LaTeX소개 2부 : 수학, BibTeX, 사용자 정의

공개 통계학 개론 (OpenIntro Stat.) 저작 학습용

David Diez [1] 이광춘(번역) [2]

[1] OpenIntro openintro.org

[2] xwMOOC xwmooc.net

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Guide to LaTeX

Guide to LaTeX 책에는 LaTeX에 대한 멋진 안내가 나와 있고, 이번 학습에서 이 책에서 나온 예제 일부를 충실히 따라간다:

7 수학

11,12 BibTeX

10 사용자 정의 명령어와 환경

LaTeX에 관한 학습교재를 찾는다면, *Guide to LaTeX* 책은 훌륭한 대안이 될 수 있다.

왜 BibTeX를 사용할까요?

참고문헌을 수작업으로 생성하는 대신에 BibTeX를 사용할 매우 좋은 이유가 상당수 있다.

- 참고문헌 자동 생성.
- 쉬운 참고문헌 스타일 변경.
- 텍스트에서 참조하면서 빼먹은 참고문헌 식별.

How BibTeX works

There are three steps that LaTeX and BibTeX take to make a bibliography.

- When you typeset a document with citations (e.g. \cite{zotova}), LaTeX makes note of each citation.
- BibTeX takes this list and looks for each reference in a database of publications.
- Then we tell LaTeX to make the bibliography of all of those publications it found that we referenced.

The most time consuming part is initially building the database. After that, you can reference this same database over and over again and BibTeX becomes a breeze.

BibTeX material

- Creating your database
- Citing a reference
- Typesetting with BibTeX
- Building style files

Sample reference entry

We want to create a reference, similar to the following, for each of the item we want to cite.

$\overbrace{\text{zotova}}^{label}$

@article{zotova,

Author = {Elena Zotova and Charles D Woody and Ehud Gruen},

Journal = {Brain Research},

Pages = {66-78},

Title = {Multiple representations ... [etc etc].},

Volume = {868},

Year = {2000}}

Make up of a reference

Each reference needs a publication type (e.g. article, book), and each reference includes many fields. For instance, the following are **required** and *optional* fields of an article entry.

label: The reference label.

Author	**Journal**	**Title**
Year	*Volume*	*Number*
Pages	*Month*	*Note*

A formal list of the available publication types and also which items are required and optional for each type, see

http://www.image.ufl.edu/help/latex/entry_bibtex.shtml

An alternative

If you don't want to build your data base up in such a bare-bones manner, you might try

- BibDesk: Macs.
- JabRef: Macs, PCs, Linux.

Both of these programs are free and available online. Others exist, and I have only personally used BibDesk.

If you do manage your own...

Some things you should know if you do not use a program manager:

- Always include a label, which is how LaTeX identifies the entry.
- The entry (publication) type and field names are NOT cap-sensitive.
- Enclose the text for each field (e.g. the author names) in curly braces.
- You can add extra fields that are not listed and these will be ignored (e.g. if you add an Abstract field to a reference, BibTeX will just ignore it).

Special cases

Giving author names in a non-ambiguous form is sometimes difficult.

- Always type names as {Given Names Surnames} or {Surname, Given Names}.
- Anything enclosed in braces will be treated as a single item (e.g. Author = {Maria {San Martino}}).
- If there is more than one author, separate each author name by the word *and*. If *and* is part of someone's name, enclose their entire name in braces.
- You may add accents (e.g. Gödel via `G{\"o}del`).

Many other nuances exist. If you encounter a peculiar name, do a little online searching to see how best to put it into the data base.

Abbreviating journal names

Sometimes you don't want your entry to include the entire journal name. To shorten it, use the *string* entry type:

```
@string{JSS = {Journal of Statistical Software}}
```

These string entries must be defined in the database above where they are used.

Citing a reference

There are four commands that can be used.

- \cite{labelName} [referenceNumber], e.g. [1].
- \citet{labelName} Surname (year), e.g. Zotova et al. (2000).
- \citep{labelName} (Surname, year), e.g. (Zotova et al., 2000).
- \nocite{labelName} Not cited but will show up in bibliography.

The first and last work with the `uclathes` class. The second two are used in the `natbib` package (highly recommended for non-thesis papers).

Other commands in your document

The following two lines of code must be inserted at the place where the bibliography is to be added:

```
\bibliographystyle{yourStyle}
\bibliography{databaseName}
```

The style command can be moved higher (it doesn't matter). If you use the `natbib` package, then you must add it with the other packages:

```
\usepackage{natbib}
```

I have not gotten this package to work with the UCLA thesis template.

Making the bibliography

If you have made your reference database, made citations, and inserted the bibliography commands in your text, then you are ready to create the bibliography. In TeXShop, there are a few simple steps to finish:

- Typeset your LaTeX document as usual.
- Change the Typesetting option from LaTeX to BibTeX:

- Typeset again with BibTeX.
- Return the Typesetting option back to LaTeX and compile **twice** more.

Building a style file

One of the big benefits of BibTeX is the ability to quickly change the bibliography style and within-text citations. To do this, we use the program custom-bib. Download it at

http://www.ctan.org/tex-archive/help/Catalogue/entries/custom-bib.html

custom-bib has been included in the latexTemp zip file from the first class.

Building a style file

Open `latexTemp` > `custom-bib`, and open the `makebst.tex` file.

To run the program,

(1) Open the file and typeset it.

(2) Type `YES` to the first question to get extra directions.

(3) Choose an appropriate file name (no need to add the extension).

(4) Answer each of the style questions.

(5) For the last question, *Finished!! ... Shall I now run this batch job? (NO)*, type `YES`.

Find and copy the file you named in step (3) with extension `.bst`. Put it in the folder with whatever files for which you will make a bibliography with this style or in your bibliography folder (however

Practice

Open the `latexTemp.tex` file and go to the last section. Add a bibliography reference of `\citet{victor}`. Also add a reference with `\citep{victor}` and typeset (all four steps). What is the difference between your references? How would you use each in a paper?

Organizer and time saver

The \include command is useful for long documents:

```
\include{otherDocName}
```

For instance, this presentation actually calls three separate documents: one for each big section. Thus I would not take time Typesetting parts of the document I was not working on while keeping organized:

```
\include{math/math} % "math" document in the "math" folder
%\include{bibtex/bibtex}
%\include{comenv/comenv}
```

Wrap-up

After this class, you should have a general idea of

- using the math modes in LaTeX,
- creating bibliographies using BibTeX, and
- creating your own commands and environments.

Any questions?