Scientific Writing with LaTeX

A Hands-On Introduction

Dr. Yaé Ulrich Gaba

AIRINA Labs
gaba@airina.io

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Outline

Why LaTeX?

- **Publication-quality typesetting** especially for mathematics.
- **Structured documents** automatic numbering, cross-references, and bibliographies.
- **Reproducibility** plain-text source under version control.
- **Wide adoption** required by most journals in mathematics, physics, and computer science.

Key Idea

You describe *what* to typeset; LaTeX decides *how*.

Writing Mathematics

Inline math: $E = mc^2$.

Display equations with automatic numbering:

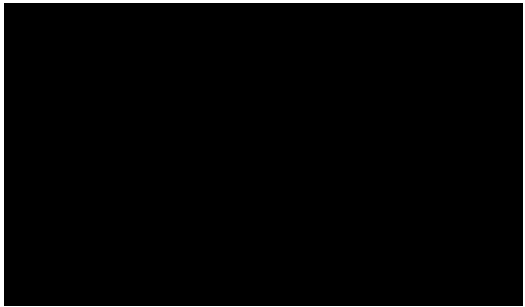
$$\int_0^{\infty} e^{-x^2}\,dx = \frac{\sqrt{\pi}}{2} \tag{1}$$

Multi-line alignment:

$$(a+b)^2 = a^2 + 2ab + b^2 \tag{2}$$
$$(a-b)^2 = a^2 - 2ab + b^2 \tag{3}$$

Including Figures

- Use `graphicx` package.
- Supported formats: PDF, PNG, JPG.
- Scale with `width=` or `scale=`.



Placeholder image

A Simple Table

Tool	Learning Curve	Math Support
LaTeX	Moderate	Excellent
Word	Low	Limited
Typst	Low	Good

Table created with the `booktabs` package for clean horizontal rules.

Key Takeaways

1. LaTeX separates *content* from *formatting*.
2. Overleaf makes collaboration and compilation effortless.
3. Invest time in learning it pays off for every paper, thesis, and presentation you write.

Next Steps

Practice with the templates provided in this workshop!

Thank You!

Questions?

Dr. Yaé Ulrich Gaba
gaba@airina.io