Bibliographies in LaTeX & BibTeX

LaTeX includes basic support for Bibliographies without any extra packages or software. This is fine for relatively small documents with a small number of references.

For more complicated documents (most papers and theses) you will want to use BibTeX

LaTeX Bibliographies

The `thebibliography` environment allows us to specify a basic bibliography. It usually comes at the end of the document, before the `\end{document}` command.

```
\begin{thebibliography}{9}

\bibitem{lamport94}
  Leslie Lamport,
  \emph{\LaTeX: A Document Preparation System}.
  Addison Wesley, Massachusetts,
  2nd Edition,
  1994.

\end{thebibliography}
```

Leslie Lamport, *LaTeX: A Document Preparation System*. Addison Wesley, Massachusetts, 2nd Edition, 1994.

LaTeX Bibliographies

Once we have a bibliography item we can cite it within our text with the `\cite` command.

```
We refer to items from our bibliography using the cite
 command~\cite{lamport94}.
```

We can refer to multiple items in the same citation:

```
\cite{lamport94, anotherref12, someref2013}
```

LaTeX Bibliographies - `natbib`

LaTeX bibliography support can be extended simply using the `natbib` package.

This allows you to specify the format of references and citations, and other options associated with bibliographies and referencing.

However, we won't be covering it today.

BibTeX

BibTeX allows us to store our bibliographies as separate files (`.bib`), so keeping our LaTeX source and bibliographic information separate.

This allows us to re-use `.bib` files in different documents, or refer to items from many different bibliographies within the same document.

BibTeX - data

BibTeX files are plain text files in which the data representing the bibliography is structured.

```
@article{greenwade93,
    author  = "George D. Greenwade",
    title   = "The {C}omprehensive {T}ex {A}rchive {N}
    etwork ({CTAN})",
    year    = "1993",
    journal = "TUGBoat",
    volume  = "14",
    number  = "3",
    pages   = "342--351"
}
```

BibTeX - data

BibTeX recognises many different types of references, including:

Type	Use
`article`	An article from a journal or magazine
`book`	A book
`conference`	The same as `inproceedings`
`incollection`	Part of a book
`inproceedings`	An article in a conference proceedings
`manual`	Technical documentation
`mastersthesis`	A Masters degree thesis
`misc`	For when nothing else is applicable
`phdthesis`	A PhD degree thesis
`proceedings`	The proceedings of a conference
`techreport`	A report published by an institution
`unpublished`	A document that has not been formally published

BibTeX - @article

An `@article` from a magazine or journal.

Required Fields author, title, journal, year

Optional Fields volume, number, pages, month, note

```
@article{bibtexkey,
    author  = "",
    title   = "",
    year    = "",
    journal = "",
}
```

BibTeX - @book

A `@book` that has been published.

Required Fields author/editor, title, publisher, year

Optional Fields volume/number, series, address, edition, month, note

```
@book{bibtexkey,
    author    = "",
    title     = "",
    publisher = "",
    year      = "",
}
```

BibTeX - @inproceedings

An article in a conference proceedings

Required Fields author, title, booktitle, year

Optional Fields editor, volume/number, series, pages, address, month, organization, publisher, note.

```
@inproceedings{bibtexkey,
    author    = "",
    title     = "",
    booktitle = "",
    year      = "",
}
```

BibTeX - @techreport

A technical report from an institution (university, standardisation institute etc).

Required Fields author, title, institution, year

Optional Fields type, number, address, month, note

```
@techreport{bibtexkey,
    author      = "",
    title       = "",
    institution = "",
    year        = "",
}
```

BibTeX - @misc

Anything that doesn't fit under any of the other types

Required Fields none

Optional Fields author, title, how published, month, year, note

```
@techreport{bibtexkey,
    author       = "",
    title        = "",
    howpublished = "",
    year         = "",
}
```

BibTeX - Capitalisation

Occasionally, depending on the bibliography style being used, BibTeX may remove capitalisation in titles of bibliography items.

To preserve capitalisation, surround the items to be capitalised in curly braces.

```
    title = "The {LaTeX} Companion",
```

or

```
    title = {{"The LaTeX Companion"}},
```

BibTeX - Authors

BibTeX is able to deal with multiple authors for bibliographic items elegantly.

Names can be added either as *Forename Surname* or *Surname, Forename*.

To add multiple authors, use 'and' between each author name

```
author = "Michel Goossens and Frank Mittelbach and
Alexander Samarin"
```

or

```
author = "Goossens, Michel and Mittelbach, Frank and
Samarin, Alexander"
```

BibTeX - Authors

The *Surname, Forename* structure is more flexible in general.

Last name prefixes (*von*, *van*, *der*) are usually handled automatically, but if BibTeX gets it wrong they can be grouped with the surname using curly braces.

```
author = "John {von Neumann}"
```

or

```
author = "von Neumann, John"
```

BibTeX - Urls

There is no BibTeX field for URLs. To cite a website, you can use the `@misc` type and put the URL in the `howpublished` field. Alternatively, use the `note` field of `@techreport`, `@article`, or `@book`,

It is a good idea to use the `url` package and the `url` command when including URLs in LaTeX to ensure proper formatting.

Using BibTeX

Once we have a `.bib` file full of bibliographic information, using it in LaTeX is relatively straightforward.

Throughout our document we use the `\cite` command to reference items from our bibliography by their BibTeX keys.

We use the `\bibliographystyle` command at the end of our document to let BibTeXwhat style of reference we would like to use.

We use the `\bibliography` command to tell BibTeX which file contains our bibliographic information

Using BibTeX

We then need to compile our documents a number of times in order to get references inserted in the correct place.

1. We first run `latex`/`pdflatex` to find where there are missing references in the document
2. We then run `bibtex` to extract the correct references from our `.bib` file.
3. We then run `latex`/`pdflatex` to compile the document with the bibliography inserted
4. We then run `latex`/`pdflatex` again to ensure all references are correct.

Using BibTeX- Example

Demonstration of using BibTeX within a document.

BibTeX Styles

There are many different bibliography styles which control how the references within the document and in the bibliography at the end of the document are presented.

Which style to use will often be specified by a journal publisher/conference organiser.

Examples of many styles can be found here: `http://amath.colorado.edu/documentation/LaTeX/reference/faq/bibstyles.pdf`

BibTeX Tools

BibTeX is a pretty powerful tool for handling referencing within LaTeX documents.

However, it can be annoying having to maintain `.bib` files for all your papers, your thesis, and so on.

Fortunately, many tools will handle `.bib` files for you, automatically.

BibTeX Tools

Some suggestions:

Zotero a web browser plugin for handling references that can output `.bib` files

Mendeley A reference management application that can export `.bib` files

Google Scholar can provide BibTeX for any documents you find through it

Exercise 3

Experiment with adding references into your document.

Create and fill a `.bib` file.

Explore BibTeX styles and usage.