

# MY ARTICLE TEMPLATE

SIMONE MARIA GIANCOLA\*

## Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum. Just a test.<sup>1</sup>

## CONTENTS

1	Added Functionalities	1
1.I	From the <code>theorem_environments.tex</code>	1
1.II	From the <code>macro.tex</code>	2
1.III	From the <code>math_commands.tex</code>	4
1.III.1	Notation	5
2	A Section	6
2.I	A Subsection	6
2.II	A Subsection	6
3	A Section	6
	References	6

**OUTLINE** This is a template for articles that mixes up the `classic-thesis` template by André Miede (Miede 2024). By no means it is better, it is just the one I find most comfortable with working. Basically, I have added the functionalities that I like and need. Feel free to use it, and let me me know if you actually do.

## 1 ADDED FUNCTIONALITIES

Other than the many useful settings from the Classic Thesis template, I will outline here what I added.

### 1.I From the `theorem_environments.tex`

You have many objects of the Theorem environment type.

**Theorem 1.1** (Title). *Text*

**Example 1.2.** *text*

**Definition 1.3.** *text*

**Lemma 1.4.** *text*

**Conjecture 1.5.** *text*

**Proposition 1.6.** *text*

---

\*Institution

<sup>1</sup> This is a footnote.

{thm:first

**Corollary 1.7.** *text*

**Assumption 1.8.** *text*

**Result 1.9.** *text*

**Condition 1.10.** *text*

**Question 1.11.** *text*

**Answer 1.12.** *text*

**Problem 1.13.** *text*

**Fact 1.14.** *text*

**Remark 1.15.** *text*

**Observation 1.16.** *text*

**Claim 1.17.** *text*

1.II *From the macro.tex*

This is a quote

Author name

**T**HANKS to the lettrine package, you can start sections in a cool way. Be ready to annotate equations:

$$i\hbar \frac{\partial}{\partial t} \Psi(x,t) = \hat{H} \Psi(x,t)$$

$\hbar = \frac{h}{2\pi}$ , reduced Planck constant

Hamilton operator

Wave function

- You can ~~cross-words~~
- highlight a **new term**
- set the metadata in hypersetup
- some cool colors **green**, **red**, **blue**, **blue-violet**
- you can also use them inside brackets like **this**
- **✓**, **✗** are useful
- **TODO**: a todo generic tool
- **DONE** command
- you can use the indicator  $\mathbb{1}$
- **HOT IDEA**: an idea
- $1/2$  appears nicely in text
- bold math installed, as well as rsfs for  $\mathcal{L}$
- $d$  is the differential operator

- if you have an equation:

$$E = mc^2 \quad (1.18) \quad \{\text{eqn:equa}$$

and another

$$a^2 + b^2 = c^2 \quad (1.19) \quad \{\text{eqn:equa}$$

you can reference them cleverly as eq. (1.18) and ?? . Equation (1.18) and ?? can be used at the beginning of a sentence.

This is to be compared in efficiency with mentioning Eq. 1.19 directly.

- equation labels are shown
- *(Left)*, *(Center)*, *(Right)*, *(Top)*, *(Bottom)*, *(a)*, *(b)*, *(c)*, *(d)* are useful for mentioning parts of an image.
- tikz is loaded
- algorithm, algpseudocode are loaded (see below)
- figref, Figref, twofigref, quadfigref, secref, Secref, twosecref, secrefs, eqref, Eqref, plaineqref, chapref, Chapref, rangechapref, algref, Algref, twoalgref, Twoalgref, partref, twopartref are useful for quick referencing.
- you can do a list of theorems **TODO: not adjusted**
- you can do a list of acronyms **TODO: not adjusted**
- you can do a nomenclature list **TODO: not adjusted**

colored boxes

Law Box

text

question

text

Further References

References

In a nutshell

Text

place a horizontal line

Simone: a comment

{thmt@@res  
{thmt@@sta

**Theorem 1.20** (Restatable Theorem). *We will repeat this just below.*

You can recall theorem 1.20 with the command of its name:

**Theorem 1.20** (Restatable Theorem). *We will repeat this just below.*

You can create algorithms

---

**Algorithm 1** An algorithm with caption

---

{alg:cap}

**Require:**  $n \geq 0$

**Ensure:**  $y = x^n$

$y \leftarrow 1$

$X \leftarrow x$

$N \leftarrow n$

**while**  $N \neq 0$  **do**

**if**  $N$  is even **then**

$X \leftarrow X \times X$

$N \leftarrow \frac{N}{2}$

**else if**  $N$  is odd **then**

$y \leftarrow y \times X$

$N \leftarrow N - 1$

**end if**

**end while**

---

▷ This is a comment

1.III From the *math\_commands.tex*

We have a very nice calligraphic package:

$$aa \quad (1.21)$$

We have a bunch of preset operators:

$$\arg \max, \arg \min, \text{sign}, \text{card}, \text{diam}, \text{vol}, \text{Corr}, \text{sign}, \text{dom}, \text{epi}, \text{ker}, \quad (1.22)$$

$$\text{null}, \text{range}, \text{Im}, \text{int}, \text{rint}, \text{bdry}, \text{cl}, \text{rank}, \text{conv}, \text{diag}, \text{Arg} \quad (1.23)$$

$$\text{poly}, \text{polylog}, \text{avg}, \text{val}. \quad (1.24)$$

Some shortened symbols:

$$\mathbb{L}, \mathbb{E}_X[aX], \mathbb{E}_X[aX | Y], \mathbb{L}, \mathbb{P}, \mathbb{P}[X > t], \exp\{ax\}, d_{TV}(\mu, \nu), a_1, \dots, a_n, \min\{1, 2, 3\}, \max\{1, 2, 3\} \quad (1.25)$$

$$\text{sansserif}, \langle aX \rangle_\beta, \text{Var}_X[aX], \text{CoV}_X[X], \text{Tr}(\Sigma) \quad (1.26)$$

$$\mathcal{L}[\cdot], \mathcal{P}, p_{\text{data}}, \hat{p}_{\text{data}}, \hat{P}_{\text{data}}, p_{\text{model}}, P_{\text{model}}, \tilde{p}_{\text{model}}, p_{\text{encoder}}, p_{\text{decoder}} \quad (1.27)$$

$$p_{\text{reconstruct}}, \text{Ber}, \text{Laplace}, \lambda, \text{rectifier}, d_{KL}, Pa. \quad (1.28)$$

Some norms:

$$\|\cdot\|, \|\cdot\|_0, \|\cdot\|_1, \|\cdot\|_2, \|\cdot\|_\infty, \|\cdot\|^2, \|\cdot\|. \quad (1.29)$$

$$\|\cdot\|^2, \langle \cdot, \cdot \rangle, \|\cdot\|_0 \quad (1.30)$$

Other shortened symbols:

$$\lambda, \epsilon, \ell, \hat{\cdot}, \tilde{\cdot}, \text{i}. \quad (1.31)$$

Asymptotic notation:

$$O(\cdot), \Omega(\cdot), o(\cdot), \omega(\cdot), \Theta(\cdot), \tilde{O}(\cdot), \tilde{\Omega}(\cdot), \tilde{\omega}(\cdot), \tilde{\Theta}(\cdot). \quad (1.32)$$

Complexity classes:

$$\text{P}, \text{NP}, \text{BPP}, \text{DTIME}, \text{ZPTIME}, \text{BPTIME}, \text{NTIME}. \quad (1.33)$$

Optimization:

$$\text{Opt}, \text{Alg}, \text{Lp}, \text{Sdp}. \quad (1.34)$$

Small operators:

$$\Sigma, \Pi, \Sigma, \Pi. \quad (1.35)$$

Brackets:

$$[\cdot], [\cdot], (\cdot), [\cdot], \langle \cdot \rangle, \{\cdot\}, [\cdot], [\cdot], (\cdot), [\cdot], \langle \cdot \rangle, \{\cdot\}, \{\cdot\}, \|\cdot\|, |\cdot|, |\cdot|, \left| \cdot \right|. \quad (1.36)$$

### 1.III.1 Notation

Plain:

$$a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, z, x, y \quad (1.37)$$

$$\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega \quad (1.38)$$

$$\Gamma, \Delta, \Theta, \Lambda, \Xi, \Sigma, \Phi, \Psi, \Omega, \Upsilon \quad (1.39)$$

$$A, B, C, D, E, F, G, H, I, L, M, N, O, P, Q, R, S, T, U, V, Z, X, Y, J, K. \quad (1.40)$$

Math duth:

$$\mathfrak{a}, \mathfrak{b}, \mathfrak{c}, \mathfrak{d}, \mathfrak{e}, \mathfrak{f}, \mathfrak{g}, \mathfrak{h}, \mathfrak{i}, \mathfrak{j}, \mathfrak{k}, \mathfrak{l}, \mathfrak{m}, \mathfrak{n}, \mathfrak{o}, \mathfrak{p}, \mathfrak{q}, \mathfrak{r}, \mathfrak{s}, \mathfrak{t}, \mathfrak{u}, \mathfrak{v}, \mathfrak{z}, \mathfrak{x}, \mathfrak{y} \quad (1.41)$$

$$\mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}, \mathcal{E}, \mathcal{F}, \mathcal{G}, \mathcal{H}, \mathcal{I}, \mathcal{L}, \mathcal{M}, \mathcal{N}, \mathcal{O}, \mathcal{P}, \mathcal{Q}, \mathcal{R}, \mathcal{S}, \mathcal{T}, \mathcal{U}, \mathcal{V}, \mathcal{Z}, \mathcal{X}, \mathcal{Y}, \mathcal{J}, \mathcal{K}. \quad (1.42)$$

Math bold duth:

$$\mathbf{a}, \mathbf{b}, \mathbf{c}, \mathbf{d}, \mathbf{e}, \mathbf{f}, \mathbf{g}, \mathbf{h}, \mathbf{i}, \mathbf{j}, \mathbf{k}, \mathbf{l}, \mathbf{m}, \mathbf{n}, \mathbf{o}, \mathbf{p}, \mathbf{q}, \mathbf{r}, \mathbf{s}, \mathbf{t}, \mathbf{u}, \mathbf{v}, \mathbf{z}, \mathbf{x}, \mathbf{y} \quad (1.43)$$

$$\mathbf{\mathcal{A}}, \mathbf{\mathcal{B}}, \mathbf{\mathcal{C}}, \mathbf{\mathcal{D}}, \mathbf{\mathcal{E}}, \mathbf{\mathcal{F}}, \mathbf{\mathcal{G}}, \mathbf{\mathcal{H}}, \mathbf{\mathcal{I}}, \mathbf{\mathcal{L}}, \mathbf{\mathcal{M}}, \mathbf{\mathcal{N}}, \mathbf{\mathcal{O}}, \mathbf{\mathcal{P}}, \mathbf{\mathcal{Q}}, \mathbf{\mathcal{R}}, \mathbf{\mathcal{S}}, \mathbf{\mathcal{T}}, \mathbf{\mathcal{U}}, \mathbf{\mathcal{V}}, \mathbf{\mathcal{Z}}, \mathbf{\mathcal{X}}, \mathbf{\mathcal{Y}}, \mathbf{\mathcal{J}}, \mathbf{\mathcal{K}}. \quad (1.44)$$

Calligraphic:

$$\mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}, \mathcal{E}, \mathcal{F}, \mathcal{G}, \mathcal{H}, \mathcal{I}, \mathcal{L}, \mathcal{M}, \mathcal{N}, \mathcal{O}, \mathcal{P}, \mathcal{Q}, \mathcal{R}, \mathcal{S}, \mathcal{T}, \mathcal{U}, \mathcal{V}, \mathcal{Z}, \mathcal{X}, \mathcal{Y}, \mathcal{J}, \mathcal{K}. \quad (1.45)$$

Scr:

$$\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathscr{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathscr{H}, \mathscr{I}, \mathscr{L}, \mathscr{M}, \mathscr{N}, \mathscr{O}, \mathscr{P}, \mathscr{Q}, \mathscr{R}, \mathscr{S}, \mathscr{T}, \mathscr{U}, \mathscr{V}, \mathscr{Z}, \mathscr{X}, \mathscr{Y}, \mathscr{J}, \mathscr{K}. \quad (1.46)$$

BB (notice no Expectation symbol):

$$\mathbb{A}, \mathbb{B}, \mathbb{C}, \mathbb{D}, \mathbb{E}, \mathbb{F}, \mathbb{G}, \mathbb{H}, \mathbb{I}, \mathbb{L}, \mathbb{M}, \mathbb{N}, \mathbb{O}, \mathbb{P}, \mathbb{Q}, \mathbb{R}, \mathbb{S}, \mathbb{T}, \mathbb{U}, \mathbb{V}, \mathbb{Z}, \mathbb{X}, \mathbb{Y}, \mathbb{J}, \mathbb{K}. \quad (1.47)$$

Random variables:

$$\mathfrak{a}, \mathfrak{b}, \mathfrak{c}, \mathfrak{d}, \mathfrak{e}, \mathfrak{f}, \mathfrak{g}, \mathfrak{h}, \mathfrak{i}, \mathfrak{j}, \mathfrak{k}, \mathfrak{l}, \mathfrak{m}, \mathfrak{n}, \mathfrak{o}, \mathfrak{p}, \mathfrak{q}, \mathfrak{r}, \mathfrak{s}, \mathfrak{t}, \mathfrak{u}, \mathfrak{v}, \mathfrak{z}, \mathfrak{x}, \mathfrak{y} \quad (1.48)$$

$$\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, \pi, \varpi, \rho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega \quad (1.49)$$

vector:

$$\mathbf{a}, \mathbf{b}, \mathbf{c}, \mathbf{d}, \mathbf{e}, \mathbf{f}, \mathbf{g}, \mathbf{h}, \mathbf{i}, \mathbf{j}, \mathbf{k}, \mathbf{l}, \mathbf{m}, \mathbf{n}, \mathbf{o}, \mathbf{p}, \mathbf{q}, \mathbf{r}, \mathbf{s}, \mathbf{t}, \mathbf{u}, \mathbf{v}, \mathbf{z}, \mathbf{x}, \mathbf{y} \quad (1.50)$$

$$\boldsymbol{\alpha}, \boldsymbol{\beta}, \boldsymbol{\gamma}, \boldsymbol{\delta}, \boldsymbol{\epsilon}, \boldsymbol{\zeta}, \boldsymbol{\eta}, \boldsymbol{\theta}, \boldsymbol{\iota}, \boldsymbol{\kappa}, \boldsymbol{\lambda}, \boldsymbol{\mu}, \boldsymbol{\nu}, \boldsymbol{\xi}, \boldsymbol{\pi}, \boldsymbol{\varpi}, \boldsymbol{\rho}, \boldsymbol{\sigma}, \boldsymbol{\varsigma}, \boldsymbol{\tau}, \boldsymbol{\upsilon}, \boldsymbol{\phi}, \boldsymbol{\varphi}, \boldsymbol{\chi}, \boldsymbol{\psi}, \boldsymbol{\omega} \quad (1.51)$$

matrix:

$$\mathbf{A}, \mathbf{B}, \mathbf{C}, \mathbf{D}, \mathbf{E}, \mathbf{F}, \mathbf{G}, \mathbf{H}, \mathbf{I}, \mathbf{L}, \mathbf{M}, \mathbf{N}, \mathbf{O}, \mathbf{P}, \mathbf{Q}, \mathbf{R}, \mathbf{S}, \mathbf{T}, \mathbf{U}, \mathbf{V}, \mathbf{Z}, \mathbf{X}, \mathbf{Y}, \mathbf{J}, \mathbf{K}. \quad (1.52)$$

$$\boldsymbol{\Gamma}, \boldsymbol{\Delta}, \boldsymbol{\Theta}, \boldsymbol{\Lambda}, \boldsymbol{\Xi}, \boldsymbol{\Sigma}, \boldsymbol{\Phi}, \boldsymbol{\Psi}, \boldsymbol{\Omega}, \boldsymbol{\Upsilon} \quad (1.53)$$

random vector:

$$\mathbf{a}, \mathbf{b}, \mathbf{c}, \mathbf{d}, \mathbf{e}, \mathbf{f}, \mathbf{g}, \mathbf{h}, \mathbf{i}, \mathbf{j}, \mathbf{k}, \mathbf{l}, \mathbf{m}, \mathbf{n}, \mathbf{o}, \mathbf{p}, \mathbf{q}, \mathbf{r}, \mathbf{s}, \mathbf{t}, \mathbf{u}, \mathbf{v}, \mathbf{z}, \mathbf{x}, \mathbf{y} \quad (1.54)$$

$$\boldsymbol{\alpha}, \boldsymbol{\beta}, \boldsymbol{\gamma}, \boldsymbol{\delta}, \boldsymbol{\epsilon}, \boldsymbol{\zeta}, \boldsymbol{\eta}, \boldsymbol{\theta}, \boldsymbol{\iota}, \boldsymbol{\kappa}, \boldsymbol{\lambda}, \boldsymbol{\mu}, \boldsymbol{\nu}, \boldsymbol{\xi}, \boldsymbol{\pi}, \boldsymbol{\varpi}, \boldsymbol{\rho}, \boldsymbol{\sigma}, \boldsymbol{\varsigma}, \boldsymbol{\tau}, \boldsymbol{\upsilon}, \boldsymbol{\phi}, \boldsymbol{\varphi}, \boldsymbol{\chi}, \boldsymbol{\psi}, \boldsymbol{\omega} \quad (1.55)$$

random matrix:

$$\mathbf{A}, \mathbf{B}, \mathbf{C}, \mathbf{D}, \mathbf{E}, \mathbf{F}, \mathbf{G}, \mathbf{H}, \mathbf{I}, \mathbf{L}, \mathbf{M}, \mathbf{N}, \mathbf{O}, \mathbf{P}, \mathbf{Q}, \mathbf{R}, \mathbf{S}, \mathbf{T}, \mathbf{U}, \mathbf{V}, \mathbf{Z}, \mathbf{X}, \mathbf{Y}, \mathbf{J}, \mathbf{K} \quad (1.56)$$

$$\boldsymbol{\Gamma}, \boldsymbol{\Delta}, \boldsymbol{\Theta}, \boldsymbol{\Lambda}, \boldsymbol{\Xi}, \boldsymbol{\Sigma}, \boldsymbol{\Phi}, \boldsymbol{\Psi}, \boldsymbol{\Omega}, \boldsymbol{\Upsilon} \quad (1.57)$$

tensor:

$$\mathbf{A}, \mathbf{B}, \mathbf{C}, \mathbf{D}, \mathbf{E}, \mathbf{F}, \mathbf{G}, \mathbf{H}, \mathbf{I}, \mathbf{L}, \mathbf{M}, \mathbf{N}, \mathbf{O}, \mathbf{P}, \mathbf{Q}, \mathbf{R}, \mathbf{S}, \mathbf{T}, \mathbf{U}, \mathbf{V}, \mathbf{Z}, \mathbf{X}, \mathbf{Y}, \mathbf{J}, \mathbf{K}. \quad (1.58)$$

entries of vector:

$$a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, z, x, y \quad (1.59)$$

entries of matrix:

$$A, B, C, D, E, F, G, H, I, L, M, N, O, P, Q, R, S, T, U, V, Z, X, Y, J, K. \quad (1.60)$$

entries of tensor:

$$A, B, C, D, E, F, G, H, I, L, M, N, O, P, Q, R, S, T, U, V, Z, X, Y, J, K. \quad (1.61)$$

## 2 A SECTION

*Final Version* as of May 21, 2024 (classicthesis). Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

### 2.I A Subsection

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

### 2.II A Subsection

## 3 A SECTION

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

## REFERENCES

Miede, André (2024). *Classic Thesis Template*. <https://www.miede.de/>. (Visited on 05/18/2024).