**The MIT Press**

# How to Typeset MIT Press Books in LⁱⁱTₑX

(Click on the tabs above for more information on each topic. Many tabs also have tabbed subtopics.)

# New Math Book Style

Welcome to the use of the new MIT Press New Math class file. We've made the process of preparing your book for submission to the Press as simple as possible, and hope you'll enjoy the process. If you need help after you read this documentation, you may send email to your editor. If possible please send a small file demonstrating the problem.

## Files in this package, and what they do

### Basic Macro File

`newmath.cls`       Use: `\documentclass{newmath}`

### Book Size Options

Ask your editor which size you should use:

`6x9 in size`       Use: `\documentclass[6x9]{newmath}`

`7x9 in size`       Use: `\documentclass[7x9]{newmath}`

`7x9 in, 30pc textwidth`       Use: `\documentclass[7x9wide]{newmath}`

`8x9 in size`       Use: `\documentclass[8x9]{newmath}`

### Graphics files

`figsamp.eps/.pdf`
`gravwaves.eps/.jpg`       For use in NewMathSample. Figure sample files in .eps form for dvips, and .pdf or .jpg form for pdflatex.

### Sample Files

`NewMathSample.tex/.pdf`       Sample file to see the LaTeX commands in use, and to compare with the resulting typeset document.

`NewMathSample.bbl`       Sample bibliography file made with BibTeX.

`bibsamp.bib`       Sample bibliography database file for use with BibTeX.

`NewMathSample.ind`       Sample index file for NewMathSample.tex/.pdf

### Template file

`NewMathTemplate.tex`       Template file, for authors to copy and rename when making their own book.

*You'll find many comments and useful tips in both the sample and template files.*

### Bibliography Style File

`mit-chicago.bst`       Bibliography style file, used `\bibliographystyle{mit-chicago}`

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How to Typeset MIT Press Books in LATEX

Welcome | **Front Matter** | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

**Setting Options** | Using Include for Book Chapters | Starting Book

Copyright Page | Dedication Page | Epigraph Page | Contents, LOF, LOT | Contributors Page

## Using the Template file

The easiest way to start your article is to copy and rename the template file, **NewMathTemplate.tex**, and use it to start your own article. There are a lot of good examples and tips in the template file, and it will help you set your options.

## Setting Documentclass Options

Ask your editor what setting you should make for the page size option.

Your choices include: **6x9, 7x9, 7x9wide, 8x9**

    \documentclass[6x9]{newmath}

In addition, there is an optional manuscript style, for double spaced text:

    \documentclass[manuscript,6x9]{newmath}

Another option is 'hyper' to turn on the commands found in the hyperref package:

    \documentclass[hyper,6x9]{newmath}

Information on hyperref commands found here:
https://en.wikibooks.org/wiki/LaTeX/Hyperlinks
and here:
http://tug.ctan.org/tex-archive/macros/latex/contrib/hyperref/doc/manual.pdf
for package options and user commands. The hyperref package is found at the very end of the newmath.cls file in case you'd like to make changes to the package options.

## Cropmarks

Cropmarks are on by default. If you'd like to turn them off, you can do so with the **\nocropmarks** command entered before **\begin{document}**.

## Starting your book

Once you've set your options, (Setting your options) you may add `\usepackage{}` commands for your special needs.

**Be careful not to add any package that you don't really need!**

There is always the possibility that the new package will overwrite commands that are in the newmath.cls style file, or that the various packages will interfere with each other. In addition, it will be easier to maintain or make changes to your book macros if there are fewer packages entered.

Author definitions go before `\begin{document}`:

```
\def\taupav{\tau_{\mathrm{Pav}}} %(more definitions)
```

Now enter `\begin{document}`

Start the book by supplying this information:

```
\title{<book title>}
\subtitle{<sub title>}
\edition{<number> Edition}
\author{<author or authors>}
```

Now we can call for the half title, series page and title page:

```
\halftitlepage

\begin{seriespage}
\seriestitle{}
\serieseditor{}
%% repeat often as needed
\title{}
\author{}
\end{seriespage}

\titlepage
```

**Organizing your entire book**

Many authors set up their book using `\include{}` for individual chapters. This is optional, with one exception: If you want to make chapter bibliographies it is necessary to have each chapter in a separate file. In this case you will want to use the `\include{}` method for making up your complete book.

Your file may look like this:

```
\documentclass[6x9]{newmath}
\begin{document}
 \include{front} %% containing all the front matter
 \include{chap1}
 \include{chap2}
 \include{chap3}
 \include{chap4}
 ...
 \endinput % end book here until ready to do endmatter, then delete \endinput
 \endnotes
 \include{glossary}
 \bibliographystyle{mit-chicago}
 \bibliography{bibsamp}
 \printindex
```

**Using `\includeonly{chap1,chap3,etc.}`**

You can use `\includeonly{}` **before** `\begin{document}` to include only the chapters you are presently working on.

For instance:

```
\includeonly{chap3,chap4}
\begin{document}
...
```

Will bring in only the two chapters listed.

A nice feature is that if you have previously run LaTeX on the complete book, you will get the correct page numbers, cross-referencing and citations in the separate chapters, even though, as in this case, you are starting with chapter 3.

Welcome | **Front Matter** | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

Setting Options | Using Include for Book Chapters | **Starting Your Book**

Copyright Page | Dedication Page | Epigraph Page | Contents, LOF, LOT | Contributors Page

## Copyright Page

Ask your editor what text your should enter in the copyright page, and then enter that text in the `\copyrightpage` environment.

```
\begin{copyrightpage}
<enter text here>
\end{copyrightpage}
```

An example is:

```
\begin{copyrightpage}

$\copyright$ 2016 Massachusetts Institute of Technology\\

All rights reserved. No part of this book may be reproduced in any
form  or by any electronic or mechanical means
(including photocopying, recording, or information storage and
retrieval) without permission in writing from the
publisher.\\

This book was set in Times Roman by the author.\\

Printed and bound in the United States of America.\\

Library of Congress Cataloging-in-Publication Data\\

Names: Myler, Neil, author.\\

Title: Building and interpreting possession sentences / Neil Myler.\\

Description: Cambridge, MA : The MIT Press, [2016] | Includes bibliographical \\
  \hphantom{x}  references and index.\\
Identifiers: LCCN 2016002505 | ISBN 9780262034913 (hardcover : alk. paper)\\
Subjects: LCSH: Grammar, Comparative and general--Possessives. | Grammar, \\
\hphantom{x}  Comparative and general--Syntax. | English language--Sentences. | \\
\hphantom{x}   Semantics, Comparative.\\
Classification: LCC P299.P67 M95 2016 | DDC 415--dc23 LC record
available at  https://lccn.loc.gov/2016002505\\
\end{copyrightpage}
```

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | **Front Matter** | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

Setting Options | Using Include for Book Chapters | **Starting Your Book**

Copyright Page | **Dedication Page** | Epigraph Page | Contents, LOF, LOT | Contributors Page

## Dedication page

Enter your desired text within the argument to dedication: **\dedication{<text>}**.

```
\dedication{<your text>}
```

For instance,

```
\dedication{To our families, with gratitude,\\
---JB and MJ}
```

Welcome | **Front Matter** | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

Setting Options | Using Include for Book Chapters | **Starting Your Book**

Copyright Page | Dedication Page | **Epigraph Page** | Contents, LOF, LOT | Contributors Page

## Epigraph Page

The Epigraph page is optional. You use as many epigraphs as you want.

Notice that you should **not** start your epigraph with an opening quote. This is because the command `\epigraph{}{}` will insert the opening quote mark.

The general form is:

```
\begin{epigraphpage}
\epigraph{<text>}{<author>, source}

\epigraph{<text>}{<author>, source}
\end{epigraphpage}
```

For example:

```
\begin{epigraphpage}
\epigraph{Begin at the beginning,'' the King said, gravely, ``Then
 go till you come to the end; then stop.''}{Lewis Carroll, {\it Alice
 in Wonderland}}

 \epigraph{You can never get a cup of tea large enough or a book long enough to
 suit me''}{C. S. Lewis}
\end{epigraphpage}
```

Producing:

"Begin at the beginning," the King said, gravely, "Then go till you come to the end; then stop."
—Lewis Carroll, *Alice in Wonderland*

"You can never get a cup of tea large enough or a book long enough to suit me"
—C. S. Lewis

Welcome | **Front Matter** | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

Setting Options | Using Include for Book Chapters | **Starting Your Book**

Copyright Page | Dedication Page | Epigraph Page | **Contents, LOF, LOT** | Contributors Page

## Table of Contents, List of Figures, List of Tables

Very easy:

```
\tableofcontents
\listoffigures
\listoftables
```

### Customizing TOC entries

The headings produce the entries for table of contents:
`\part{} \chapter{} \section{} \subsection{}`
To send a shorter version of the heading, or a heading that otherwise would have `\\` in it, give an alternate version for the TOC with the optional square bracket:

```
\part[short version]{long version}
\chapter[short version]{long version}
\section[short version]{long version}
\subsection[short version]{long version}
```

Tip: If you want to break a line in the table of contents, you can do that by entering `\protect\\` for example:

```
\chapter[Environmental Policy Analysis with STREAM:\protect\\
Equilibrium Model for Material Flows in the Economy]
{Environmental Policy Analysis with STREAM: A Partial
Equilibrium Model for Material Flows in the Economy}
```

This will work in any optional argument that is sending an entry to the table of contents.

### Customizing List of Figures, List of Tables entries

The `\caption{}` command in `\begin{figure}...\end{figure}`
produces the entries for List of Figures. To make a shorter version for the List of Figures:
`\caption[<short version>]{Long version}`

The `\caption{}` command in `\begin{table}...\end{table}`
produces the entries for List of Tables. To make a shorter version for the List of Tables:
`\caption[<short version>]{Long version}`

**The MIT Press**

**How to Typeset MIT Press Books in LATEX**

| Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter |

| Setting Options | Using Include for Book Chapters | Starting Your Book |

| Copyright Page | Dedication Page | Epigraph Page | Contents, LOF, LOT | Contributors Page |

## Contributors list for edited book

For one column version:

```
\begin{contributors}
\end{contributors}
```

For two column version:

```
\begin{contributors}[twocolumn]
\end{contributors}
```

Entries are made with

```
\contrib
Name\\
Department\\
Affiliation\\
City, State, Country
```

For example:

```
\begin{contributors}[twocolumn]
\contrib
Professor Alan Guth\\
Center for Theoretical Physics\\
Massachusetts Institute of Technology\\
Cambridge, Massachusetts, USA

\contrib
Professor Andrei Linde\\
Department of Physics\\
Stanford University\\
Stanford, CA, USA
\end{contributors}
```

### Part and Part Intro

The **\part** command allows an optional argument, which lets you send a different version of the part to the Table of Contents.

```
\part[<optional short version of title for TOC>]
{<part title>}
```

You can use an optional part introduction:

```
\begin{partintro}
\partintrotitle{<title>}
<text. Section heads will not be numbered>
\end{partintro}
```

For example:

```
\part[Environmental Policy Analysis]
{Environmental Policy Analysis: Various Models for Material
Flows in the Economy}
\begin{partintro}
\partintrotitle{This is an introduction to the part}
Policy analysis may be divided into a number of subspecialities\ldots
\end{partintro}
```

Welcome | Front Matter | **Headings** | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | End Matter

Part and Part Intro | **Chapter and Section Running Heads**

**Setting the Running Heads When Necessary**

Normally the chapter title will be used for the left running head, and the most recent section title will be used for the right running head.

Often, the chapter title will be too wide to fit in the running head; sometimes the section title will be too wide, or will have a `\\` in it.

In this case, you must supply a command to make a shorter version for the running heads.

**Chaptermark`{}`**

After `\chapter` you can enter `\chaptermark{<term>}` which will send the term to the left running head. Remember to use uppercase and lowercase letters:

For example,

```
\chapter[Environmental Policy Analysis with STREAM:\protect\\
Equilibrium Model for Material Flows in the Economy]
{Environmental Policy Analysis with STREAM: A Partial
Equilibrium Model for Material Flows in the Economy}

\chaptermark{Environmental Policy Analysis with STREAM}
```

**Sectionmark`{}`**

To set right running head:

```
\section{Mass in spacetime, \\ an analysis of changes to the mass}
\sectionmark{Mass in Spacetime}
```

**Chapter Opening** | Chapter Ending

End Chapter Exercises | End Chapter Bibliography | End Chapter Appendix | End Chapter Notes

## Chapter Author

Only needed if it is an edited book with separate authors for each chapter. **\chapterauthor{Author Name}**

## Chapter Epigraph

Optional one or more Epigraphs following chapter head. The first quotation mark will be supplied, so don't type it in:

```
\epigraph{<quote>''}
{<author>}
\epigraph{<quote>''}
{<author>}
```

## Chapter Abstract

After chapter title, optional abstract:

```
\begin{abstract}
<text>
\end{abstract}
```

## Chapter Opening Example

```
\chapter{Chapter Title\\ Broken Into Two Lines}
 \chaptermark{Chapter Title for Running Head}
 \chapterauthor{Author Name}

\epigraph{What star falls unseen?''}{William Faulkner}
\epigraph{All seats provide equal viewing of the universe.''}{Museum
guide, Hayden Planetarium}

\begin{abstract}
Commercial robots are shown to be an effective manufacturing tool, but
some shortcomings are noted, particularly their lack of mobility.
\end{abstract}
```

**The MIT Press**

How to Typeset MIT Press Books in LᴬTEX

Welcome | Front Matter | Headings | **Chap Opening/Ending** | Special Environments | Figures | Tables | Cites | End Matter

Chapter Opening | **Chapter Ending**

**End Chapter Exercises** | End Chapter Bibliography | End Chapter Appendix | End Chapter Notes

## Chapter Exercises

Exercises have these commands:

```
\begin{exercises}
\exer{}
\subexer{}
\subsubexer{}
\sidebysidesubexer{}{}
\sidebysidesubsubexer{}{}
\end{exercises}
```

For example, seeing exercises in use:

```
\begin{exercises}
\exer{For Hooker's data, Exercise 1.2, use the Box and Cox and
Atkinson procedures to determine a appropriate transformation of PRES
in the regression of PRES on TEMP. find $\hat\lambda$, $\tilde\lambda$,
the score test, and the added variable plot for the score.
Summarize the results.}

\subexer{The following data were collected in a study of the effect
 of  dissolved sulfur on the surface tension of liquid copper
(Baes and Killogg, 1953).}

\sidebysidesubsubexer{In the case of $\Delta_1$?}{In the case of $\Delta_2$?}

\sidebysidesubexer{In the case of $\Gamma_1$?}{In the case of $\Gamma_2$?}
\end{exercises}
```

See newmathsample.tex/pdf to compare the commands with the results.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | **Chap Opening/Ending** | Special Environments | Figures | Tables | Cites | End Matter

Chapter Opening | **Chapter Ending**

End Chapter Exercises | **End Chapter Bibliography** | End Chapter Appendix | End Chapter Notes

## Chapter Bibliography

Add **\usepackage{chapterbib}** before **\begin{document}**

1. To make a chapter bibliography, using BibTeX, you must set up your book using **\include{chap1}** etc., for example:

   ```
   \documentclass[6x9]{newmath}
   \begin{document}
    \include{front} %% containing all the front matter
    \include{chap1}
    \include{chap2} ...
   ```

2. At the end of each chapter where you want a chapter bibliography you should type in the chapter bibliography commands:

   ```
   \bibliographystyle{mit-bibliography}
   \chapbibliography{<your .bib file>}
   ```

3. Run LATEX on your file several times.

4. Run BibTeX on each chapter:
   **bibtex chapter1**, **bibtex chapter2**, and so on.

5. Now you can run LATEX on your complete book and there will be a bibliography printed at the end of each chapter.

Interestingly, you can still have a bibliography at the end of the book, (Pretty neat?) that will include all the bibliography items from the whole book, using the usual BibTeX bibliography steps:

1. Type in the bibliography commands at the end of the book:

   ```
   \bibliographystyle{mit-chicago}
   \bibliography{<your .bib file>}
   ```

2. Run LaTeX on the entire book.

3. Run BibTeX on the book. You will get some error messages about multiply declared bibliography styles, but you can ignore them.

4. Run LaTeX on the book several more times and you will have an alphabetized Bibliography for all the citations in the book.

### Chapter Appendix

Chapter appendix is easily done:

```
\begin{chapappendix}{title}
<text here>
\end{chapappendix}
```

For example

```
\begin{chapappendix}{Dark Matter is not composed of Black Holes}

\section{The Canada France Hawaii Lensing Survey}
...
\end{chapappendix}
```

You can repeat this command to get a B, or a C, etc. appendix at the end of your chapter.

Note that we have a `\begin{chapappendix}{}...\end{chapappendix}` form for the chapter appendix, unlike the familiar appendix command used at the end of the book: `\appendix`.

In the chapter appendix, section heads, equations, figures and tables will all use an appendix letter as well as a number.

Chapter Opening | **Chapter Ending**

End Chapter Exercises | End Chapter Bibliography | End Chapter Appendix | **End Chapter Notes**

## Chapter Notes

If you have used the `\note{}` to add notes to your chapter, you can use the `\chapternotes` command to get the notes to print at the end of the chapter.

For instance, you might type this comment in your chapter:

```
\note{Stephen Hawking said that the detection of gravity waves
marked a key moment in scientific history.}
```

At the end of your chapter typing

```
\chapternotes
```

will cause your note to print, along with all the other notes that were made in your chapter.

At the end of the book, you can use

```
\endnotes
```

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | **Special Environments** | Figures | Tables | Cites | End Matter

Blank Page | Notes | URL | Extract | Boxed Text | Notation | Outline | Code Examples | Dialogue

## Blank Page

There may be places where you'd like a page that has no running heads. In this case you can use the command

```
\blankpage
```

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | **Special Environments** | Figures | Tables | Cites | End Matter

Blank Page | **Notes** | URL | Extract | Boxed Text | Notation | Outline | Code Examples | Dialogue

## Notes

This style allows authors to enter notes in their text, which can be printed at the end of the chapter, with **\chapternotes**, or at the end of the book with **\endnotes**.

The command to enter a note is

```
\note{}
```

You will see that a note will look better if it is entered within a paragraph, not between paragraphs. Entering a note in the text will cause a note marker to appear, looking like [1.], [2.] and so on, which looks confusing if it appears between paragraphs.

Welcome    Front Matter    Headings    Chap Opening/Ending    **Special Environments**    Figures    Tables    Cites    End Matter

Blank Page    Notes    **URL**    Extract    Boxed Text    Notation    Outline    Code Examples    Dialogue

## URL

The `\url{}` command will allow URLs to break over lines at a hyphen which is quite convenient.

If you don't want to add a hyphen to your url, (a hyphen in a url could be confusing), you can do
`\url{part of url}\break\url{end of url}`
which will break the url without adding a hyphen.

### URL package information

The package defines a form of command that allows linebreaks at certain characters or combinations of characters, accepts reconfiguration, and can usually be used in the argument to another command. It is intended for formatting email addresses, hypertext links, directories/paths, etc., which normally have no spaces.

| | |
|---|---|
| `\url{ }` | The argument must not contain unbalanced braces. If used in the argument to another command, the `\url` argument cannot contain any `%` `#` or `^^`, or end with `\` . |
| `\url| |` | where `|` is any character not used in the argument and not `{` or a space. The same restrictions apply as above except that the argument may contain unbalanced braces. |

For more information, and to see ways in which this package can be modified, see
http://texdoc.net/texmf-dist/doc/latex/url/url.pdf

**The MIT Press**

**How to Typeset MIT Press Books in LATEX**

Welcome | Front Matter | Headings | Chap Opening/Ending | **Special Environments** | Figures | Tables | Cites | End Matter

Blank Page | Notes | URL | **Extract** | Boxed Text | Notation | Outline | Code Examples | Dialogue

## Extract

Extract is an environment for long quotes. It should end with author and publishing information in parens.

```
\begin{extract}
<text>
(<author of extract, where published, optional url>)
\end{extract}
```

For example,

```
\begin{extract}
The distance $ds$ between two neighboring events, one with coordinates...
(Kostas D. Kokkotas, Article for the Encyclopedia of Physical Science
and Technology, 3rd Edition, Volume 7, Academic Press, (2002)
\url{http://www.tat.physik.uni-tuebingen.de/GW_Physics.pdf})
\end{extract}
```

## Boxed text

Boxed Text will continue over pages; may contain section heads, extracts, equations, theorems, programming code, algorithms, and other commands within the box.

Normally the boxed text command uses a title
`\begin{boxedtext}{<title>}`
If you don't want title you can supply an empty argument:
`\begin{boxedtext}{}...\end{boxedtext}`

```
\begin{boxedtext}{<title>}
 <text>
 optional attribution:
(author, where published, \url{})
\end{boxedtext}
```

For example,

```
\begin{boxedtext}{Frank Wilczek on Einstein and Gravitation}
...
 (Frank Wilczek, Physics Today, April 2016,
 \url{scitation.aip.org/content/aip/magazine/physicstoday
 /article/69/4/10.1063/PT.3.3137})
 \end{boxedtext}
```

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | **Special Environments** | Figures | Tables | Cites | End Matter

Blank Page | Notes | URL | Extract | Boxed Text | **Notation** | Outline | Code Examples | Dialogue

## Notation

Notation is an environment made to show symbols or terms and then define them.

The general design is

```
\begin{notation}
<term>&<definition>\\
<term>&<definition>\\
<term>&<definition>\\
...
\end{notation}
```

For example

```
\begin{notation}
$g_{\mu\nu}(x^\lambda)=g_{\nu\mu}(x^\lambda)$&symmetric tensor\\
$g_{\mu\nu}\equiv\eta_{\mu\nu}=\mathrm{diag}(âšŠ1,1,1,1)$&Minkowski
  spacetime\\
\end{notation}
```

**Notation**

$g_{\mu\nu}(x^\lambda) = g_{\nu\mu}(x^\lambda)$        symmetric tensor

$g_{\mu\nu} \equiv \eta_{\mu\nu} = \mathrm{diag}(1,1,1,1)$    Minkowski spacetime

## Outline

See NewMathSample.tex/.pdf for an example.

Use **\begin{outline}...\end{outline}**
Then use enumerate for each level, and use **\item[<symbol>]** for each item:

```
\begin{outline}

\begin{enumerate}
\item[I.]
<text>

\item[II.]
<text>

\begin{enumerate}
\item[A.]
<text>

\begin{enumerate}
\item[1.]
<text>

\item[2.]
<text>
\end{enumerate}

\item[B.]
<text>

\item[III.]
<text>

\end{enumerate}

\end{outline}
```

## Typesetting Code Examples

Programming Code examples can be made with either
`\begin{code}\begin{verbatim}...\end{verbatim}\end{code}` or
`\begin{algorithm}\caption{<text>}\begin{algorithmic}...\end{algorithmic}\end{algorithm}`

### Algorithm, and Algorithmic Environments

Newmath.cls includes two algorithm packages: algorithm.sty and algpseudocode.sty which calls algorithmicx.sty. You are encouraged to see the documentation for these packages for information on commands.

See https://en.wikibooks.org/wiki/LaTeX/Algorithms for examples, and
http://tug.ctan.org/macros/latex/contrib/algorithms/algorithms.pdf for explanation of algorithm commands.

For explanation of algorithmicx commands, see
http://ctan.mackichan.com/macros/latex/contrib/algorithmicx/algorithmicx.pdf

`\begin{algorithm}` takes placement option `[p][b][t][h]`, or some combination, like `\begin{figure}`.
It is a 'wrapper' that will let your algorithm float (like figure), and will allow you to give it a caption.

```
\begin{algorithm}
\caption{Algorithm caption.}
\begin{algorithmic}...\end{algorithmic}
\end{algorithm}
```

`\begin{algorithmic}` is where the algorithm is actually formatted. A small sample:

```
\begin{algorithmic}
\If {$i\geq maxval$}
    \State $i\gets 0$
\Else
    \If {$i+k\leq maxval$}
        \State $i\gets i+k$
    \EndIf
\EndIf
\end{algorithmic}
```

which produces:

**if** $i \geq maxval$ **then**
    $i \leftarrow 0$
**else**
    **if** $i + k \leq maxval$ **then**
        $i \leftarrow i + k$
    **end if**
**end if**

Welcome | Front Matter | Headings | Chap Opening/Ending | **Special Environments** | Figures | Tables | Cites | End Matter

Blank Page | Notes | URL | Extract | Boxed Text | Notation | Outline | Code Examples | **Dialogue**

## Dialogue

```
\begin{dialogue}
\speaker{<name>}
<Text>
\speaker{<name>}
<Text>
\speaker{<name>}
<Text>
\end{dialogue}
```

For example

```
\begin{dialogue}
\speaker{France C\'ordova}
Itâ^s been decades, through a lot of different technological innovations...

\speaker{Janna Levin}I was freaking out!

\speaker{Robert Garisto} [the editor of Physical Review Letters]
I got goose bumps while reading the LIGO paper.
\end{dialogue}
```

*France Córdova*    It's been decades, through a lot of different technological innovations...

*Janna Levin*    I was freaking out!

*Robert Garisto*    [the editor of Physical Review Letters] I got goose bumps while reading the LIGO paper.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | **Figures** | Tables | Cites | End Matter

**Standard Figure** | Landscape Figure | Graphics | MIT Press Figure Specifications

## Figures

The standard method of inserting graphics is used in the New Math style:
`\includegraphics{<filename>}`. You don't need the file extension (.pdf, .eps, .jpg, etc.) unless you have more than one graphic file with the same name and a different extension.

You may set the width of your illustration using the `[width=<dimen>]` as you see below. Remember to put in the `=` between `width` and the dimension or you will get a mysterious error message.

```
\includegraphics[width=\textwidth]{Fig1.pdf}
```

Alternatively, you may set the height of your graphic, but remember not to use **both** width and height. This may cause a problem with the illustration's aspect ratio and the image may become distorted. When you call for one dimension, the other will automatically adjust to the correct size.

Using a `\centerline{}` command around the graphic is not allowed in this style. All graphics must be positioned flush left.

```
\includegraphics[width=\textwidth]{Fig1.pdf}
```

Below is an example of the standard figure:

```
\begin{figure}
\includegraphics[width=\textwidth]{Fig1.pdf}
\caption{<caption text here>}
\label{fig:task_data}
\end{figure}
```

Note that the `\label{}` comes within or after the caption. This is necessary because the `\caption{}` advances the caption number, so if your label is above the caption you will set the wrong figure number.

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | **Figures** | Tables | Cites | End Matter

Standard Figure | **Landscape Figure** | Graphics | MIT Press Figure Specifications

## How to make a landscape figure

Here's how to make a landscape figure.

Position the box vertically by using **\hskip-<dimen>** as you see below (**\hskip-3in**).

```
\begin{figure}[p]
\rotatebox{90}{\hskip-3in\vbox
{\includegraphics[width=\textheight]{<your graphic file>}
\caption{<text>}}}
\end{figure}
```

Another example of a landscape figure is in the newmathsample.tex/pdf file.

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | **Figures** | Tables | Cites | End Matter

Standard Figure | Landscape Figure | **Graphics** | MIT Press Figure Specifications

## Graphics Files

Insert graphics file with the command
`\includegraphics[width=<dimen>]{<illustration filename>}`
Remember, you should supply Either height or width, and the other dimension will accomodate, and your aspect ratio will be correct. (The aspect ratio describes the proportional relationship between the width of an image and its height.)

### Tip

You can call for the width of the graphic in terms of the width of the page. `\textwidth` is the dimension for the width of normal text on the page.
`\includegraphics[width=.8\textwidth]{<illustration>}`

### Use the right filename extension

You must use the correct extension depending on which program you use to turn your .tex file to .pdf.

- If you are using pdflatex, or xelatex, you must supply .pdf, .jpg or .png files

- if you are using dvips you must use .eps or .tif files. **(Strongly suggest that you switch to pdflatex!)**

### Conversion

EPS files can be converted to PDF using the epstopdf utility, included in most LaTeX distributions. On the command line, you can use `epstopdf <filename>.eps` and a `<filename>.pdf` will be produced.
Another possibility is translating .eps files to .pdf with the Acrobat program.

### Notes on Graphics Choices

**JPG:** widely used on Internet, digital cameras, etc., jpg's are the best choice if you want to insert photos.

**PNG:** a very common format (even if not as much as JPG); it's a lossless format and it's the best choice for diagrams (if you were not able to generate a vector version) and screenshots.

**PDF:** is widely used for documents but can be used to store images as well. It supports both vector and bit-mapped images.

## MIT Press Figure Specifications

1. Position all figures flush left.

2. All figures are to be positioned either at top or bottom of text page, regardless of text references. If 2 or more figures appear on the same page along with text, position the figures all together at the top or bottom of the page, with text either below or above the figures.

3. If the figure or figures occupy more than 3/4 of a page (including Running head and folio and caption), do not put any text on that page.

4. If figure must be positioned broadside (landscape), align figure flush left on text page and at top of text page.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | Landscape Table | Multipage Table | Table Tips | Table Specifications

## Tables

Click on tabs above for each kind of table, and table tips.

## Tabular in Text

All tables in this style should be flush left. To achieve that result if you have a tabular environment in text, you must remember to add the **\blankline** command space above and below the tabular environment. This command will keep the table flush left, and will keep the following text from indenting.

```
text...
\blankline
\begin{tabular}...\end{tabular}
\blankline
More text.
```

For instance,

```
...ranging from 10--7 Hz up to 1011 Hz.
\blankline
\begin{tabular}{l|l}
\hline
\multicolumn2c{\bf Acceleration Equations}\\
\hline
\it With initial velocity&\it Starting from rest\\
\hline
$v_f=v_i+ a \Delta\, t$&$v_f=a\Delta\, t$\\
$\Delta\, d=v_i \Delta\, t + 1/2 a \Delta\, t^2$&
$\Delta\, d= 1/2 a \Delta\, t^2$\\[6pt]
\hline
\end{tabular}
\blankline
In theory, the loss of energy through gravitational radiation could...
```

...ranging from 10–7 Hz up to 1011 Hz.

| Acceleration Equations | |
|---|---|
| *With initial velocity* | *Starting from rest* |
| $v_f = v_i + a\Delta t$ | $v_f = a\Delta t$ |
| $\Delta d = v_i\Delta t + 1/2a\Delta t^2$ | $\Delta d = 1/2a\Delta t^2$ |

In theory, the loss of energy through gravitational radiation could...

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | **Standard Table** | Decimals | Landscape Table | Multipage Table | Table Tips | Table Specifications

## Standard Table

Like figures, tables should appear near their first mention in text. They follow this form:

```
\begin{table}
\caption{<Caption text here>}
\label{<label keyword>}
\begin{tabular}{<preamble>}
table&line\\
\end{tabular}
\end{table}
```

### Table example

Things to notice:

- Caption on top; `\label{}` *in or after* caption

- Do not use `\centering` to make table center, because the MIT Press specifications call for the table to be flush left.

- Horizontal line at top and bottom of table and underneath the column heads.

- No vertical lines unless Absolutely necessary to meaning of table

- Table note marker made using `$^{<letter>}$`; Table note made at bottom of table, using `\multicolumn{}{}{}`

- The `@{}`s added to the preamble and the multicolumn prevent extra horizontal space from being added to the left and right side of the table.

```
\begin{tabular}{@{}lc@{}}
\hline
\bf Run  &\bf Time (min)  \\
\hline
  $l1$  & 260$^a$   \\
   ...\\
\hline
\multicolumn{2}{@{}l}{$^{a}$Table note text here.}
\end{tabular}
```

| Run | Time (min) |
|-----|------------|
| $l1$ | $260^a$ |
| ... | |

$^a$Table note text here.

## Lining up decimal numbers on the decimal point

For each decimal number, use two table columns; the first pushing the text to the right, the second to the left. to get rid of the space between the two columns, supply `@{}`, as you see in the example below.

```
\begin{tabular}{r@{}lcc}
\hline
&&\multicolumn2c{$Y$= Decrease in Surface Tension}\\
\multicolumn2c{$x$ = Weight \% sulfur}
&\multicolumn2c{(dynes/cm), two Replicates}\\
\hline
0.&034&301&316\\
0.&093&430&422\\
011.&30&593&586\\
\hline
\end{tabular}
```

| | $Y$ = Decrease in Surface Tension | |
|---|---|---|
| $x$ = Weight % sulfur | (dynes/cm), two Replicates | |
| 0.034 | 301 | 316 |
| 0.093 | 430 | 422 |
| 011.30 | 593 | 586 |

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | **Landscape Table** | Multipage Table | Table Tips | Table Specifications

## Landscape Table

You may want to rotate a table if it is too wide to fit in the width of a journal page.

Here are the commands needed to rotate a table:

```
\begin{table}[p]
\rotatebox{90}{\vbox{\hsize=\textheight
(table here)
} %% end \vbox
} %% end \rotatebox argument
\end{table}
```

Note:
The table should be on its own page, accomplished with
**\begin{table}[p]**

```
\begin{table}[p]
\rotatebox{90}{\vbox{\hsize=\textheight
\caption{Here is a caption for a table that is found in landscape
mode.}
\begin{tabular}{ccrrcccccccc}
\hline
\bf (column headers)
\hline
0 & 2 & 1 & 1370.99 & 57.35\rlap{$^a$}    &   6.651120 &  17.131149 &
21.344$\pm$0.006\rlap{$^b$}  & 2 4.385$\pm$0.016 & 23.528$\pm$0.013
& 0.0 & 9 & -\\
...
\hline
\multicolumn{13}{l}{%
Table 2 is published in its entirety in the electronic
edition of the {\it Astrophysical Journal}.}\\[3pt]
\multicolumn{13}{l}{%
$^a$ Sample footnote for table 2.}\\[3pt]
\multicolumn{13}{l}{%
$^b$ Another sample footnote for table 2.}
\end{tabular}
}}
\end{table}
```

You can see a full example of a rotated table in NewMathSample.tex/.pdf.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | Landscape Table | **Multipage Table** | Table Tips | Table Specifications

**Long Table** | Continued Caption

## Longtable: Table Continuing over Pages

Tables that continue over pages use the longtable.sty file, included in newmath.cls.

Documentation for longtable is here:

http://mirror.jmu.edu/pub/CTAN/macros/latex/required/tools/longtable.pdf

These are the commands that must be used:

1. `\begin{longtable}{ccc}`

2. text...`\endfirsthead`
   This will make the column headers that are used on the first page of the table.

3. text...`\endfirsthead`
   will make the text be used for column heads for the second and following pages.

4. text...`\endfoot` will be used for the bottom of every page of the table except for the last page of the table.

5. text...`\endlastfoot` will be used for the bottom of the last page of the table.

6. Now you can type in your table contents and the continuing column headers and footers will be formatted in the way you determined with the earlier commands. End your table with `\end{longtable}`.

```
\begin{longtable}{@{}ccc@{}}%@{} gets rid of the column space to the left and right
\caption{<caption text>} \\
\hline (column heads) \hline
\endfirsthead

\multicolumn3{@{}l}{\longtablecontinued}\\[7pt] %@{} gets rid of the column space
\multicolumn3c{Next line of column heads}\\[2pt]
\hline \bf (column heads for 2nd and following pages) \hline
\endhead

\\[12pt]
\endfoot

\hline
\\[24pt]
\endlastfoot

(table contents)
\end{longtable}
```

You can see a full example of a table continuing over pages in NewMathSample.tex/.pdf.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | Landscape Table | **Multipage Table** | Table Tips | Table Specifications

Long Table | **Continued Caption**

## Continued Caption

Perhaps a simpler way to have a table continue over pages is to use **\continuedcaption** for second table. Notice that **\continuedcaption** does not take an argument.

```
\begin{table}
\caption{}
\begin{tabular}{rlc}
...
\end{tabular}
\end{table}

\clearpage

\begin{table}
\continuedcaption
\begin{tabular}{rlc}
...
\end{tabular}
\end{table}
```

An example of a table using **\continuedcaption** is at the end of the first chapter in NewMathSample.tex/.pdf.

### It works for Figures too!

If you have a set of figures that you want to appear on several pages, **\continuedcaption** will give you a Continued caption on the second figure, without changing the figure number:

```
\begin{figure}
<illustration>
\caption{}
\end{figure}

\clearpage

\begin{figure}
<illustration>
\continuedcaption
\end{figure}
```

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | Landscape Table | Multipage Table | **Table Tips** | Table Specifications

## Table Tips

1. Table should appear as near as possible to its first reference in text.

2. Caption goes on top of table.

3. MIT Press table specifications ask you to use horizontal lines only at the top, underneath column headers, and at the bottom of table.

4. To make more vertical space between lines in tables you can use a **\vrule** with 0pt width, called a 'strut'.

   You can choose the height and depth dimensions which go up or down from the baseline.
   Always make **width = 0pt**, so that the ruled line won't print.

   For example, to make 12pt height from the baseline in the first line of the table:

   ```
   \begin{tabular}{cc}
   \vrule height 12pt depth 3pt width0pt line one& here\\
   \end{tabular}
   ```

5. Do not use **\centering** to make table center horizontally, because MIT Press specifications ask for tables to be flush left.

6. The command **\rlap{}** can be helpful, since it allows the argument to move to the right, without tabular recognizing the width. The example to the left used **zyx$^a$**; to the right used **zyx\rlap{$^a$}**.

   | | |
   |---|---|
   | xyz | xyz |
   | zyx$^a$ | zyx$^a$ |
   | yxz | yxz |

   You can see that the columns lined up correctly in the right hand example.

### Table Notes

Table notes should be placed in last line of the table, using
**\multicolumn{<num columns>}{<alignment within column>}{<text>}** ie,
**\multicolumn{2}{l}{$^a$ This is a table note.}** Notice that the 'a' is raised by going into math mode and using the superscript symbol 'ˆ'. Here is an example:

```
\begin{tabular}{lc}
\hline
 Run$^a$  & Time (min)  \\
\hline
$11$  & 260    \\
...
\hline
\multicolumn{2}{l}{$^{a}$Table note text here.}
\end{tabular}
```

**The MIT Press**

**How to Typeset MIT Press Books in LATEX**

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | **Tables** | Cites | End Matter

Tabular in Text | Standard Table | Decimals | Landscape Table | Multipage Table | Table Tips | **Table Specifications**

## MIT Press Table Specifications

1. Place 1/2 pt horizontal rules at top and bottom of table, (**\hline**) as well as under the column heads. Rules extend to full text measure.

2. All column heads should base align.

3. Numbers within the same column containing decimal points should align on the decimal point, unless otherwise specified.

4. Do not put text on pages where tables run longer than 3/4 of the page (including Running head and folio and table note).

5. All tables to be positioned at either the top or bottom of the text page, regardless of text references. If 2 or more tables appear on the same page, along with text, the tables should be placed together at the top or bottom of the page, with text placed either above or below tables.

6. If table runs over onto verso or recto pages, repeat table number with word '(continued)'. Repeat column heads. Do not repeat main table head. Omit bottom rule until the end of the table has been reached.
   (This advice would apply when you are using the **\longtable** commands.)

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | **Cites** | End Matter

## Natbib citation mark up

Citations in *New Math Style* are made using the Natbib commands.

## Single citations

| Type | Results |
|------|---------|
| `\citet{jon90}` | Jones et al. (1990) |
| `\citet[chap. 2]{jon90}` | Jones et al. (1990, chap. 2) |
| `\citep{jon90}` | (Jones et al., 1990) |
| `\citep[chap. 2]{jon90}` | (Jones et al., 1990, chap. 2) |
| `\citep[see][]{jon90}` | (see Jones et al., 1990) |
| `\citep[see][chap. 2]{jon90}` | (see Jones et al., 1990, chap. 2) |
| `\citet*{jon90}` | Jones, Baker, and Williams (1990) |
| `\citep*{jon90}` | (Jones, Baker, and Williams, 1990) |

## Multiple citations

Multiple citations may be made by including more than one citation key in the `\citet` or `\citep` command argument.

| Type | Results |
|------|---------|
| `\citet{jon90,jam91}` | Jones et al. (1990); James et al. (1991) |
| `\citep{jon90,jam91}` | (Jones et al., 1990; James et al. 1991) |
| `\citep{jon90,jon91}` | (Jones et al., 1990, 1991) |
| `\citep{jon90a,jon90b}` | (Jones et al., 1990a,b) |

See for http://merkel.zoneo.net/Latex/natbib.php
for reference sheet on natbib commands.

**The MIT Press**

How to Typeset MIT Press Books in LATEX

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | **End Matter**

**Appendix** | End Book Exercises | End Notes | Glossary | Bibliography | Index

## Ending Book

Here are the elements that you may use for the end of the book:

```
Appendix
\endmatter
End Book Exercises
End Notes
Glossary
Bibliography
Index
```

*You can see a full example of ending the book in NewMathSample.tex/.pdf.*

## End of Book Appendix

Appendices are optional.

The command **\appendix** resets counters and redefines section heads but doesn't print anything. The **\appendix** command will make **\chapter** and **\section** use letters rather than numbers. Also it changes equation numbers and figure and table numbers.

You can get lettered appendices by typing
**\chapter{Title}**;
**\chapter{Title}** and so on

### A small example

```
\appendix
\chapter{Appendix test}
\chapter{Second Appendix}
```

produces:

## A Appendix test

## B Second Appendix

## Enter Endmatter command

After all the end of book appendices, please enter the command **\endmatter**.
This command will insert a little extra space in the table of contents before the end matter entries, like
Glossary, Bibliography, Index and so on.

## End Book Exercises

End Book Exercises are entered in the same way as Exercises at the end of the chapter, except we use the commands:

```
\begin{endbookexercises}...\end{endbookexercises}
```

Both exercise environments have these commands:

```
\exer{}
\subexer{}
\subsubexer{}
\sidebysidesubexer{}{}
\sidebysidesubsubexer{}{}
```

and produce the same results as they do for end of chapter exercises; only the heading is changed to format appropriately for the end of the book.

```
\begin{endbookexercises}
\exer{}
\subexer{}
\sidebysidesubsubexer{}{}
\end{endbookexercises}
```

For example:

```
\begin{endbookexercises}
\exer{For Hooker's data, Exercise 1.2, use the Box and Cox and
 Atkinson procedures to determine a appropriate transformation of PRES
 in the regression of PRES on TEMP. find $\hat\lambda$, $\tilde\lambda$,
 the score test, and the added variable plot for the score.
 Summarize the results.}

\subexer{The following data were collected in a study of the effect
  of  dissolved sulfur on the surface tension of liquid copper
(Baes and Killogg, 1953).}

\sidebysidesubsubexer{In the case of $\Delta_1$?}{In the case of $\Delta_2$?}

\sidebysidesubexer{In the case of $\Gamma_1$?}{In the case of
$\Gamma_2$?}
\end{endbookexercises}
```

Welcome  Front Matter  Headings  Chap Opening/Ending  Special Environments  Figures  Tables  Cites  **End Matter**

Appendix  End Book Exercises  **End Notes**  Glossary  Bibliography  Index

## End Notes

New Math style allows authors to enter notes in their text, which can be printed at the end of the chapter, with **\chapternotes**, or at the end of the book with **\endnotes**; or both at the end of the chapter and the end of the book.

The command to enter a note is

**\note{}**

This style allows authors to enter notes in their text, which can be printed at the end of the chapter, with **\chapternotes**, or at the end of the book with **\endnotes**; or both at the end of the chapter and the end of the book.

### End notes at the end of your book

All the notes that were entered in the entire book will print at the end of the book where **endnotes** is entered.

You'll notice that the notes from each chapter will start with '1', and that there will be a heading automatically inserted into the end notes that will announce the chapter number for the following notes.

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | Cites | **End Matter**

Appendix | End Book Exercises | End Notes | **Glossary** | Bibliography | Index

## Glossary

The general form of the glossary is:

```
\begin{glossary}
\term{<term>}{<definition>}
...
\end{glossary}
```

For example,

```
\begin{glossary}
\term{Absolute Zero}{
The lowest temperature possible, equivalent to -273.15$^{\deg}$C (or
0$^{\deg}$ on the
absolute Kelvin scale), at which point atoms cease to move altogether
and molecular energy is minimal. The idea that it is impossible,
through any physical process, to lower the temperature of a system to
zero is known as the Third Law of Thermodynamics.}
...
\end{glossary}
```

Welcome | Front Matter | Headings | Chap Opening/Ending | Special Environments | Figures | Tables | **Cites** | End Matter

Appendix | End Book Exercises | End Notes | Glossary | **Bibliography** | Index

## Making Your Bibliography

You may use BibTeX to produce your bibliography.

Your bibliography will be done using the mit-chicago.bst style. You call for the style by declaring:
**\bibliographystyle{mit-chicago}** and
**\bibliography{<your bib file>}**

## Using BibTeX

Follow these steps

1. Start with a bibliographic database. This is done by entering commands in the correct form into a .bib file.

   Excellent guide to making your .bib file:
   https://en.wikipedia.org/wiki/BibTeX

2. Type in **\bibliographystyle{mit-chicago}** and
   **\bibliography{<name of your .bib file>}**.

3. Enter **\cite{}** or **\citep{}** or **\citet{}** commands in your .tex file. These citations should use the keywords that are found in the .bib file you are using. (For information on natbib cite commands, see the Cites tab: Cites.)

4. Run LaTeX on your LaTeX file.

5. Run BiBTeX on your LaTeX file.

6. Run LaTeX on your LaTeX file two times. The first time you will produce the bibliography; the second time will produce the citations.

## More information on using BibTeX

A good guide to BibTeX:
http://www.andy-roberts.net/writing/latex/bibliographies

Welcome  Front Matter  Headings  Chap Opening/Ending  Special Environments  Figures  Tables  Cites  **End Matter**

Appendix  End Book Exercises  End Notes  Glossary  Bibliography  **Index**

## Making Your Index

The New Math style uses the standard LaTeX indexing method, using the following four steps. (No need to enter `\usepackage{makeidx}`, or `\makeindex`, since they are built into the newmath.cls file.)

- Mark the words to be indexed in the text, with `\index{<term>}` or
  `\index{<term>!<secondary term>}` or
  `\index{<term>!<secondary term>!<tertiary term>}`.
  Terms after the '**!**' will align beneath the major term in the index.

  For example, if you enter `\index{trees}`, followed at some later point in your book with a subentry, `\index{trees!pointy}` (the primary entry followed by an exclamation mark and the new term); and for a subsub entry, you follow a similar sequence: `\index{trees!pointy!green}`, in the finished index, you will see

  ```
  trees   24
    pointy 26
      green 30
  ```

- Run LATEX on the file,

- On the command line, or in the program you are using for editing your text, run `makeindex filename`. This will produce a <filename.ind> file.

- Run LATEX on your file again; the index will appear where you have typed `\printindex`, at the end of your book

When you are reasonably sure that your book is complete and your index will not change, you can consider editing the .ind file. At this point you can fix mistakes you may have made in entering the `\index{}` commands. An example of a common mistake is entering an index command with the term in upper case one time, and lower case another time. This will result in two index entries, so you will want to combine the entries.
Another change that you might like to make is to the position of math terms in the index. They will initially appear at the top of the index. You may want them to appear in the body of the index where the name of the equation is listed.

### Fancier Index Entries

If for some reason, you'd like fancier index entries, or if you'd like more information on indexing in general, please visit:
https://en.wikibooks.org/wiki/LaTeX/Indexing