

A very short
Introduction to L^AT_EX

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Outline

① General philosophy

② The source document

- Preamble

- Structure

- Paragraphes

- Images

- Tables

- Equations

- Languages

- Customization

③ Bibliography

- Create a bibliography file

- Managing your database

- Bibliography in your manuscript

④ Help?

- 1 General philosophy
- 2 The source document
- 3 Bibliography
- 4 Help?

L^AT_EX, qué saco ?

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Separation of form and substance.

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Edit

With a text editor

Examples



TeXnicCenter



TeXShop



Kile

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Compile



MiKTeX



MacTeX



included!

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- ▶ Hard without outline
- ▶ (Collaborations)

Advantages

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- ▶ Google is your friend

Compatibility

Word

As can be seen on equation (1):

$$\Psi = \int_{-\infty}^{\infty} \exp(\sqrt{\alpha} x^2) dx \quad (1)$$

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Compatibility

Word

```

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)‰%âp°æ/Y#é¶ÉG₀ I9hp|5-++xY° LZ;AÿEš ç5EÁá%
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```

L^AT_EX

```

\documentclass[twocolumn]{article}
\usepackage{amsmath}

\begin{document}

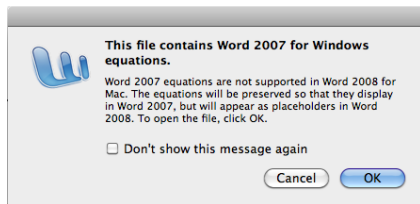
As can be seen on equation~\eqref{eq:myeq}:

\begin{equation}
\Psi = \int_{-\infty}^{\infty} %
\exp \left( \sqrt{\alpha} \, \, x^2 \right) d x
\label{eq:myeq}

\end{equation}
\end{document}

```

... and because this should never happen



- 1 General philosophy
- 2 The source document
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Preamble

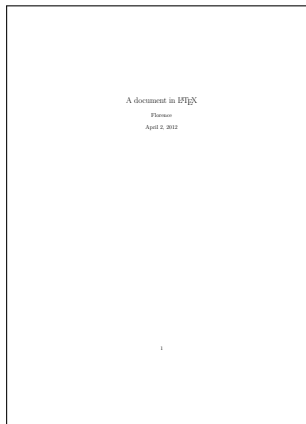
It contains the file's description, its type, packages to be loaded, options, etc.

```
\documentclass[11pt]{article}

\usepackage{amsmath}

\author{Florence}
\title{A document in \LaTeX}

\begin{document}
\maketitle
% This is a comment
\end{document}
```



Structuring your document

```
\documentclass[11pt]{article}

\author{Florence}
\title{A document in \LaTeX}

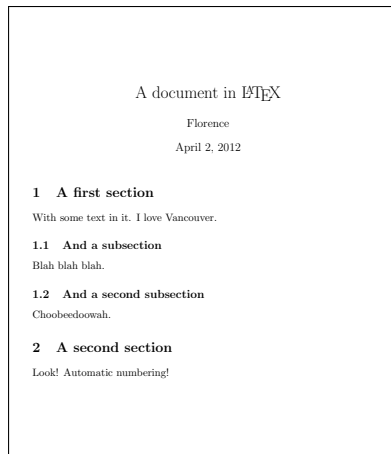
\begin{document}
\maketitle

\section{A first section}
With some text in it. I love Vancouver.
\subsection{And a subsection}
Blah blah blah.

\subsection{And a second subsection}
Choobeedoowah.

\section{A second section}
Look! Automatic numbering!

\end{document}
```



Paragraphs & lists

Paragraphs and line breaks

Line break: `\\`

Paragraph break: double line break

Paragraphs & lists

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Paragraph break: double line break

Lists

```
\begin{itemize}
\item First item
\item Second item
\item Third item
\end{itemize}
```

- ▶ First item
- ▶ Second item
- ▶ Third item

Paragraphs & lists

Paragraphs and line breaks

Line break: `\\`

Paragraph break: double line break

Lists and enumerations

```
\begin{enumerate}  
\item First item  
\item Second item  
\item Third item  
\end{enumerate}
```

1. First item
2. Second item
3. Third item

Insert a figure

It is quite simple (but positioning it can be tricky)

```
\section{Adding figures}
This is what we will see on figure~\ref{fig:logo}, %
showing us a gorgeous logo.
\begin{figure}[h]
\centering
\includegraphics[height=0.75in]{Pics/logobrc.jpg}
\caption{Such a nice logo!}
\label{fig:logo}
\end{figure}
```

1 Adding figures

This is what we will see on figure 1, showing us a gorgeous logo.



Figure 1: Such a nice logo!

Tables

table: the environment (with caption, and label for references)

tabular: the actual table

```
\section{Creating tables}
This is what we will see on %
table~\ref{tab:mytab}, showing %
us a quite stupid table.

\begin{table}[h]%
\centering
\begin{tabular}{lc|c}
This & is & a table \\ \hline
$1.23$ & & wow & & $\sqrt{\pi}$ \\
$123$ & & \multicolumn{2}{c}{Merged!}
\end{tabular}
\label{tab:mytab}
\caption{This is a table. }
\end{table}
```

1 Creating tables

This is what we will see on table 1, showing us a quite stupid table.

This	is	a table
1.23	wow	$\sqrt{\pi}$
123	Merged!	

Table 1: This is a table.

Writing an equation

Super easy!

As can be seen on equation `\eqref{eq:myeq}`:

```
\begin{equation}
\Psi = \int_{-\infty}^{\infty} \exp \left( \sqrt{\alpha} x \right) dx
\label{eq:myeq}

\end{equation}
```

As can be seen on equation (1):

$$\Psi = \int_{-\infty}^{\infty} \exp(\sqrt{\alpha} x^2) dx \quad (1)$$

Languages

Using babel

```
\documentclass[11pt]{article}
\usepackage[français, english]{babel}
\usepackage[latin1]{inputenc}
\begin{document}

\section{Let's play with languages}
You can have parts of your document in another language.

\selectlanguage{français}
\noindent Par exemple maintenant, ça va s'afficher en français, %
et on peut écrire avec des accents.
\end{document}
```

1 Let's play with languages

You can have parts of your document in another language.

Par exemple maintenant, ça va s'afficher en français, et on peut écrire avec des accents.

Customization

Define new commands and new environments.

```
\documentclass[11pt]{article}
\usepackage{color}
\newcommand{\suppinfo}{supplementary information}
\newcommand{\comm}[1]{%
  \textit{\scriptsize\textcolor{blue}{\textsf{#1}}}}
\begin{document}
  \noindent See the \suppinfo{} for more details. \comm{This is %
a comment.} And we see that...
\end{document}
```

See the supplementary information for more details. *This is a comment.* And we see that...

1 General philosophy

2 The source document

3 Bibliography

- Create a bibliography file

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- Bibliography in your manuscript

4 Help?

Bibliographic database

It is a $\text{BIB}\text{T}\text{E}\text{X}$ file: `.bib`

A reference in your file will look like this:

```
@article{debarre2010,  
  title={Evolution of specialization in a %  
        spatially continuous environment}},  
  author={D{\'}ebarre, Florence and Gandon, Sylvain},  
  journal={Journal of Evolutionary Biology},  
  volume={23},  
  number={5},  
  pages={1090--1099},  
  issn={1420-9101},  
  year={2010},  
  publisher={Wiley Online Library}  
}
```

Managing your database

I use Jabref

The screenshot shows the JabRef application window with a list of bibliographic entries. The entry for Price (1970) is selected and expanded to show its details.

#	Entrytype	Author	Title	Year	Journal	Owner	Timestamp	Bibtexkey
7	Article	Bridle et al.	Why is adaptation prevented at ecological margins...	2010	Ecology Le...	adminlocal	2011.01.19	Bridle2010
8	Article	{Brodie III} et al.	Visualizing and quantifying natural selection	1995	Trends in E...			Brodie1995
9	Article	Case and Taper	Interspecific competition, environmental gradients,...	2000	Am Nat	0102	2008.03.20	Case2000
10	Article	Day	Competition and the effect of spatial resource het...	2000	Am Nat	0142	2008.03.20	Day2000
11	Inbook	Day and Gandon	Insights from Price's equation into evolutionary epi...	2006	DIMACS SE...	flo	2012.03.20	DayGando...
12	Inbook	Doebeli	Adaptive Diversification and Speciation as Pattern ...	2011		flo	2012.03.21	Doebeli20...
13	Article	D{\'{e}}barre and Gandon	{Evolution of specialization in a spatially continuou...	2010	Journal of ...	debarre	2010.07.28	Debarre20...
14	Article	Egas et al.	Evolution restricts the coexistence of specialists ...	2004	Am Nat	0141	2008.03.20	Egas2004
15	Article	Geritz et al.	Evolutionarily singular strategies and the adaptive ...	1998	Evol Ecol	0256	2008.09.12	Geritz1998
16	Article	Gomulkiewicz et al.	The effects of density dependence and immigratio...	1999	Theor Pop...	0170	2008.09.21	Gomulkiew...
17	Article	Gomulkiewicz et al.	Genetics, adaptation, and invasion in harsh enviro...	2010	Evolutionar...	adminlocal	2011.04.18	Gomulkiew...
18	Article	Hendry et al.	Population mixing and the adaptive divergence of ...	2001	Evolution	adminlocal	2011.06.19	Hendry2001
19	Article	Hofbauer and Sigmund	{Adaptive dynamics and evolutionary stability}	1990	Applied Ma...	debarre	2009.12.11	Hofbauer1...
20	Article	Kawecki and Ebert	Conceptual issues in local adaptation	2004	Ecology Le...			KaweckiEb...
21	Article	Kimura	A Stochastic Model concerning the Maintenance of...	1965	Proceedin...			Kimura1965
22	Article	Kirkpatrick and Barton	Evolution of a species' range	1997	Am Nat	0105	2008.03.20	Kirkpatrick...
23	Article	Kisdi and Geritz	Adaptive Dynamics in Allele Space: Evolution of Ge...	1999	Evolution	flo	2011.07.12	KisdiGeritz...
24	Article	Lenormand	Gene flow and the limits to natural selection	2002	Trends Eco...	0174	2008.03.21	Lenormand...
25	Article	Levins	Theory Of Fitness In A Heterogeneous Environment...	1962	The Americ...	debarre	2009.11.20	Levins1962
26	Article	Mesz{\'{a}}na et al.	Adaptive dynamics in a 2-patch environment: a toy...	1997	Journal of ...	0311	2011.02.22	Meszana19...
27	Article	Nuismer and Gandon	Moving beyond Common-Garden and Transplant D...	2008	The Americ...			NuismerGa...
28	Article	Price	Selection and Covariance	1970	Nature	flo	2012.03.20	Price1970
29	Article	Price and Kirkpatrick	{Evolutionarily stable range limits set by interspeci...	2009	Proceedin...	flo	2011.07.14	Price2009
30	Manual	{R Development Core Team}	R: A Language and Environment for Statistical Com...	2010		debarre	2010.07.28	R
31	Inbook	Rice	Evolutionary theory: mathematical and conceptual ...	2004				Price2004...
32	Article	Ronce and Kirkpatrick	When sources become sinks: migrational melt-down ...	2001	Journal of ...	0117	2008.03.20	Rnce2001
33	Article	Soetaert et al.	Solving Differential Equations in R: Package deSolve	2010	Evolution			RdeSolve
34	Article	Spichtig and Kawecki	The Maintenance (or Not) of Polygenic Variation by...	2004	The Americ...	flo	2012.03.21	SpichtigKa...
35	Article	Spitze	Population structure in <i>Daphnia obtusa</i> : quantitat...	1993	Genetics	flo	2012.03.26	Spitze1993
36	Article	Turelli	Heritable genetic variation via mutation-selection ...	1984	Theoretical...			Turelli1984
37	Article	Whitlock	Evolutionary inference from { $2Q_{ST}$ }	2008	Molecular ...	flo	2012.03.26	Whitlock20...

Article (Price1970)
 Price, G. R.
 Selection and Covariance
Nature, 1970, 227, 520-521

Status: Saved database '/home/flo/Dropbox/RK/bib_LA.bib'

References within the text

Use the `\cite` command, with the `BIBTEX` key

```
\documentclass[11pt]{article}
\begin{document}

A finer environmental grain favours generalists \cite{debarre2010}.
\bibliography{mybib}
\bibliographystyle{plain}

\end{document}
```

A finer environmental grain favours generalists [1].

References

- [1] F. Débarre and S. Gandon. Evolution of specialization in a spatially continuous environment. *Journal of Evolutionary Biology*, 23(5):1090–1099, 2010.

Styling of the references

Example with cbe

- ▶ Use the `natbib` package
- ▶ Download the `cbe.bst` style
- ▶ or: download style files on the journals' websites.

Styling of the references

Example with cbe

```
\documentclass[11pt]{article}
\usepackage{natbib}
\begin{document}
  A finer environmental grain favours generalists \citep{debarre2010}.
  As wrote \citet{Ronce2001}...
  \bibliography{mybib}
  \bibliographystyle{cbe}
\end{document}
```

A finer environmental grain favours generalists (Débarre and Gandon, 2010).
As wrote Ronce and Kirkpatrick (2001)...

References

DÉBARRE, F. AND GANDON, S. 2010. Evolution of specialization in a spatially continuous environment. *Journal of Evolutionary Biology* 23:1090–1099.

RONCE, O. AND KIRKPATRICK, M. 2001. When sources become sinks: migrational meltdown in heterogeneous habitats. *Evolution* 55:1520–31.

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Useful links

Which can be clicked

- ▶ The Not So Short Introduction to $\text{\LaTeX}2\text{e}$

Useful links

Which can be clicked

- ▶ The Not So Short Introduction to $\text{\LaTeX}2\text{e}$
- ▶ \LaTeX wikibook

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- ▶ The Not So Short Introduction to $\text{\LaTeX}2\text{e}$
- ▶ \LaTeX wikibook
- ▶ UBC thesis styles

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- ▶ UBC thesis styles
- ▶ Detexify

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