



NOME DA INSTITUIÇÃO  
NOME DO CENTRO/INSTITUTO/FACULDADE  
PROGRAMA DE PÓS-GRADUAÇÃO RESPONSÁVEL

NOME DA AUTORA

TÍTULO DO TRABALHO

CIDADE – UF  
2025

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TÍTULO DO TRABALHO

Dissertação apresentada ao Programa de Pós-Graduação Responsável como requisito parcial para a obtenção do grau de Mestra Área de concentração.

Orientador: Prof. Dr. Nome do orientador

CIDADE – UF  
2025

Autor(a), Nome do(a)

Título do trabalho / Nome do(a) Autor(a) -- 2021.  
100f.

TCC (Graduação) - Universidade Federal de São Carlos,  
campus São Carlos, São Carlos  
Orientador (a): Nome do Orientador(a)  
Banca Examinadora: Orientador, Membro da Comissão  
Examinadora I, Membro da Comissão Examinadora II  
Bibliografia

1. Assunto ou Palavra-chave I. 2. Assunto ou Palavra-  
chave II. 3. Assunto ou Palavra-chave III. I. Autor(a),  
Nome do(a). II. Título.

Ficha catalográfica desenvolvida pela Secretaria Geral de Informática  
(SIn)

DADOS FORNECIDOS PELO AUTOR

Bibliotecário responsável:



**UNIVERSIDADE FEDERAL DE SÃO CARLOS**

Centro de Ciências Exatas e de Tecnologia  
Programa de Pós-Graduação em

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**Folha de Aprovação**

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Defesa de Dissertação de Mestrado do candidato , realizada em

**Comissão Julgadora:**

Prof. Dr.  (UFSCar)

Profa. Dra.

Prof. Dr.  (UFSCar)

MODELO

O presente trabalho foi realizado com apoio da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Código de Financiamento 001.

O Relatório de Defesa assinado pelos membros da Comissão Julgadora encontra-se arquivado junto ao Programa de Pós-Graduação em Ensino de Ciências Exatas.

*A dedicatória é um elemento OPCIONAL em que o autor presta homenagem ou dedica seu trabalho.*

## **AGRADECIMENTOS**

É um elemento OPCIONAL em que o autor faz agradecimentos aos que contribuíram de maneira relevante à elaboração do trabalho.

*Epígrafe é um elemento OPCIONAL*  
*Demonstração: Evidente*  
**Elon Lages Lima** ([Lima](#), 1976, p. 154).

## **RESUMO**

Elemento OBRIGATÓRIO, deve apresentar os pontos relevantes do texto, de forma concisa e que permita uma visão rápida e clara do conteúdo e das conclusões do trabalho. Indica-se que o resumo tenha no máximo 500 palavras e deve ser elaborado de acordo com ABNT NBR 6028/2003. Deve ser escrito em um único parágrafo, sem subdivisões e sem recuo de parágrafo. Abaixo do resumo devem ser colocadas as palavras-chave. A indicação Palavra-chave deve ser em negrito seguida de dois pontos e espaço. Cada palavra deve ser separada uma da outra por ponto final.

**Palavras-chave:** Chave 1. Chave 2. Chave 3.



## **ABSTRACT**

Version of the abstract in another language for international dissemination. Prepare the abstract in a foreign language accordingly with ABNT NBR 6028/2003. Below the abstract the keywords must be placed. The indication **Keywords** must be in bold followed by a colon and space. Each word must be separated from each other by a period.

**Keywords:** Key 1. Key 2. Key 3.

## **LISTA DE FIGURAS**

## **LISTA DE TABELAS**

## **LISTA DE QUADROS**

## LISTA DE SIGLAS

**BNCC** Base Nacional Comum Curricular

## SUMÁRIO

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## 1 INTRODUÇÃO

Por exemplo, utilizando o acrônimo Base Nacional Comum Curricular (**BNCC**) pela primeira vez no seu documento. A partir desse momento, sempre teremos **BNCC** no documento.

## **2 DESENVOLVIMENTO**



### 3 CONSIDERAÇÕES FINAIS

“Demonstração: Evidente” ([Lima, 1976](#), p. 154).

Para a citação como sujeito da frase: [Morais Filho \(2018\)](#) faz diversas considerações sobre a boa redação matemática.

## REFERÊNCIAS

LIMA, Elon Lages. **Curso de Análise - Volume 1**. 4. ed. Rio de Janeiro: Instituto de Matemática Pura e Aplicada, 1976. (Projeto Euclides). Citado nas pp. [5](#), [15](#).

MORAIS FILHO, Daniel Cordeiro de. **Manual de Redação Matemática**. 2. ed. Rio de Janeiro: SBM, 2018. (Coleção do Professor de Matemática). Citado na p. [15](#).

## **APÊNDICE A – TÍTULO DO APÊNDICE**

### **A.1 SEÇÕES DO APÊNDICE**

# $\LaTeX$ 2 $\epsilon$ Cheat Sheet

## Document classes

**book** Default is two-sided.  
**report** No `\part` divisions.  
**article** No `\part` or `\chapter` divisions.  
**letter** Letter (?).  
**slides** Large sans-serif font.  
 Used at the very beginning of a document:  
`\documentclass{class}`. Use `\begin{document}` to start  
 contents and `\end{document}` to end the document.

## Common documentclass options

**10pt/11pt/12pt** Font size.  
**letterpaper/a4paper** Paper size.  
**twocolumn** Use two columns.  
**twoside** Set margins for two-sided.  
**landscape** Landscape orientation. Must use `dvips`  
`-t landscape`.  
**draft** Double-space lines.  
 Usage: `\documentclass[opt, opt]{class}`.

## Packages

**fullpage** Use 1 inch margins.  
**ansysize** Set margins: `\marginsize{l}{r}{t}{b}`.  
**multicol** Use  $n$  columns: `\begin{multicols}{n}`.  
**latsym** Use  $\LaTeX$  symbol font.  
**graphicx** Show image: `\includegraphics[width= $x$ ]{file}`.  
**url** Insert URL: `\url{http://...}`.  
 Use before `\begin{document}`. Usage: `\usepackage{package}`

## Title

`\author{text}` Author of document.  
`\title{text}` Title of document.  
`\date{text}` Date.  
 These commands go before `\begin{document}`. The  
 declaration `\maketitle` goes at the top of the document.

## Miscellaneous

`\pagestyle{empty}` Empty header, footer and no page num-  
 bers.  
`\tableofcontents` Add a table of contents here.

## Document structure

`\part{title}` `\subsubsection{title}`  
`\chapter{title}` `\paragraph{title}`  
`\section{title}` `\subparagraph{title}`  
`\subsection{title}`  
 Use `\setcounter{secnumdepth}{ $x$ }` suppresses heading  
 numbers of depth  $> x$ , where `chapter` has depth 0. Use a  $*$ , as  
 in `\section*{title}`, to not number a particular item—these  
 items will also not appear in the table of contents.

## Text environments

`\begin{comment}` Comment (not printed). Requires `verbatim`  
 package.  
`\begin{quote}` Indented quotation block.  
`\begin{quotation}` Like `quote` with indented paragraphs.  
`\begin{verse}` Quotation block for verse.

## Lists

`\begin{enumerate}` Numbered list.  
`\begin{itemize}` Bulleted list.  
`\begin{description}` Description list.  
`\item text` Add an item.  
`\item[ $x$ ] text` Use  $x$  instead of normal bullet or number.  
 Required for descriptions.

## References

`\label{marker}` Set a marker for cross-reference, often of the  
 form `\label{sec:item}`.  
`\ref{marker}` Give section/body number of marker.  
`\pageref{marker}` Give page number of marker.  
`\footnote{text}` Print footnote at bottom of page.

## Floating bodies

`\begin{table}[place]` Add numbered table.  
`\begin{figure}[place]` Add numbered figure.  
`\begin{equation}[place]` Add numbered equation.  
`\caption{text}` Caption for the body.  
 The *place* is a list valid placements for the body. `t=top`,  
`b=here`, `b=bottom`, `p=separate page`, `!=place even if ugly`.  
 Captions and label markers should be within the environment.

## Text properties

### Font face

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

The command `(tttt)` form handles spacing better than the  
 declaration `(tttt)` form.

### Font size

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

These are declarations and should be used in the form `\small`  
`...`, or without braces to affect the entire document.

### Verbatim text

`\begin{verbatim}` Verbatim environment.  
`\begin{verbatim*}` Spaces are shown as `␣`.  
`\verb!text!` Text between the delimiting characters (in  
 this case ‘!’) is verbatim.

## Justification

Environment	Declaration
<code>\begin{center}</code>	<code>\centering</code>
<code>\begin{flushleft}</code>	<code>\raggedright</code>
<code>\begin{flushright}</code>	<code>\raggedleft</code>

## Miscellaneous

`\linespread{ $x$ }` changes the line spacing by the multiplier  $x$ .

## Text-mode symbols

### Symbols

<code>&amp;</code>	<code>\&amp;</code>	<code>~</code>	<code>\_</code>	<code>...</code>	<code>\ldots</code>	<code>•</code>	<code>\textbullet</code>
<code>\$</code>	<code>\\$</code>	<code>^</code>	<code>\^{}{}</code>	<code> </code>	<code>\textbar</code>	<code>\</code>	<code>\textbackslash</code>
<code>%</code>	<code>\%</code>	<code>~</code>	<code>\~{}{}</code>	<code>#</code>	<code>\#</code>	<code>§</code>	<code>\S</code>

### Accents

<code>ô \’o</code>	<code>ó \’o</code>	<code>ô \’o</code>	<code>õ \’o</code>	<code>ö \’o</code>
<code>ó \’o</code>	<code>ö \’o</code>	<code>q \’c o</code>	<code>ö \’v o</code>	<code>ö \’H o</code>
<code>ç \’c c</code>	<code>q \’d o</code>	<code>q \’b o</code>	<code>ö \’t oo</code>	<code>œ \’oe</code>
<code>Œ \’OE</code>	<code>æ \’ae</code>	<code>Æ \’AE</code>	<code>ä \’aa</code>	<code>Å \’AA</code>
<code>ø \’o</code>	<code>Ø \’O</code>	<code>ı \’l</code>	<code>Ł \’L</code>	<code>ı \’i</code>
<code>ı \’j</code>	<code>ı \’ı</code>	<code>ı \’ı</code>	<code>ı \’ı</code>	<code>ı \’ı</code>

### Delimiters

<code>‘</code>	<code>“</code>	<code>‘</code>	<code>{ \</code>	<code>[</code>	<code>(</code>	<code>&lt;</code>	<code>\textless</code>
<code>’</code>	<code>”</code>	<code>’</code>	<code>} \</code>	<code>]</code>	<code>)</code>	<code>&gt;</code>	<code>\textgreater</code>

### Dashes

Name	Source	Example	Usage
hyphen	-	X-ray	In words.
en-dash	--	1–5	Between numbers.
em-dash	---	Yes—or no?	Punctuation.

### Line and page breaks

`\` Begin new line without new paragraph.  
`\*` Prohibit pagebreak after linebreak.  
`\kill` Don't print current line.  
`\pagebreak` Start new page.  
`\noindent` Do not indent current line.

### Miscellaneous

`\today` March 28, 2017.  
`\sim$` Prints `~` instead of `\~{}{}`, which makes `~`.  
`~` Space, disallow linebreak (W.J.~Clinton).  
`@.` Indicate that the `.` ends a sentence when following  
 an uppercase letter.  
`\hspace{l}` Horizontal space of length  $l$  (Ex:  $l = 20\text{pt}$ ).  
`\vspace{l}` Vertical space of length  $l$ .  
`\rule{w}{h}` Line of width  $w$  and height  $h$ .

## Tabular environments

### tabbing environment

`\=` Set tab stop. `\>` Go to tab stop.  
 Tab stops can be set on “invisible” lines with `\kill` at the end  
 of the line. Normally `\` is used to separate lines.

## tabular environment

```
\begin{array}[pos]{cols}
\begin{tabular}[pos]{cols}
\begin{tabular*}{width}[pos]{cols}
```

## tabular column specification

```
l      Left-justified column.
c      Centered column.
r      Right-justified column.
p{width} Same as \parbox[t]{width}.
@{decl} Insert decl instead of inter-column space.
|      Inserts a vertical line between columns.
```

## tabular elements

```
\hline      Horizontal line between rows.
\cline{x-y} Horizontal line across columns x through y.
\multicolumn{n}{cols}{text}
      A cell that spans n columns, with cols column
      specification.
```

## Math mode

For inline math, use  $\backslash(. . . \backslash)$  or  $\backslash$. . . $$ . For displayed math, use  $\backslash[. . . \backslash]$  or  $\backslashbegin{equation}$ .

Superscript <sup>x</sup>	$\backslash^{\{x\}}$	Subscript <sub>x</sub>	$\backslash_{\{x\}}$
$\frac{x}{y}$	$\backslashfrac{\{x\}\{y\}}$	$\sum_{k=1}^n$	$\backslashsum_{\{k=1\}}^n$
$\sqrt[n]{x}$	$\backslashsqrt[n]{\{x\}}$	$\prod_{k=1}^n$	$\backslashprod_{\{k=1\}}^n$

## Math-mode symbols

$\leq$	$\backslashleq$	$\geq$	$\backslashgeq$	$\neq$	$\backslashneq$	$\approx$	$\backslashapprox$
$\times$	$\backslashtimes$	$\div$	$\backslashdiv$	$\pm$	$\backslashpm$	$\cdot$	$\backslashcdot$
$\circ$	$\backslashcirc$	$\circ$	$\backslashcirc$	$\prime$	$\backslashprime$	$\cdots$	$\backslashcdots$
$\infty$	$\backslashinfty$	$\neg$	$\backslashneg$	$\wedge$	$\backslashwedge$	$\vee$	$\backslashvee$
$\supset$	$\backslashsupset$	$\forall$	$\backslashforall$	$\in$	$\backslashin$	$\rightarrow$	$\backslashrightarrow$
$\subset$	$\backslashsubset$	$\exists$	$\backslashexists$	$\notin$	$\backslashnotin$	$\Rightarrow$	$\backslashRightarrow$
$\cup$	$\backslashcup$	$\cap$	$\backslashcap$	$ $	$\backslashmid$	$\Leftrightarrow$	$\backslashLeftrightarrow$
$\dot{a}$	$\backslashdot{a}$	$\hat{a}$	$\backslashhat{a}$	$\bar{a}$	$\backslashbar{a}$	$\tilde{a}$	$\backslashtilde{a}$
$\alpha$	$\backslashalpha$	$\beta$	$\backslashbeta$	$\gamma$	$\backslashgamma$	$\delta$	$\backslashdelta$
$\epsilon$	$\backslashepsilon$	$\zeta$	$\backslashzeta$	$\eta$	$\backslasheta$	$\varepsilon$	$\backslashvarepsilon$
$\theta$	$\backslashtheta$	$\iota$	$\backslashiota$	$\kappa$	$\backslashkappa$	$\vartheta$	$\backslashvartheta$
$\lambda$	$\backslashlambda$	$\mu$	$\backslashmu$	$\nu$	$\backslashnu$	$\xi$	$\backslashxi$
$\pi$	$\backslashpi$	$\rho$	$\backslashrho$	$\sigma$	$\backslashsigma$	$\tau$	$\backslashtau$
$\upsilon$	$\backslashupsilon$	$\phi$	$\backslashphi$	$\chi$	$\backslashchi$	$\psi$	$\backslashpsi$
$\omega$	$\backslashomega$	$\Gamma$	$\backslashGamma$	$\Delta$	$\backslashDelta$	$\Theta$	$\backslashTheta$
$\Lambda$	$\backslashLambda$	$\Xi$	$\backslashXi$	$\Pi$	$\backslashPi$	$\Sigma$	$\backslashSigma$
$\Upsilon$	$\backslashUpsilon$	$\Phi$	$\backslashPhi$	$\Psi$	$\backslashPsi$	$\Omega$	$\backslashOmega$

## Bibliography and citations

When using BibTeX, you need to run latex, bibtex, and latex twice more to resolve dependencies.

## Citation types

```
\cite{key}      Full author list and year. (Watson and Crick
1953)
\citeA{key}     Full author list. (Watson and Crick)
\citeN{key}     Full author list and year. Watson and Crick
(1953)
\shortcite{key} Abbreviated author list and year. ?
\shortciteA{key} Abbreviated author list. ?
\shortciteN{key} Abbreviated author list and year. ?
\citeyear{key}  Cite year only. (1953)
All the above have an NP variant without parentheses; Ex.
\citeNP.
```

## BibTeX entry types

```
@article      Journal or magazine article.
@book         Book with publisher.
@booklet      Book without publisher.
@conference   Article in conference proceedings.
@inbook       A part of a book and/or range of pages.
@incollection A part of book with its own title.
@misc         If nothing else fits.
@phdthesis    PhD. thesis.
@proceedings  Proceedings of a conference.
@techreport   Tech report, usually numbered in series.
@unpublished  Unpublished.
```

## BibTeX fields

```
address       Address of publisher. Not necessary for major
publishers.
author        Names of authors, of format ....
booktitle     Title of book when part of it is cited.
chapter       Chapter or section number.
edition       Edition of a book.
editor        Names of editors.
institution    Sponsoring institution of tech. report.
journal       Journal name.
key           Used for cross ref. when no author.
month         Month published. Use 3-letter abbreviation.
note          Any additional information.
number        Number of journal or magazine.
organization  Organization that sponsors a conference.
pages         Page range (2,6,9--12).
publisher     Publisher's name.
school        Name of school (for thesis).
series        Name of series of books.
title         Title of work.
type          Type of tech. report, ex. "Research Note".
volume        Volume of a journal or book.
year          Year of publication.
```

Not all fields need to be filled. See example below.

## Common BibTeX style files

abbrv	Standard	abstract	alpha with abstract
apa	Standard	apa	APA
plain	Standard	unsrt	Unsorted

The L<sup>A</sup>T<sub>E</sub>X document should have the following two lines just before  $\backslashend{\document}$ , where bibfile.bib is the name of the BibTeX file.

```
\bibliographystyle{plain}
\bibliography{bibfile}
```

## BibTeX example

The BibTeX database goes in a file called file.bib, which is processed with bibtex file.

```
@String{N = {Na\~{t}ure}}
@Article{WC:1953,
  author = {James Watson and Francis Crick},
  title = {A structure for Deoxyribose Nucleic Acid},
  journal = N,
  volume = {171},
  pages = {737},
  year = 1953
}
```

## Sample L<sup>A</sup>T<sub>E</sub>X document

```
\documentclass[11pt]{article}
\usepackage{fullpage}
\title{Template}
\author{Name}
\begin{document}
\maketitle

\section{section}
\subsection*{subsection without number}
text \textbf{bold text} text. Some math:  $\$2+2=5\$$ 
\subsection{subsection}
text \emph{emphasized text} text. \cite{WC:1953}
discovered the structure of DNA.
```

```
A table:
\begin{table}[!th]
\begin{tabular}{|l|c|r|}
\hline
first & row & data \\
second & row & data \\
\hline
\end{tabular}
\caption{This is the caption}
\label{ex:table}
\end{table}
```

The table is numbered  $\backslashref{ex:table}$ .  
 $\backslashend{\document}$

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<http://wch.github.io/latexsheet/>

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