

# Advanced Pandoc and LaTeX Features

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## Abstract

This document demonstrates key features available when using Pandoc with LaTeX.

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# 1 Introduction

This document showcases Pandoc and LaTeX features for academic writing. Cross-references help navigate complex documents [\[1\]](#). Multiple citations can be grouped together [\[1\]](#).

## 2 Text Formatting

Basic markdown supports **bold**, *italic*, and ***bold italic*** text. LaTeX extensions allow for underlined text, SMALL CAPS, and `monospaced text`.

You can also include ~~striketrough~~ text and <sup>superscript</sup> or <sub>subscript</sub> elements.

Highlighted text requires the soul package.

## 3 Lists and Definition Lists

### 3.1 Bullet Lists

- First-level item
  - Second-level item
    - \* Third-level item
  - Another second-level item

### 3.2 Numbered Lists

1. First item
2. Second item
  1. Sub-item 2.1
  2. Sub-item 2.2
3. Third item

### 3.3 Definition Lists

**Term 1** Definition 1

**Term 2** Definition 2a  
Definition 2b

## 4 Mathematical Content

### 4.1 Inline Mathematics

The quadratic formula is  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  where  $a \neq 0$ .

### 4.2 Display Equations

Equation 1 shows Maxwell's first equation:

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\varepsilon_0} \tag{1}$$

Equation systems can be aligned:

$$\frac{d}{dx} x^n = nx^{n-1} \tag{2}$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C \quad \text{for } n \neq -1 \tag{3}$$

### 4.3 Matrix Notation

$$\mathbf{A} = \begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{pmatrix}$$

## 5 Figures and Tables

### 5.1 Figures with Captions

As shown in Figure 1, images can be referenced.

### 5.2 Tables

Table 1: Example table with alignment. `{#tbl:simple}`

Right	Left	Default	Center
12	12	12	12
123	123	123	123

Right	Left	Default	Center
1	1	1	1

As seen in Table ??, we can create complex tables.

## 6 Code Blocks

### 6.1 Inline Code

Use `print("Hello, world!")` for a simple Python example.

### 6.2 Code Blocks with Syntax Highlighting

```
def factorial(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n * factorial(n-1)

result = factorial(5)
print(f"5! = {result}")
```

## 7 Cross-References

As mentioned in Section 4, equations can be referenced.

## 8 Footnotes and Margin Notes

Regular footnotes<sup>1</sup> are supported.

## 9 Block Quotes

This is a blockquote.

It can span multiple paragraphs.

Nested blockquotes are also possible.

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<sup>1</sup>This is a footnote with additional details.

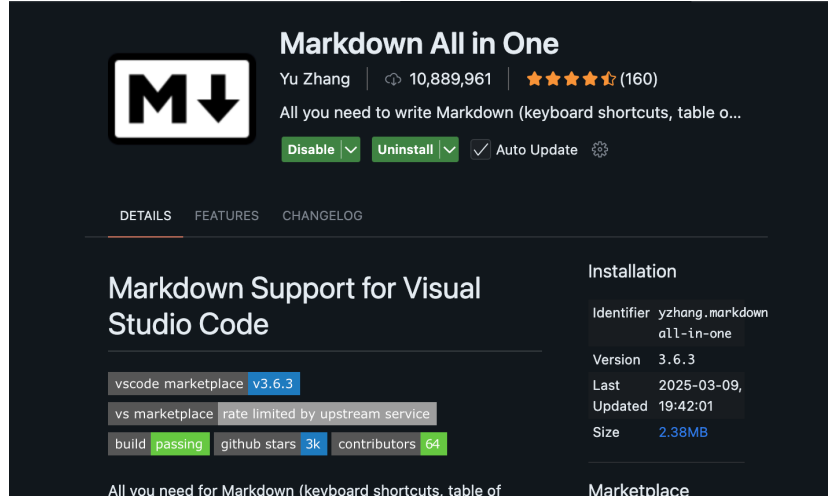


Figure 1: Example figure with caption. This figure is referenced as Figure 1.

## 10 Custom LaTeX Environments

**Theorem 1.** For all  $n > 0$ ,  $\sum_{i=1}^n i = \frac{n(n+1)}{2}$

*Proof.* Mathematical induction can be used. □

## 11 Citations and Bibliography

Different citation styles include parenthetical [1], textual [2], and with page numbers [1, p. 42].

## 12 References

- [1] D. E. Knuth, *The art of computer programming: Fundamental algorithms*, 3rd ed., vol. 1. in *The art of computer programming*, vol. 1. Reading, Massachusetts: Addison-Wesley Professional, 1997.
- [2] K. Mejia-Hernandez, A. Chang, N. Eardley-Harris, R. Jaarsma, T. K. Gill, and J. M. McLean, “Smartphone applications for the evaluation of pathologic shoulder range of motion and shoulder scores—a comparative study,” *JSES Open Access*, vol. 2, no. 1, pp. 109–114, Mar. 2018, doi: [10.1016/j.jses.2017.10.001](https://doi.org/10.1016/j.jses.2017.10.001).