How to Create a Book in LaTeX


SCHANARAH
CMAKOBA HAS
LATEX

LATEX:
HOW TO CREATE A BOOK IN LATEX

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This book is printed on . . . (paper type)
Printed in the . . . (place)

This book is dedicated to my mother . . . , my father . . . .

Preface

A preface generally covers the story of how the book came into being, or how the idea for the book was developed. This is often followed by thanks and acknowledgments to people who were helpful to the author during the time of writing.

Contents

Title **iii**

Preface **vii**

1 Introduction **1**
1.1 What is Lorem Ipsum? 1
1.2 Why do we use it? 2

2 Figures and Tables **3**
2.1 Figures 3
2.2 Tables 4

3 Mathematics **5**

A Constants and Some Basic Units **7**
A.1 Mathematical constants 7
A.2 International System (SI) basic units 7

Bibliography **9**

Index **11**

Postface **13**

1 Introduction

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

1.1 What is Lorem Ipsum?

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The

Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32.

There are many variations of passages of Lorem Ipsum available, but the majority have suffered alteration in some form, by injected humour, or randomised words which don't look even slightly believable. If you are going to use a passage of Lorem Ipsum, you need to be sure there isn't anything embarrassing hidden in the middle of text. All the Lorem Ipsum generators on the Internet tend to repeat predefined chunks as necessary, making this the first true generator on the Internet. It uses a dictionary of over 200 Latin words, combined with a handful of model sentence structures, to generate Lorem Ipsum which looks reasonable. The generated Lorem Ipsum is therefore always free from repetition, injected humour, or non-characteristic words etc.

1.2 Why do we use it?

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for 'lorem ipsum' will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

2

Figures and Tables

2.1 Figures

You can import external graphics using package graphicx. The most important command is ‘includegraphics’. LaTeX itself treats the image like normal text, i.e. as a box of certain height and width. The ‘graphicx’ package documentation list the options width and height, as well as others (Figure 2.1). Using pdflatex several graphics formats are supported: pdf, png and jpg. Modern installations of LaTeX can use eps files as well, but indirectly.

You can convert EPS to PDF with the epstopdf utility, included in package of the same name. This tool is actually called by pdflatex to convert EPS files to PDF in the background when the graphicx package is loaded. This process is completely invisible to the user. LaTeX in dvi-mode supports only eps-files.

See Figure 2.2.

Figure 2.1: Nature-1.

Figure 2.2: Nature-2.

(a)

(b)

Figure 2.3: Two figures: Nature-1 and nature-2.

2.2 Tables

Tables are a common feature in academic writing, often used to summarize research results. Mastering the art of table construction in LaTeX is therefore necessary to produce quality papers and with sufficient practice one can print beautiful tables of any kind.

Keeping in mind that LaTeX is not a spreadsheet, it makes sense to use a dedicated tool to build tables and then to export these tables into the document. Basic tables are not too taxing, but anything more advanced can take a fair bit of construction; in these cases, more advanced packages can be very useful. However, first it is important to know the basics. See sample table 2.1.

Table 2.1: This table shows some data.

Item		
Animal	Description	Price ($)
Gnat	per gram	13.65
	each	0.01
Gnu	stuffed	92.50
Emu	stuffed	33.33
Armadillo	frozen	8.99

3

Mathematics

One of the greatest motivating forces for Donald Knuth when he began developing the original TeX system was to create something that allowed simple construction of mathematical formulae, while looking professional when printed. The fact that he succeeded was most probably why TeX (and later on, LaTeX) became so popular within the scientific community. Typesetting mathematics is one of LaTeX's greatest strengths. It is also a large topic due to the existence of so much mathematical notation.

If your document requires only a few simple mathematical formulas, plain LaTeX has most of the tools that you will need. If you are writing a scientific document that contains numerous complicated formulas, the amsmath package introduces several new commands that are more powerful and flexible than the ones provided by basic LaTeX. The mathtools package fixes some amsmath quirks and adds some useful settings, symbols, and environments to amsmath.

$$M = \begin{bmatrix} \frac{5}{6} & \frac{1}{6} & 0 \\ \frac{5}{6} & 0 & \frac{1}{6} \\ 0 & \frac{5}{6} & \frac{1}{6} \end{bmatrix}$$

$$x = a_0 + \cfrac{1}{a_1 + \cfrac{1}{a_2 + \cfrac{1}{a_3 + \cfrac{1}{a_4}}}} \tag{3.1}$$

A

Constants and Some Basic Units

A.1 Mathematical constants

$$\pi = 3.14159\ldots$$
$$e = 2.1728\ldots$$
$$\ln 10 = 2.30259\ldots$$
$$\log 10 = 1$$

A.2 International System (SI) basic units

Quantity	Unit	Symbol	Dimension symbol
length	meter	m	L
mass	kilogram	kg	M
time	second	s	T
electric current	ampere	A	I
temperature	kelvin	K	θ
amount of substance	mole	mol	N
luminous intensity	candela	cd	J

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Index

formulae, 5

graphics, 3

Latex, 3
Lorem, 1

package, 5
papers, 3

reader, 2

standard, 1

Postface

A postface is a text added to the end of a book or written as a supplement or conclusion, usually to give a comment, an explanation, or a warning. The postface can be written by the author of a document or by another person. The postface is separated from the main body of the book and is placed in the appendices pages. The postface presents information that is not essential to the entire book, but which is considered relevant.