

Reference Sheet for a Thesis with L^AT_EX2e and KOMA-Script

- All examples were tested with pdflatex.
- The package mentioned in the headings has to be included (see B.2).
- Compile three times after last change (esp. docs with references).

A. L^AT_EX Basics

A.1. Units

- Available units for length and dimensions:
bp point (typographic) mm millimeter in inch em width of M
px pixel (1/72in) cm centimeter pc pica ex height of x
- Document dependent units z\textwidth, z\linewidth, z\columnwidth, z\textheight with z a percentage value, e.g. 0.55\textwidth means 55% of the actual width of the text.
- \baselineskip minimum vertical space between the bottom of two successive lines in a paragraph.
- Amounts like \smallskipamount, \medskipamount, \bigskipamount.

A.2. Reserved Characters (see also E.2, cf. H)

\	introduces a command	\textbackslash
{ }	embraces arguments, creates logical parts	\{ \}
[]	embraces <i>optional</i> arguments	[]
%	comments: code after % will be ignored.	%
&	separates columns in tabular-like environments	&
#	parameter for own command declarations	#
\$	text style math mode (abbr. for \(...\))	\$
^	index/exponent only valid in math mode, e.g. a ₁ ² see E.2	

B. Preamble (before \begin{document})

B.1. Documentclass (necessary)

Use: \documentclass[opt,opt,...]{class}
Recommended classes: scrartcl, scrreprt, scrbook, scrllttr2
Non-KOMA-Script classes: beamer, koma-moderncvclassic

Common options with default	Values available (subtotal)
fontsize=11pt	10pt 12pt (e.g. 12.5pt also valid)
paper=a4, paper=portrait	a3 a5 b4 letter, landscape
parskip=no	half full
headings=big	small normal
chapterprefix=false	true
open=right (scrbook)	any (scrartcl, scrreprt) left
captions=oneline	nooneline
captions=tablebelow,figurebelow	tableabove, figureabove
toc=notlistof	listof listofnumbered
bibliography=totoc totocnumbered	nottotoc
twoside=true (scrbook)	false (scrartcl, scrreprt)
twocolumn=false	true
draft=false	true (show overfull boxes)
→ Options of document class are passed to every loaded package.	
→ Set or change options later in file, e.g. \KOMAoptions[twoside=true]	

B.2. Loading Packages

\usepackage[options]{package}
\PassOptionsToPackage[options]{package}

B.3. Encoding Settings

```
\usepackage[utf8]{inputenc} % most IDEs use UTF8
\usepackage[T1]{fontenc} % most fonts needs T1
```

B.4. Language Settings with babel

Load: \usepackage[ngerman, main=english]{babel}
Use: \selectlanguage{language} foreignlanguage{language}{text}


```
\documentclass[italian]{scrbook} % global option
\usepackage[british,main=italian]{babel} % package option
\usepackage{csquotes} % package csquotes knows italian
```

C. Layout

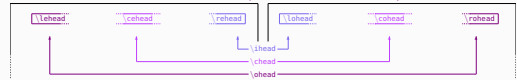
C.1. Changing Page Layout with geometry

- Let KOMA-Script know of geometry by option usegeometry=true.

```
\usepackage[left=2cm, right=2, top=3cm, bottom=4cm,
bindingoffset=1cm, includeheadfoot]{geometry}
```

- Auto-completion determines unspecified dimensions (under or over specified as well), here width and height of text (see I.9).
- Other options: paper=a4paper, landscape|portrait, includehead, includefoot, includeheadfoot, twocolumn
- Changing page layout mid document: \newgeometry{opt, opt, ...}

C.2. Header and Footer of Page (aka running heading)



```
% delete default settings and define your own
\usepackage[automark]{scrlayer-scrpage}
\clearpaairofpagestyles
\ohead[]{\headmark} \ofoot[\pagemark]{\pagemark}
```

```
% Variant for a thesis with horizontal rules at head and foot
\usepackage[headsepline=0.005pt:,footsepline=0.005pt:,
plainfootsepline,automark]{scrlayer-scrpage}
\clearpaairofpagestyles
\ohead[]{\headmark} \ofoot[\pagemark]{\pagemark}
\ModifyLayer[addvoffset=-.6ex]{scrheadings.foot.above.line}
\ModifyLayer[addvoffset=-.6ex]{plain.scrheadings.foot.above.line}
\setkomafont{pageheadfoot}{\small}
```

C.3. Linespread with setspace

- Load: \usepackage[onehalfspacing]{setspace} for 1.5 line spacing.

D. Document Structure (see also L)

D.1. Start Document

```
\begin{document} Complete document contents. \end{document}
```

D.2. Title

simple title: \author{text} \title{text} \date{\today} \maketitle
title page self designed: \begin{titlepage} text \end{titlepage}

D.3. Table of Contents, List of Figures (for other List of see E.8 & G)
\tableofcontents \listoftables \listoffigures
KOMAOption toc=listof (see B.1) generates entries for TOC.

D.4. Headings

```
\part{title} \chapter{title}
\section{title} \subsection{title} \subsubsection{title}
\paragraph{title} \subparagraph{title}
```

- \chapter only valid in documentclass scrbook and scrreprt
- Use * variants for headings without numbering, no change in counter and no entry in table of contents.
- Use the optional parameter for short titles in headings and table of contents, e.g. \section[short title]{title}
- Use \addpart, \addchap or \addsec for unnumbered headings, but with running heading and entry in table of contents. The * variants delete the running heading.
- Layout of paragraph and subparagraph similar to other headings:
\RedeclareSectionCommands[after skip=1sp]{paragraph, subparagraph}
\setcounter{secnumdepth}{\subparagraphnumdepth}
\setcounter{tocdepth}{\subparagraphtocdepth}

D.5. Justification

Environment	Declaration	Other
\begin{center}	\centering	text \par\vfill text
\begin{flushleft}	\raggedright	text \hfill text
\begin{flushright}	\raggedleft	\raggedbottom, \flushbottom

D.6. Lists

```
\begin{itemize} with bullets \item or \item[symbol]
\begin{enumerate} with numbers \item
\begin{description} with bold words \item[word]
\begin{labeling}[separator]{labelinglabel} \item[word]

\begin{enumerate}
\item First item
\item Second item\label{it:second} % see References
\end{enumerate}
```

D.7. Enhanced Lists with enumitem

Load: \usepackage{enumitem}
Example (for enumerate):
\setlist[enumerate,1]{label=\Alph*} A) one
\setlist[enumerate,2]{label=\alpha*} a) one
\setlist[enumerate,3]{label=\roman*} b) two
\setlist[enumerate,4]{label=\arabic*} B) two

Example (for legal list):
\newlist{legal}{enumerate}{10} 1. one
\setlist{legal}{label=\arabic*.,noitemsep} 1.1. two
Use: \begin{legal} \item ... \end{legal} 1.1.1. three
1.1.2. strawberry

D.8. Separate Files

- After preamble within the text place: \include{file} Text starts and ends on a new page. file has to be in the same directory as the master file. Otherwise specify a path: \include{path/file}
- In preamble place: \includeonly{file1,file2} to run only these files.
- Use \input{file} includes a file without starting/ending on a new page (\includeonly not valid).

E. Text

E.1. Paragraphs (≈ "new idea in content")

Paragraphs are separated by an empty line in the code or by \par.
A \ produces a new line – use sparingly, seldom needed outside tabulars.
Correct Overfull Box Warnings with more than 4pt (look into log file).

E.2. Text Symbols/Characters (see also A.2)

A lot of diacritic symbols can be typed directly, e.g. è é ê ñ ç
§ \S _ \textunderscore{} ~ \textasciitilde{}
^ \textasciicircum{} ... \ldots | \textbar
Other symbols need packages, e.g. € \texteuro (textcomp)

E.3. Fonts

Command	Declaration	Effect
\textrm{text}	\rmfamily text	Roman family
\textsf{text}	\sffamily text	Sans serif family
\texttt{text}	\ttfamily text	Typewriter family
\textmd{text}	\mdseries text	Medium series
\textbf{text}	\bfseries text	Bold series
\textup{text}	\upshape text	Upright shape
\textit{text}	\itshape text	<i>Italic shape</i>
\textsl{text}	\slshape text	<i>Slanted shape</i>
\textsc{text}	\scshape text	SMALL CAPS SHAPE
More general commands:		
\emph{text}	\em text	<i>Emphasized</i>
\textnormal{text}	\normalfont text	Document font
Example: \setkomafont{section}{\scshape}		

E.4. Font Size

Font size is relative to the base font size, specified in the document class.

\tiny	<small>tiny</small>	\Large	Large
\scriptsize	<small>scriptsize</small>	\LARGE	LARGE
\footnotesize	<small>footnotesize</small>		
\small	<small>small</small>	\huge	huge
\normalsize	<small>normalsize</small>		
\large	<small>large</small>	\Huge	Huge

Use: \small text or \huge text\par to limit the size change.
Example: \setkomafont{pageheadfoot}{\small}

E.5. Colors with xcolor

```
\usepackage{xcolor}
\definecolor{DarkBlue}{RGB}{0, 115, 207}
\colorlet{col.section}{DarkBlue}
\textcolor{red}{text in red} or {\color{red}text}
\colorbox{gray!25}{color gray faded by 25\%}
```

Predefined colors:
white gray black red green blue cyan magenta yellow
Fade a color with color!value between 0 and 100
Headings in color: \setkomafont{disposition}{\color{color}}

E.6. Footnotes

```
\footnote{text} Print footnote marker in text and footnote at bottom of page
\footnotemark Print footnote marker in text (e.g. within tabular or caption)
\footnotetext{text} Print footnote at bottom of page
```

E.7. References with hyperref (loads url implicitly)

```
\autocite{citekey} Cite a bibliographic reference (package biblatex)
\label{marker} Set a marker for cross reference, often if the form \label{sec:item} or \label{fig:diag1}
\autoref{marker} Give type name and number of marker
\autopageref{marker} Give abbreviation of "page" and page number of marker
\url{url} Print clickable web page
\href[options]{url}{text} Print clickable link
\hyperref[marker]{text} Print clickable reference
```

Style: \urlstyle{xx} with xx a style like "tt", "rm", "sf" or "same".
Names for autoref (package babel):
\renewcaptionname{language}{\typenameautorefname}{text},
e.g. \renewcaptionname{english}{\subsectionautorefname}{section}

E.8. Acronyms with acro

```
\usepackage{acro,hyperref,longtable,tabu} \next 5 to praeambel
\acsetup{list-style=longtabu,list-heading=addchap}
\DeclareAcroListStyle{longtabu}{table}{table=longtabu,
table-spec=@{}{\bfseries}\X@{}}
\DeclareAcronym{ecm}{short=EM,long=Electro Machining}
...
\ac{EM} or \Ac{EM} for capitalized first letter
\printacronyms
```

F. Figures & Tables (floating environments)

F.1. Figures with graphicx

Load: \usepackage{graphicx}
Use: \includegraphics[opt]{file} (png, jpg, pdf)
With 'figure' the environment to place a graphic is meant. The figure caption is printed where the caption command is placed in the input. Extra vertical space is controlled by the KOMAOption captions (see B.1).
Use: \begin{figure}[pos] ... \caption{..}\label{fig:x} \end{figure}
Parameter: pos is a suggestion for placing, it can be ignored by T_EX.
Possible values are combinations of t (top), h (here), b (bottom), ! (try harder), p (separate page).
Hint: Define a path to the graphic files (no blanks in folder names; no special characters in file names) \graphicspath{ {folder/}{folder/}... }

```
\graphicspath{ {img/} } %subfolder for images; set in preamble
\begin{figure}\centering
\includegraphics[width=.8\columnwidth]{pic.jpg}
\caption[Short title]{Long title}\label{fig:ff}
\end{figure}
```

- Numbering throughout the whole document (scrbook) with package chngcntr: \counterwithout{figure}{chapter} (same for table)
- Figure name: \renewcaptionname{language}{\figurename}{text}
\renewcaptionname{language}{\figureautorefname}{text}

```

\Load{usepackage}{subcaption}
\Use{\begin{subfigure}[pos]{width} ... \end{subfigure}}

\begin{figure}[ht] \centering
\begin{subfigure}[t]{0.5\textwidth}
\centering \includegraphics[height=1.2in]{figure-a}
\caption{Subcaption 1}\label{fig:SubFig1}\end{subfigure}
\begin{subfigure}[t]{0.5\textwidth}
\centering \includegraphics[height=1.2in]{figure-b}
\caption{Subcaption 2}\label{fig:SubFig2}\end{subfigure}
\caption{Caption of complete figure}\label{fig:Fig1}
\end{figure}

```

```
\KOMaoptions{captions=tableabove} % move to preamble
\begin{table}[htbp]\centering
\caption{Table caption}\label{tab:exp}
\begin{tabular}{@{}ll@{}}
\emph{Name} & \emph{Desc.}\XX \hline
tikz2pdf & Python script\X
\LaTeX & visual table editor
\end{tabular}
\end{table}
```

```
\usepackage[table]{xcolor} % move to praeambel
\rowcolors{1}{}{lightblue} % {start row}{odd-row}{even-row}
\begin{tabular}{clr} ... \end{tabular}
```

Load: `\usepackage{listings}`

Options: `\lstset{ basicstyle=\ttfamily\small, language=Python, numbers=left, keywordstyle=\color{blue}\bfseries }`

See option literature for Umlauts (literature={\~{a}}{\~{a}}{l})

Languages: C, C++, Java, Matlab, Python, HTML, XML, ...

Use: Environment: `\begin{lstlisting} code \end{lstlisting}`

In line: `\lstinline+code+` (same start- and end char)

File: `\lstinputlisting{filename}`

```

1 % Python selection
2 secret=42
3 guess=lstinput{other number: }
4 if guess=secret:
5     print ("You won!")
6 else if guess>secret:
7     print ("No, secret number bigger.")
8 else:
9     print ("No, secret number is smaller.")

```

Normal: `\parbox[pos]{height}{contentpos}{width}{text}` or
`\begin{minipage}[pos]{height}{contentpos}{width}text\end{minipage}`
 Lift Text: `\raisebox[lift]{height}{depth}{text}`
 Framed Box: `\fbox{text}` or `\framebox[width]{pos}{text}`
 Colored Box: `\colorbox{color}{backgroundcolor}{text}`
 Framed colored Box: `\colorbox{bordercolor}{backgroundcolor}{text}`
 Resize (graphicx): `\scalebox{10}{Giant}`
 Lengths: `\setlength{fboxsep}{unit}`, `\setlength{fboxrule}{unit}`

\arccos \arcsin \arctan \arg \cos \cosh \cot \coth \csc \deg \det
 \dim \exp \gcd \hom \inf \ker \lg \lim \liminf \limsup
 \ln \log \max \min \Pr \sec \sin \sinh \sup \tan \tanh

For other functions use (package `amsmath`): `\operatorname{<name>}`, e.g. `\operatorname{arcsinh}` (see also [J.2](#)).

$\begin{aligned} y &= d & z &= 1 \\ y(x) &= cx+d & z &= x+1 \\ y_{12} &= bx^2+cx & z &= x^2+x+1 \end{aligned}$	$y = d \qquad z = 1$ $y(x) = cx + d \qquad z = x + 1$ $y_{12} = bx^2 + cx \qquad z = x^2 + x + 1$
--	---

\mapsto	<code>\mapsto</code>	\rightsquigarrow	<code>\leadsto</code>
\rightarrow	<code>\rightarrow</code>	\Rightarrow	<code>\Rightarrow</code>
\longrightarrow	<code>\longrightarrow</code>	\Longrightarrow	<code>\Longrightarrow</code>
\leftarrow	<code>\leftarrow</code>	\Leftarrow	<code>\Leftarrow</code>
\longleftarrow	<code>\longleftarrow</code>	\Longleftarrow	<code>\Longleftarrow</code>
\Uparrow	<code>\Uparrow</code>	\Uparrow	<code>\Uparrow</code>
\Downarrow	<code>\Downarrow</code>	\downarrow	<code>\downarrow</code>
\leftrightarrow	<code>\leftrightarrow</code>	\Leftrightarrow	<code>\Leftrightarrow</code>
\rightrightarrows	<code>\rightrightarrows</code>	\rightleftarrows	<code>\rightleftarrows</code>
\leftrightharpoons	<code>\leftrightharpoons</code>	\rightleftharpoons	<code>\rightleftharpoons</code>

[illegible]

Load: \usepackage{sticky-per=true, per-mode=reciprocal}\siunitx
Options: \sisetup{output-decimal-markers={}, per-mode=symbol}
Use: \num{number}, \si{unit}, \SI{number}{unit}, \ang{deg;min;sec}

$7\,123\,456.7 \times 10^1$ \num{7123456.7e1}
 $4^{\circ}32'10''$ \ang{4;32;10}
 $[g] = \text{ms}^{-2}$ [g] = \si{meter\per\second\squared}
 $E = 1.3 \frac{\text{kJ}}{\text{mm}}$ E = \SI{1.3}{\kilo\volt\per\milli\meter}

SI units like \degreeCelsius, \henry; prefixes like \kilo, \exa.

Name	Source	Example	Use
hyphen	-	X-ray, in- and output	Connecting words
en-dash	--	1–5, Paris–Rome	Range or Toward
en-dash	--	Paris – except Rome	European dash
em-dash	---	Paris—except Rome	American dash

Load: `\usepackage[autostyle=true]{csquotes}`
 Use: `\enquote{text}` and `\foreignquote{language}{text}`
 available are all languages loaded with babel, nesting is possible;
 * variants provide inner nesting style.
 Exmp: "Some 'english'." / „Ein Deutscher Text“ / « parler français »

Rule: Use serif fonts for long body text and sans-serif for headings.
Hint: Load fonts with combined math fonts.
Example packages: `mathptmx` (Times), `mathpazo` (Palatino), `mathppl` (Palatino text, Euler math), `mathtime` (Times text, Belleek math).
Hint: Add `\KOMAoptions{DIV=last}` after loading a font package.

Numbers	Style	Use
old-style	1234567890	text, dates
lining	1234567890	math

British	American	European
27/06/17	06/27/17	27.6.2017
27 June, 2017	June 27, 2017	27. Juni 2017

International notation (ISO 8601): yyyy-mm-dd: 2017-06-27

Avoid spacing with fixed units like `\hspace{0.5cm}` use `\quad` or `\qquad` instead (see also [A.1](#)). **Spacing in math is almost always right!**

Math	Math/Text	Math/Text	Math/Text
<code>a b</code>	<code>ab</code>	<code>a\!b</code> <code>ab</code> <code>\!b</code>	<code>a\quad b</code> <code>a</code> <code>b</code>
<code>a>b</code>	<code>ab</code>	<code>a\,b</code> <code>a b</code> <code>a b</code>	<code>a\qquad b</code> <code>a</code> <code>b</code>

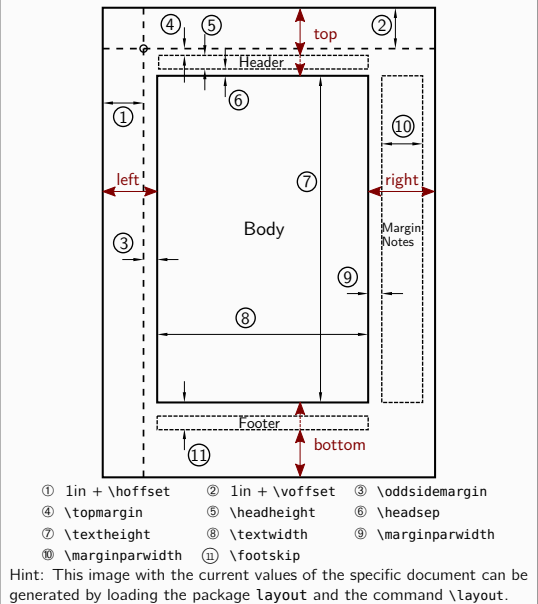
`\hspace{length}; * variant \hspace*{length}` space even at line start
 Use with care: ``

- Vertical space is only effective between paragraphs (see [E.1](#)).
- Avoid spacing with fixed units like `\vspace{0.5cm}` use rubber length like `\smallskip`, `\medskip` or `\bigskip` instead (see also [A.1](#))
- `\vspace{length}`; * variant `\vspace*{length}` space even at page start
- `\[unit]` (see [A.1](#))
- Use with care: `\vphantom{text}`

- Protected space between words: ~
- Prevent line breaking within text: `\mbox{text}`
- Prevent page breaks: `\nopagebreak[num]`, *num* between 1 and 4
- Cheat a bit on page size: `\enlargethispage{unit}` (see [A.1](#))

Penalties are the main values that TeX tries to minimise when line or page breaks are calculated.

<code>\linepenalty=10</code>	page break within a paragraph
<code>\hyphenpenalty=50</code>	line break at an automatic hyphen
<code>\binoppenalty=700</code>	line break at a binary operator
<code>\relpenalty=500</code>	line break at a relation
<code>\clubpenalty=150</code>	page break after first line of paragraph
<code>\widowpenalty=150</code>	page break before last line of paragraph
<code>\brokenpenalty=100</code>	page break after a hyphenated line
<code>\tolerance=200</code>	acceptable badness of lines after hyphenation



Hint: This image with the current values of the specific document can be generated by loading the package `layout` and the command `\layout`.

- `\newcommand` doesn't work if the command is already defined: so it's a completely new definition.
- `\renewcommand` works only if the command is already defined: it's a redefinition.
- `\providecommand` works like `\newcommand`, but if the command is already defined, the (re)definition is ignored.
- `\AtBeginDocument{commands}` can be helpful.

```

Define: \newcommand{\cmdname}{commands}
Exmp: \newcommand{\mytext}{Some text which I need very often.}
Exmp: \newcommand{\diff}{\mathop{\!'\!}\mathrm{\!'\!}\phantom{d}}
Params: #1... #9
Define: \newcommand[paramsquantity]{\cmdname}{cmds #1 ...}
Redefine: \renewcommand[paramsquantity]{\cmdname}{cmds #1 ...}
Copy: with \let\txmacro{\LetLtxMacro{\cmdcpyname}{\cmdname}}
Define: \DeclareMathOperator{name}{commands}
Exmp: \DeclareMathOperator{dirac}{\ensuremath{\delta}}
Exmp: \DeclareMathOperator{acrsinh}{\arcsinh}

```

```

Define: \newenvironment{envname}{cmds begin}{cmds end}
Params: #1 ... #9
Define: \newenvironment{envname}[paramsquantity]{cmds begin #1
...}{cmds end #2 ...}
Exmp: \newenvironment{colorpar}[1]{\color{#1}}{\normalcolor}
Use: \begin{colorpar}{violet} text \end{colorpar}

```

Counters: page, section, figure, equation; to get the formatted content of a counter add \the, e.g. \thepage
Lengths: \textwidth, \linewidth, \columnwidth, \parindent, \parskip
Change: \setlength, \addtolength

- \ensuremath, e.g. `\tx=...` defines `\tx`. by
`\newcommand{\tx}{\ensuremath{\tilde{x}}}`
- Look for `\Declare...` in package documentations.
- Packages: `etoolbox`, `xparse`, `xkeyval`, `calc`; see also `toctbasic`.

Forum	http://latex.org
Forum (German)	http://golatex.de http://texwelt.de
FAQ (German)	https://texfragen.de
PhD Thesis	https://www.dickimaw-books.com/latex/thesis
Math	https://meta.wikimedia.org/wiki/Help:Displaying_a_formula
Fonts	http://www.tug.dk/FontCatalogue
Symbols	https://ctan.org/pkg/comprehensive
Download (Software)	https://tug.org/texlive
CTAN (Packages)	https://ctan.org
IDEs	T_EXStudio (recommended) https://texstudio.sourceforge.net T_EXshop , T_EXworks , Kile , L^AT_EX , ...
TU Dresden CD	https://github.com/tud-cd/tudscr
Using L ^A T _E X Online	https://de.sharelatex.com https://www.overleaf.com
DANTE e.V.	https://www.dante.de

For all packages a documentation can be found with:
`texdoc package name` (or in the Help menu in IDEs)
 The documentation for KOMA-Script can be found with
`texdoc scguen` or `texdoc scrguide` (German)

acro	Acronyms, Glossary
amsmath,amssymb	Math extended, Math symbols extended
babel	Language depend issues
biblatex	Bibliography
booktabs	Rules in tabular
csquotes	Quotations esp. in bibliography
enumitem	Lists extended
float	Suppress floating, needs scrhack
fontenc,inputenc	Font encoding, input encoding
geometry	Page layout, e.g. size
graphicx	Graphics
hyperref	Hyperlinks
listings	Source code listings, needs scrhack sometimes
longtable	Tables longer than a page
microtype	Optical margin alignment
multicols	Multiple columns extended
pdfpages	Including PDF pages
scrlayer-scrpage	Page layout, e.g. headings, watermarking
setspace	Control line spread, needs scrhack sometimes
scrhack	Avoid warnings from float, listings, setspace
subcaption	Multiple figures with multiple captions
textcomp	Text symbols extended
tabularx tabulary	Tabular extended
upgreek	Upright greek symbols
wrapfig floatftl	Graphic surrounded by text
xcolor	Color

```
% thesis.tex
\documentclass[fontsize=12pt,paper=a4,open=any,parskip=half,
  twoside=false,toc=listof,toc=bibliography,fleqn,leqno,
  captions=noneline,captions=tableabove,british]{scrbook}
\usepackage[utf8]{inputenc} % load early
\usepackage[T1]{fontenc} % load early
\usepackage[ngerman,main=british]{babel}
\usepackage[autostyle=true]{csquotes}
\usepackage{graphicx,booktabs,float,scrhack}
\usepackage{amsmath,amssymb}
\usepackage{automark}[scrclayer=scrpage]
\usepackage[backend=biber,style=verbose,sortcase=false,
  language=british]{biblatex}
\addbibresource{thesis.bib}
\PassOptionsToPackage{hyphens}{url}
\usepackage[hidelinks]{hyperref} % load late
\setkomafont{disposition}{\sffamily\color{gray!70}}
\begin{document}
\frontmatter % only if you need page numbering roman
\titlehead{\hfill\includegraphics[width=2cm]{logo}}
\title{My Title} \subtitle{My Subtitle} \author{N.,N.} \date{}
\maketitle
\tableofcontents \listoffigures \listoftables

\mainmatter % page numbering arabic, starting by 1 again
\chapter{Intro}[Introduction]\label{sec:intro}
\section{Technical introduction}\label{sec:tecintro}
\subsection{Heading without number}
Some text in \textbf{bold}, some more text.
Some text in \emph{emph}, more text.
And now some text in German language
\foreignlanguage{ngerman}{Hier kommt eine Formel:} \((2+2=5)\)

A new paragraph, viz. a new idea, a new thought.


\subsection{Heading lower level}\label{sec:headingLL}
More text \emph{emphasized} text.\autocite{WC:2017}
\begin{table}[htp]
\caption{Table caption}\label{tab:table}
\begin{tabular}{l@{\quad}cr} \toprule
  Head & Head & Head \\ \midrule
  Data & first & Row \\
  Data & second & Row \\ \bottomrule
\end{tabular}
\end{table}

\chapter{Method}\label{sec:ana}
Some text, see \autoref{tab:table} for aligned material.

L'Hôpital's rule:
\begin{equation}
\lim_{x\rightarrow 0}\{\frac{e^x-1}{2x}\}
\overset{\{\left\{\frac{0}{0}\right\}\}}{\underset{\{\mathrm{H}\}}{=}}
\lim_{x\rightarrow 0}\{\frac{e^x}{2}\}=\{\frac{1}{2}\}
\end{equation}
\label{eq:Lhopital}
\newpage
More text. A \enquote{quote} and a \foreignquote{ngerman}{Zitat}.

\appendix % headings numbered with letters
\chapter{Appendix}\label{sec:app}
\begin{figure}[H]
\KOMAOptions{captions=centeredbeside}
\begin{captionbeside}%
[Example of a caption centeredbeside]%
[Example of a caption beside the figure]
[0] % position left/right/inner/outer
[\linewidth] % width of figure+caption
[0.in] % offset from left side
\framebox{\begin{minipage}[t]{3cm}[c]{0.5\textwidth}
\begin{center} A BOX\end{center}\end{minipage}}
\end{captionbeside}\label{fig:cbeside}\end{figure}
\printbibliography
\end{document}

# thesis.bib
@misc{WC:2017,
  author = {Wikipedia},
  title = {\TeX}---Wikipedia,{ }The Free Encyclopedia},
  note = {\url{https://en.wikipedia.org/wiki/TeX}},
  last referenced 24-June-2017
}
```

<div></div> <div><div>My Title</div><div>My Subtitle</div><div>N.N.</div></div>	<div>Contents</div> <div><div>List of Figures</div><div>List of Tables</div><div>1. Intro</div><div>1.1. Technical introduction</div><div>1.1.1. Heading lower level</div><div>2. Method</div><div>A. Appendix</div><div>Bibliography</div></div> <div><div>iii</div><div>iv</div><div>1</div><div>1</div><div>1</div><div>2</div><div>4</div><div>5</div></div>	<div>List of Figures</div> <div><div>A.1. Example of a caption centeredbeside</div></div> <div><div>4</div></div>	<div>List of Tables</div> <div><div>1.1. Table caption</div></div> <div><div>1</div></div>	<div>1. Introduction</div> <div><div>1.1. Technical introduction</div></div> <div>Heading without number</div> <div>Some text in bold, some more text. Some text in <i>emph</i>, more text. And now some text in German language Hier kommt eine Formel: $2 + 2 = 5$</div> <div>A new paragraph, viz. a new idea, a new thought.</div> <div><div>1.1.1. Heading lower level</div></div> <div>More text <i>emphasized</i> text.¹</div> <div>Table 1.1.: Table caption</div> <div><table><tr><th>Head</th><th>Head</th><th>Head</th></tr><tr><td>Data</td><td>first</td><td>Row</td></tr><tr><td>Data</td><td>second</td><td>Row</td></tr></table></div> <div><div>¹Wikipedia. TeX - Wikipedia, The Free Encyclopedia. https://en.wikipedia.org/wiki/TeX, last referenced 24-June-2017.</div><div>1</div></div>	Head	Head	Head	Data	first	Row	Data	second	Row
Head	Head	Head											
Data	first	Row											
Data	second	Row											
<div>2. Method</div> <div>Some text, see Table 1.1 for aligned material.</div> <div>L'Hopital's rule:</div> <div>(2.1) $\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} = \lim_{x \rightarrow 0} \frac{\frac{1}{e^x}}{2} = \frac{1}{2}$</div> <div><div>2</div></div>	<div>2. Method</div> <div>More text. A "quote" and a „Zitat“.</div> <div><div>ii</div></div>	<div>A. Appendix</div> <div><div>A BOX</div></div> <div>Figure A.1.: Example of a caption beside the figure</div> <div><div>iii</div></div>	<div>Bibliography</div> <div>Wikipedia. TeX - Wikipedia, The Free Encyclopedia. https://en.wikipedia.org/wiki/TeX, last referenced 24-June-2017.</div> <div><div>iv</div></div>	<div>License</div> <div>Reference Sheet, Version 1.2, August 2017</div> <div>This Cheat Sheet is free under the terms and conditions of the L^AT_EX Project Public License Version 1.3c.</div> <div>Authors: Marion Lammarsch, University of Heidelberg, and Elke Schubert, Stutenrose</div> <div>Credit for the layout and content ideas goes to</div> <div>(a) Emanuel Regnath, "L^AT_EX Cheat Sheet" L^AT_EX 2_ε 2013 http://www.latex4ei.de/downloads/LaTeX_CheatSheet.pdf</div> <div>(b) Tanno Schwidh, DHBW Mosbach, "L^AT_EX Cheat Sheet German", Ed. 2014 http://mirror.ctan.org/tex-archive/info/latexcheat/latexcheat-de/</div> <div>The logo with the TeX lion is sketched by Dwayne Hilby, https://mirror.ctan.org/1306/t1306; the graphic of a header of a page is from the KOMA-Script documentation, file scrlayer-scrpage.tex; the page layout image is done by using the package layout and the command \layout and the red lines and red text added with a graphics program.</div> <div>Acknowledgements</div> <div>We would like to thank Markus Kohn, Ulrike Fischer, Martin Sievers, and Herbert Voß for their useful hints and suggestions.</div> <div>Not naming all the female and male students which with their intrigued questions helped to improve this reference sheet.</div> <div><div>5</div></div>									