LaTeX Style File Cheat Sheet

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1. Distributions

Bernoulli	\Bernoulli	$Bern$
Binomial	\Binomial	Bin
Geometric	\Geometric	$\mathcal{G}$eom
Hypergeometric	\Hypergeometric	$\mathcal{H}$
Negative Binomial	\NegBin	$NegBin$
Poisson	\Poisson	$\mathcal{P}$
Uniform	\Uniform	$\mathcal{U}$
Exponential	\Exponential	$\mathcal{E}xp$
Gamma	\GAMMA	GAM
Chi-square	\chi\^2	χ^2
Normal	\Normal	$\mathcal{N}$
"is distributed as"	\dist	$\sim$
"independently distributed"	\ind	$\overset{\text{ind}}{\sim}$
"independent and identically distributed"	\iid	$\overset{\text{iid}}{\sim}$
"approximately distributed as"	\adist	$\dot{\sim}$
"not distributed as"	\ndist	$\nsim$

2. Statistical Symbols

X-bar	\Xbar	$\overline{X}$
x-bar	\xbar	$\overline{x}$
Y-bar	\Ybar	$\overline{Y}$
y-bar	\ybar	$\overline{y}$
Z-bar	\Zbar	$\overline{Z}$
z-bar	\zbar	$\overline{z}$
the-bar	\overline{the}	$\overline{\text{the}}$
X-tilde	\Xtilde	$\widetilde{X}$
x-tilde	\xtilde	$\widetilde{x}$
Y-tilde	\Ytilde	$\widetilde{Y}$
y-tilde	\ytilde	$\widetilde{y}$
the-tilde	\widetilde{the}	$\widetilde{\text{the}}$

3. More Statistical Symbols

expected value	\E{X}	$\mathbb{E}\left[X\right]$
variance	\V{X}	$\mathbb{V}\left[X\right]$
probability	\PR{X=x}	$\mathbb{P}\left[X = x\right]$
covariance	\cov{X, Y}	$\mathbb{C}ov\left[X, Y\right]$
correlation	\cor{X, Y}	$\mathbb{C}or\left[X, Y\right]$
indicator function	\1{X=x}	$\mathbb{1}_{\{X=x\}}$
covariance matrix	\oldSigma	$\boldsymbol{\varSigma}$
Euler's number	\e	e
likelihood function	\likely	$\mathcal{L}$
log-likelihood function	\lnlikely	l

4. Greek Letters

alpha	\alpha	α	A	A
beta	\beta	β	B	B
gamma	\gamma	γ	\Gamma	Γ
delta	\delta	δ	\Delta	Δ
epsilon	\eps	ε	E	E
chi	\chi	χ	X	X
sigma	\sigma	σ	\Sigma	Σ
omega	\omega	ω	\Omega	Ω

5. Mathematical Symbols

superscript	x^2	x^2
subscript	x_i	x_i
summation	\sum_{i=1}^{n}	$\sum_{i=1}^{n}$
integration	\int_0^\infty	$\int_0^\infty$
	\int_0^\infty x^3 \D{x}	$\int_0^\infty x^3 \, \mathrm{d}x$
product	\prod_{i=1}^{n}	$\prod_{i=1}^{n}$
matrix	\mat{B}	$\mathbf{B}$
transpose	\mat{A}^\intercal	$\mathbf{A}^\intercal$
	\mat{A}^\prime	$\mathbf{A}^\prime$
determinant	\det (\mat{A})	$\det(\mathbf{A})$
	\left| \mat{A} \right|	$\left\|\mathbf{A}\right\|$
trace	\trace (\mat{A} + \mat{B})	$\mathrm{tr}\left(\mathbf{A} + \mathbf{B}\right)$

Here is how to typeset the vector $\mathbf{j}_4$:

$$\mathbf{j}_4 = \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}$$

```
\mat{j}_4 = \left[ \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ \end{array} \right]
```

Here is how to typeset the matrix $\mathbf{J}_4$:

$$\mathbf{J}_4 = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix}$$

```
\mat{J}_4 = \left[
  \begin{array}{cccc}
    1&1&1&1 \\
    1&1&1&1 \\
    1&1&1&1 \\
    1&1&1&1 \\
  \end{array}
  \right]
```

The white-space does not matter. White-space includes spaces, tabs, and carriage-returns.

Here is how to create an ugly table:

row1 col1	r1c2	r1c3
r2c1	r2c2	r2c3
r3c1	r3c2	r3c3

```
\begin{center}
\begin{tabular}{l|cr||}
  \hline
row1 col1 & r1c2 & r1c3 \\
  \cline{2-3}
r2c1 & r2c2 & r2c3 \\
  \cline{1-2}
r3c1 & r3c2 & r3c3 \\
  \hline
\end{tabular}
\end{center}
```

7. Smart Grouping Symbols

dumb	(\frac{x}{y})	$(\frac{x}{y})$
smart	\left(\frac{x}{y} \right)	$\left(\frac{x}{y}\right)$
dumb	[\frac{x}{y}]	$[\frac{x}{y}]$
smart	\left[\frac{x}{y} \right]	$\left[\frac{x}{y}\right]$
floor	\lfloor \frac{x}{y} \rfloor	$\lfloor \frac{x}{y} \rfloor$
ceiling	\ceil \frac{x}{y} \rceil	$\lceil \frac{x}{y} \rceil$

In addition to the left and right, you can also manually specify sizes. The sizes are big, Big, Bigg, and Bigg:

big	\big(a\wedge 7 \big)	$\big(a^7\big)$
Big	\Big(a\wedge 7 \Big)	$\Big(a^7\Big)$
Bigg	\Bigg(a\wedge 7 \Bigg)	$\Bigg(a^7\Bigg)$
big	\big[a\wedge 7 \big]	$\big[a^7\big]$
Big	\Big\{ a\wedge 7 \Big\}	$\Big\{a^7\Big\}$
Bigg	\Bigg\{ a\wedge 7 \Bigg.	$\Bigg\{a^7$

8. LaTeX Environments

theorem	\begin{lemma}	\end{lemma}
theorem	\begin{theorem}	\end{theorem}
proof	\begin{proof}	\end{proof}
align	\begin{align}	\end{align}

There are many, many, many, many other symbols available in LaTeX. Some require additional packages. Here are a couple lists of the main symbols available:

– List of LaTeXSymbols

– The Great, Big List of LaTeXSymbols

9. Other Things

To start a new page, use

```
\clearpage
```

To suppress an indent, use

```
\noindent
```

To include vertical space, use

```
\vspace{2em}
```

or something larger than just 2em.

To include R code, copy-paste it between

```
\begin{codein}
```

and

```
\end{codein}
```

To include comments in your LaTeX source, use one or more % at the start of the line

```
% This is a comment that will not be printed to the pdf
```