{citeyear}}). Multiple citations can be created by simply including two or more cite keys in the cite command separated by a comma: \cite{philosophicus1927agenda, strongrule2012wizards}.

```
% NB: Because certain LaTeX symbols have special meaning in the code
% (& % $ # _ { } ~ ^ \), you have to ``escape" them if you want to
% print them in the text. In cases like those found in the preceding
% paragraph, use the command as shown in the final PDF.
```

For citations to work, you need an associated .bib file. This is the file that holds all the bibliographic information that your sources contain. Many PDF managers such as Mendeley will create .bib files for the various working folders/libraries you use. Most research databases and Google Scholar will also let you export citations in BibTeX format. For citations to populate throughout the document properly, your .bib file has to be in the same directory/folder as

the .tex document or the \LaTeX{} editor you use has to know where to find the .bib file (i.e., hard links in the .tex document).

\section{Lists}

You can create a few different types of lists in \LaTeX{}. Three examples are: enumerate, itemize, description.

```
\subsection{Enumerate}
\begin{enumerate}[I.] % With the enumerate package, we can change the marker
\item Make a point
\begin{enumerate} % To start a subgroup, just nest another enumerate area
\item Subpoint
\item Subpoint
\end{enumerate}
\end{enumerate}
\item Make another point
\end{enumerate}
```

```
\subsection{Itemize}
\begin{itemize}
\item Just
\item some
\item unordered
\item ideas
\end{itemize}
```

```
\subsection{Description}
\begin{description}
\item[Put brackets] around the items you want bolded. With enough
    text, you can see that the paragraph is set up with a hanging indent.
\item[Description] is good for defining terms.
\end{description}
```

\section{Equations}

One of the strengths of \LaTeX{} is its ability to create very nice equations. As is the case for the entire system, learning the various equation codes is a pain at first, but worth it in the end.

You can produce inline equations by surrounding the equation with `\{ \tt \${\ldots}\$ \}`. An inline equation becomes a bit squished like so, $\lim_{N \rightarrow \infty} \Pr(|\Theta_N - \Theta| < \epsilon) = 1$, but inline is good if you only have one equation within a large body of text. To create full equations that are numbered, use the `\texttt{\textbackslashbegin{equation}}` command.

```
% Begin equation
\begin{equation}
\lim_{N \rightarrow \infty} \Pr(|\Theta_N - \Theta| < \epsilon) = 1
\end{equation}
% End equation
```

To create an equation without numbering, simply add an asterisk to the prior command (make sure you have the `\itshape amsmath` package in the

preamble): `\texttt{\textbackslash{begin}\{equation*\}}`. (Note that adding an asterisk is the general method for suppressing numbering in all `\LaTeX{}` commands that normally add them.) This example equation only scratches the surface. There are many more types of equations that `\LaTeX{}` can create. Having a handy symbol guide and a little patience is recommended.

`\section{Tables}`

`\subsection{Everyday Tables}`

Tables in `\LaTeX{}` are the jam. Table `\ref{tab:easy}` is an easy one. Notice how Table `\ref{tab:easy}` is small and without much text. Had we used more text, `\LaTeX{}` would have kept it all on one line and pushed the table outside of the page margins. There are two ways to have the text wrap and/or set the table to the dimension you want. The first way is to use the `{\itshape tabularx}` package. With `{\itshape tabularx}` `\LaTeX{}` can adjust the table to fit whatever dimensions you set. Table `\ref{tab:medium}` is an example. If you are a control freak and absolutely need your table to be a certain size, you can also set your columns to be specific widths as in Table `\ref{tab:medium}`.

```
% Easy Table
% h = here
% ! = really
% [!h] = really try to place the thing right here
\begin{table}[!h]
\centering % table align center; otherwise it follows document style
\caption{Easy Table}\label{tab:easy}
% The ``l c r" says that I want three columns that are left aligned,
% center aligned, and right aligned, respectively. Make sure the
% number of columns here matches the number you need.
\begin{tabular}{l c r}
\hline % creates a horizontal line
1 & 2 & 3 \\ % Use & to separate columns and \\ to end a line.
\hline
\\ % This gives some space between rows
A & B & C \\
\\
a & b & c \\
\\
$\alpha$ & $\beta$ & $\gamma$ \\
\\
\hline
\end{tabular}
\end{table}
```

```
% Medium Table (tabularx)
\begin{table}[!h]
\centering
\caption{Medium Table}\label{tab:medium}
% The X tells LaTeX to set the column width as it sees best; with
% tabularx, you also need to set an overall width in brackets before
% the column brackets. Here, I've told it to be as wide as the length
% a line (i.e. the writable area within the margins).
```



```

\begin{tabularx}{\linewidth}{X X X}
\hline
1 & 2 & 3\\
\hline
\\
A & B & C \\
\\
a & b & c \\
\\
 $\alpha$  &  $\beta$  &  $\gamma$  \\
\\
\hline
\end{tabularx}
\end{table}

```

```

% Medium Table (fixed width column)
\begin{table}[!h]
\centering
\caption{Extra Medium Table}\label{tab:medium}
% The p{} tells the column how wide to be; the >{} before it tells it
% how to align. You can see that I use some of my homemade commands
% from above. \RR is much quicker to type than \raggedright\arraybackslash.
\begin{tabular}{>{\RR}p{1in} >{\centering}p{2in} >{\RL}p{1in}}
\hline
1 & 2 & 3\\
\hline
\\
A & B & C \\
\\
a & b & c \\
\\
 $\alpha$  &  $\beta$  &  $\gamma$  \\
\\
\hline
\end{tabular}
\end{table}

```

\subsection{Cleaner Tables}

Using `\texttt{\textbackslash\hline}` when creating tables is a pain, especially if you want lines that only cover part of the table. Furthermore, you end up with squished tables. The `\itshape booktabs` package makes this process easier. See Table `\ref{tab:bettertable}` for an example of a slightly more complex, but more professional-looking table.

```

% Better Table
\begin{table}[!h]
\centering
\caption{Better Table}\label{tab:bettertable}
\begin{tabular}{>{\RR}p{2in} c c c c}
\toprule
& \multicolumn{2}{l}{Group 1} & \multicolumn{2}{l}{Group 2} \\
\cmidrule(r){2-3}
\cmidrule(r){4-5}
\end{tabular}

```

```

1 & 2 & 3 & 4 & 5\\
\midrule
\\ % This gives some space between rows
A & B & C & D & E\\
\\
a & b & c & d & e\\
\\
$\alpha$ & $\beta$ & $\gamma$ & $\delta$ & $\epsilon$ \\
\\
\bottomrule
\end{tabular}
\end{table}

```

\subsection{Long Tables}

Sometimes you have a table that is too long and must be spread over multiple pages. Since the whole point of `\LaTeX{}` is that it automatically sets up your document, you need a table that will flow and break with the page as necessary. The `{\itshape longtable}` package allows you to do this. I'm not going to lie, it's a pain to set up. See Table `\ref{tab:long}`.

```

% Long Table
\begin{longtable}{>{\RR}p{2in}>{\centering}p{2in}>{\RL}p{2in}}
\label{tab:long} \\
\caption{Long Table} \\
\toprule % Begin first header
Letter & Number & Greek \\
\midrule
\endfirsthead % End of first header
\multicolumn{2}{l}{\emph{... table \thetable{} continued}} \\ % pb header
\toprule % Repeat header for use after page break (should be the same)
Letter & Number & Greek \\
\midrule
\endhead % all headers finished
\bottomrule % putting in footer before content (way this table works)
\multicolumn{2}{r}{\emph{Continued on next page...}} \\ % pb footer
\endfoot % end of footer
\endlastfoot % since the footer won't change, we can just finish all footers
\\
A & 1 & $\alpha$ \\
\\
B & 2 & $\beta$ \\
\\
C & 3 & $\gamma$ \\
\\
D & 4 & $\delta$ \\
\\
E & 5 & $\epsilon$ \\
\\
F & 6 & $\zeta$ \\
\\
G & 7 & $\eta$ \\
\\
H & 8 & $\theta$ \\

```

```

\\
I & 9 &  $\iota$  \\
\\
J & 10 &  $\kappa$  \\
\\
K & 11 &  $\lambda$  \\
\\
L & 12 &  $\mu$  \\
\\
M & 13 &  $\nu$  \\
\\
N & 14 &  $\xi$  \\
\\
O & 15 &  $\pi$  \\
\\
P & 16 &  $\rho$  \\
\\
Q & 17 &  $\sigma$  \\
\\
R & 18 &  $\tau$  \\
\\
S & 19 &  $\upsilon$  \\
\\
T & 20 &  $\phi$  \\
\\
U & 21 &  $\chi$  \\
\\
V & 22 &  $\psi$  \\
\\
W & 23 &  $\omega$  \\
\\
X & 24 & \\
\\
Y & 25 & \\
\\
Z & 26 & \\
\bottomrule
\end{longtable}

```

\subsection{Tables with External Data}

As you can see from the accompanying .tex file, I've created all the preceding tables by hand. While this works for one-off tables with data that don't change, you want to create tables that will change automatically if the data coming from a statistical package such as R or Stata change. The good news is that all you need to do to use an external table is link to it with the `\texttt{\textbackslash{}input}` command in the body of the table. Table `\ref{tab:linkeddata}` is an example. Though it looks just like Table `\ref{tab:bettertable}` in the formatted PDF, see the .tex file for the difference.

(Of course, I just saved the same data I created before in another .tex file; to produce the .tex data file automatically with your favorite statistical software is another matter. My suggestion is to have the stats software export the data in a .tex format with the

least amount of column, row, and header information possible and use `\LaTeX{}` to recreate it: it will look better that way IMNSHO. The `{\itshape estout}` package in Stata, with its suite of commands, would be one way to do this. The `{\itshape texreg}` library works in R.)

```
% Better Table (with external file)
\begin{table}[!h]
\centering
\caption{Better Table (with External Data File)}\label{tab:linkeddata}
\begin{tabular}{>{\RR}p{2in} l l l l}
\toprule
& \multicolumn{2}{l}{Group 1} & \multicolumn{2}{l}{Group 2} \\
\cmidrule(r){2-3}
\cmidrule(r){4-5}
1 & 2 & 3 & 4 & 5 \\
\midrule
\\ % This gives some space between rows
\input{LatexExampleExternalTable.tex}
\\
\bottomrule
\end{tabular}
\end{table}
```

`\subsection{Sideways Tables}`

Other times you need a wide table that is longer than the width of the page in landscape view. Make sure you have the rotating package called in the header of the document and simply use the `\texttt{\textbackslash{}sidewaystable}` to rotate it. See Table `\ref{tab:sideways}` on page `\pageref{tab:sideways}`.

```
% Better Table
\begin{sidewaystable} % Use sidewaystable command to rotate table
\centering
\caption{Sideways Table}\label{tab:sideways}
\begin{tabular}{>{\RR}p{3.5in}>{\RR}p{1in}>{\RR}p{1in}>{\RR}p{1in}>{\RR}p{1in}}
\toprule
& \multicolumn{2}{l}{Group 1} & \multicolumn{2}{l}{Group 2} \\
\cmidrule(r){2-3}
\cmidrule(r){4-5}
1 & 2 & 3 & 4 & 5 \\
\midrule
\\ % This gives some space between rows
A & B & C & D & E \\
\\
a & b & c & d & e \\
\\
$\alpha$ & $\beta$ & $\gamma$ & $\delta$ & $\epsilon$ \\
\\
\bottomrule
\end{tabular}
\end{sidewaystable}
```

% Move this part to a new page; sometimes makes things a little
 % cleaner, but use sparingly and only at the end...don't fight LaTeX,

```
% it formats as it does for a reason!
\cleardoublepage
```

\section{Within Document References}

Another great thing about `\LaTeX{}` is its ability to create and follow internal links. When the document is set up correctly, the order of tables, figures, sections, etc., and the pages they fall on will not matter for in-text referencing. For example, if you decide to move Table `\ref{tab:easy}` to new section, you won't need to relabel with a different number or change references to it or its page number. When referencing a table, simply use the `\texttt{\textbackslash{}ref}` command with the label you have given the figure (using the `\texttt{\textbackslash{}label}` you've given it within the figure). `\LaTeX{}` will handle setting up the correct numbers. See the `.tex` file for examples throughout.

Similarly, the slick table of contents at the beginning of the document was created automatically with the `\texttt{\textbackslash{}tableofcontents}` command at the beginning of the document.

\section{Bibliography}

If you don't end up using `\LaTeX{}` to write papers, you will never need to worry about a bibliography. If you are slightly mad (and mostly awesome), then you will use `\LaTeX{}` for your all your finished papers.

To create a bibliography, simply include `\texttt{\textbackslash{}bibliography}\{\itshape nameofyourbibfile\}` at the end of your .tex file. You probably also want to include `\texttt{\textbackslash{}bibliographystyle}` so that you can control how the bibliography looks. To create this document, I've used the `\texttt{apacite.sty}` (.sty means style\$I assume) within the `\texttt{\textbackslash{}bibliographystyle}` brackets. I've also included the `\texttt{\textbackslash{}urlstyle\{same\}}` command. This prevents the url links in the bibliography entries, should I have any, from formatting in monospace font. To use the `\texttt{apacite.sty}`, note that I've include the `\texttt{apacite}` package in the header of my .tex file.

```
%% END BODY %%%%%%%%%%%
%% BEGIN BIBLIOGRAPHY %%%%%%%%%%%
```

```
\cleardoublepage
\bibliographystyle{apacite}
\urlstyle{same}
\bibliography{LatexExample}
```

[illegible]

B LATEX EXTERNAL TABLE CODE

```
A & B & C & D & E\\
\\
a & b & c & d & e\\
\\
 $\alpha$  &  $\beta$  &  $\gamma$  &  $\delta$  &  $\epsilon$  \\
```

C EXTERNAL .BIB FILE EXAMPLE

```
@article{philosophicus1927agenda,
  Author = {Philosophicus, Publius},
  Journal = {The National Eschew},
  Number = 7,
  Pages = {23--40},
  Title = {The Liberal {LaTeX} Agenda},
  Volume = 5,
  Year = 1927
}

@book{strongrule2012wizards,
  Author = {Strongrule, Lucky},
  Publisher = {Muggle Press},
  Title = {Wizards Don't Walk: The case against slytherin' and all
    forms of bipedalism},
  Year = 1992
}

@book{watterson1992indesp,
  Author = {Watterson, Bill},
  Publisher = {Andrews McMeel Publishing},
  Title = {{The Indispensable Calvin and Hobbes:
    A Calvin and Hobbes Treasury}},
  Year = {1992}
}
```