

LaTeX

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Tabularx

- **Standard column specifiers (from tabular):** These work in any tabular or tabularx environment:

Specifier	Alignment	Text wrapping	Notes
l	Left-aligned	No	Each cell fits content width; text doesn't wrap.
c	Centered	No	Centered horizontally; fixed to content width.
r	Right-aligned	No	Good for numbers.
p{width}	Paragraph column	Yes	Fixed width; text wraps automatically.
m{width}	Paragraph column (vertically centered)	Yes	Requires array package.
b{width}	Paragraph column (bottom-aligned)	Yes	Requires array package.

- **tabularx-specific specifiers:** The tabularx package adds the magic column type:

Specifier	Alignment	Text wrapping	Description
X	Justified (like p{})	Yes	Automatically expands or shrinks to make the table fit the specified total width.

You can think of X as a “flexible” version of p. The table width (e.g., `\textwidth`) is distributed among all X columns proportionally.

```
\begin{tabularx}{\textwidth}{1 X 1}
```

- **Modifiers:**

Syntax	Meaning	Example
@{text}	Inserts custom text or spacing between columns	@{\hspace{1em}} or @{-}
@{}	Removes default inter-column space	@{ } X @{ }
>{declaration}	Applies a LaTeX command at the start of each cell in that column	>{\centering\arraybackslash}p{3cm}
<{declaration}	Applies a command at the end of each cell	<{\hfill}

Booktabs

- **Booktabs:** booktabs is a LaTeX package that improves table appearance by providing better horizontal rules (lines) and proper spacing — making tables look like those in professional books and journals (hence the name booktabs).

It replaces the default `\hline`-based style with commands that give you clean, typographically correct tables.

Command	Purpose	Typical Use
<code>\toprule</code>	Thick top line	Start of table
<code>\midrule</code>	Medium line	Between header and body
<code>\bottomrule</code>	Thick bottom line	End of table

Adds vertical whitespace around rules so text doesn't feel cramped. The booktabs manual explicitly advises not to use `|` — clean design relies on spacing, not lines.

- **Optional extras**
 - `\haddlinespace` - adds extra vertical space between rows.
 - `\cmidrule(lr)1-2` - draws a partial horizontal line (useful for subheaders).