

L^AT_EX, A Short Course

Creating a Table of Contents and Bibliography

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- If you are using the sectioning macros `\chapter`, `\section`, etc., then creating a table of contents for your document couldn't be easier.
- All that is needed is to put
`\tableofcontents`
wherever you want the TOC to appear (usually just after the title page and abstract).
- A table of contents is automatically generated from the chapter/section/subsection headings.
- Take a look at `workfiles/toc.tex` for an example.

- There is one little trick to Tables of Contents
- You always need to run \LaTeX twice to get the most recent TOC.
- This is because the `\tableofcontents` command usually appears before the information it is meant to be typesetting!

- The optional `\caption` command which can be used in floating `table` and `figure` environments also records information which can be used to create lists of tables and figures.
- Just as you would place `\tableofcontents` where you want the TOC to appear, place the commands
`\listoffigures`
`\listoftables`
where you want these lists to appear.
- Try writing `\listoffigures\newpage` just after `\maketitle` in your `workfiles/eps.tex` file.

- So your research is done and your thesis is written up. But wait, you forgot to type up the bibliography!
- You quickly type out all of your references but you've inevitably left inconsistencies in the punctuation and formatting of the various citations and your supervisor covers your bibliography in red ink.
- Why worry about formatting your citations when BIB_TE_X can do it for you!

- BIB_TE_X translates bibliographic databases into a properly formatted citation list according to the pre-defined bibliographic style that you choose.
- All you have to do type up the database and BIB_TE_X does the rest.

- Bibliographic databases are plain text files that give the details of each reference.
- They are stored in files with a .bib extension.
- There are various types of entries for different kinds of citations, for example:
 - book
 - conference proceedings
 - journal paper
 - etc.
- Each kind of entry must possess one or more required data fields, and possibly some optional fields.

Let's look at a sample database entry:

```
@article{connors:trivedi,  
author="R. W. Connors and M. M. Trivedi and C. A. Harlow",  
title="Segmentation of a high-resolution urban scene using texture operators",  
journal="Computer Vision, Graphics, and Image Processing",  
volume=25,  
number= 3,  
pages="273--310",  
year=1984  
}
```

General form is:

```
<entry_type> { <entry_name>,  
<field> = "<field_contents>",  
...  
}
```

A non-exhaustive list of $\text{BIB}_{\text{T}}\text{E}_{\text{X}}$ entry types:

- `book`: A book with a definite publisher.
- `booklet`: A printed or bound work without a publisher.
- `inbook`: A part of a book (chapter, section)
- `incollection`: A part of a book that has its own title.
- `inproceedings`: An article in a conference proceedings.
- `manual`: Technical documentation
- `mastersthesis`: An MSc thesis.
- `misc`: A work that fits no other category.
- `phdthesis`: A PhD thesis.
- `proceedings`: An entire conference proceedings.
- `techreport`: Technical report by a school or institution.
- `unpublished`: An unpublished work with an author and title.

- Once your bibliographic database is complete, you need to choose the bibliography style.
- The bibliography style determines the precise formatting of the citations.
- Built-in styles are:
 - `plain`: Entries ordered alphabetically, identified by a number in square brackets (this is the usual, and the default choice).
 - `unsrt`: As `plain` except entries are typeset in the order which they are cited in the text.
 - `alpha`: As `plain` except entries are identified by an abbreviation of the author's name plus year of publication.
 - `abbrv`: As `plain` except listing is shortened by abbreviating author's first names, months, and journal names.

- Additional styles may be obtained and are often provided by journals for their own particular styles.
- Bibliography style files have the extension `.bst`.

- To specify where to typeset the bibliography listing, use the command:

```
\bibliography{datasename}
```

- To select the bibliography style (default is plain), use the following command just before the `\bibliography` command:

```
\bibliographystyle{stylename}
```

- Whenever you want to refer to a bibliography entry in the text, use the `\cite` command.
- Example: suppose we have a bibliography entry called `eramian1`.
- We could then write the following:

```
The experiment was conducted as described in  
\cite{eramian1}.
```

- The `\cite` command typesets as the reference identifier. For the `plain` style, it typesets as a number in square brackets. The number is automatically determined from the alphabetizing of the bibliography and will automatically change if you add or remove entries in the bibliography database.

- Ok, suppose you've got everything in place:
 - Bibliographic database is ready.
 - The `\bibliography` command is in your document.
 - You've optionally specified a bibliography style.
 - You've placed your `\cite` commands throughout the text.
- Now what?

- To typeset your bibliography, you need to execute the following Linux commands:
 - `pdflatex documentname`
 - `bibtex documentname` (**not** `databaseName!`)
 - `pdflatex documentname` (yes, again!)
 - `pdflatex documentname` (and again, one more time)
- Now when you view your document, you should see the bibliography entries and the inline citations.

Why do some of my entries not show up?

- Entries will only appear in the bibliography listing if they are cited in the text with the `\cite` command.
- This is why you sometimes need to run \LaTeX twice to observe changes in the bibliography listing.
- If you really really want to have all entries printed, whether cited or not, use the command:

```
\nocite{*}
```

- This must appear before the `\bibliography` command.

- Many books and papers have more than one author. They all must be listed in a single author field.
- Separate the names of all authors with the word **and** no matter how many authors there are. **Do not use commas or the author names will be typeset incorrectly!** `BIBTEX` will format the author list automatically, according to the bibliography style in use.

- Normally `BIBTEX` does what it wants to the capitalization of the title of the citation according to the bibliography style.
- To protect the capitalization of a word in a title, enclose the capital letters in curly braces:

- The title: *The Life and Times of Noam Chomsky* should be given in the `BIBTEX` entry as:

```
title="The Life and Times of {N}oam {C}homsky",
```

- To use math mode in a title, open a new set of curly braces:
- The title: *The Pythagorean Theorem: $x^2 + y^2 = z^2$* should be entered

```
title="The {P}ythagorean Theorem:  { $x^2+y^2=z^2$ }",
```

- Create a $\text{BIB}_{\text{T}}\text{E}_{\text{X}}$ database for the following citations:
 - Helmut Kopka and Patrick W. Daly. A Guide to $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ (third edition), Addison-Wesley, 1999.
 - C. R. Dyer, A. Rosenfeld, and H. Samet. Region Representation: Boundary Codes from Quadrees, Communications of the ACM, Volume 23, Number 2, 1980.
- Which type of entry should be used for these citations?
- Save your database as `citations.bib`.

- Choose one of your workfiles, perhaps `toc.tex`.
- Just before the `\end{document}`, add the commands:

```
\bibliographystyle{plain}  
\bibliographystyle{citations}
```

- Insert some `\cite` commands in the body of the text using the labels you gave to your database entries.

- Run \LaTeX on `toc.tex`
- Run the command `bibtex toc`
- Run \LaTeX on `toc.tex` again.
- Run \LaTeX on `toc.tex` one more time (to make sure cross-references are updated).
- Now you should see your bibliography in the output document.

- An excellent GUI front end to managing $\text{BIB}_{\text{T}}\text{E}_{\text{X}}$ databases is **JabRef**.
- This is a java program that helps you manage $\text{BIB}_{\text{T}}\text{E}_{\text{X}}$ data and really helps when you aren't sure what fields are available for particular entries and/or which fields are optional.
- Jabref is available from <http://www.jabref.org>