



Your Article Title Here

Author One^{1,†}, Author Two² and Author Three^{3,†}

¹Affiliation of author one

²Affiliation of author two

³Affiliation of author three

[†]These authors contributed equally to this work

This manuscript was compile on May 9, 2024

Abstract

This document serves as the official Global Journals $\LaTeX$ template, providing a basic guideline and boilerplate for preparing academic research and review articles. It offers a recommended format aligned with Global Journals' publication standards, including sections for abstract, introduction, methodology, results, and conclusions. The template ensures proper formatting of figures, tables, equations, and citations in IEEE/APA style, with professional typesetting features and customizable elements. Authors are encouraged to use this template to craft publication-ready manuscripts, but if you find it uncomfortable, feel free to reach out to our manuscript team for professional assistance with $\LaTeX$ layouting. You may also submit your work in any format, and we will handle the rest.

Corresponding author: Provide the corresponding authorship and institution here. Email is optional as it is obserfucated in QR code above.

DOI: <https://www.doi.org/GJprefix/XXXXXXXXXX>

Received: February 12, 2024 **Revised:** April 16, 2024 **Accepted:** April 23, 2024 **Published:** May 10, 2024

Research is sponsored by the National Science Foundation. The authors declare no conflict of interest.

1. Introduction

Welcome to *Global Journals class* template for preparing your academic article or lab report. Throughout this guide, we will show you how to use this template and how to make modifications to this class.

This class includes the following files placed in the 'gj-class' folder: gj.cls, gjenvs.sty, gjbabel.sty, gjcommands.sty and README.md.

1.1. Installation Instructions

To use this template, follow these steps:

1. Clone or download this template repository to your local machine
2. Ensure you have a TeX distribution installed (e.g., TeX Live for Linux/macOS or MiKTeX for Windows)
3. Run the installation script:

```
bash install.sh
```

This script will:

- Create necessary directories (build and texmf)
- Copy class files to the local texmf tree
- Generate local texmf configuration
- Create a Makefile for building the document

4. Build the document using:

```
make
```

5. To clean build files, use:

```
make clean
```

The compiled PDF will be generated in the build directory.

1.2. Using Cursor AI with LaTeX Workshop

To enhance your writing experience, we recommend using Cursor AI with the LaTeX Workshop extension. We tested RooCode on VS Code but Cursor AI is a better alternative. This combination provides powerful features for LaTeX document creation:

1. Create Cursor AI free account, download and install the Cursor AI.
2. Install the LaTeX Workshop extension in Cursor AI (a VS Code's fork), read its documentation to customize the extension as you need.
3. Open your template directory in Cursor AI.
4. Use Cursor AI's intelligent code completion and suggestions while writing.
5. Try to use reasoning AI models in "Composer Mode".
6. Take advantage of LaTeX Workshop's features:
 - Real-time preview
 - Syntax highlighting
 - Auto-completion for LaTeX commands
 - Built-in PDF viewer
 - Error detection and diagnostics

Cursor AI can assist you with:

- Writing and formatting LaTeX code
- Generating complex mathematical equations
- Creating tables and figures
- Troubleshooting compilation errors
- Suggesting improvements to your document structure

2. Title

The `\maketitle` command generates the title information, abstract and corresponding author information. The following sections describe each of these.

In addition to the `\title` command, a new command named `\journalname` has been added to include more information.

If you do not need this command, you can undefine it and the content will be adjusted automatically.

2.1. Abstract

The abstract is placed with `\begin{abstract}` `\end{abstract}` command and is declared in the preamble. Then, the keywords are placed with the command `\keywords{}`. If the keywords are not declared in the preamble, the content will be adjusted automatically.

2.2. Corresponding author

Global Journals includes a section for corresponding author information. In this section you can easily add important information about your article, such as doi, publication dates, and license.

If you do not need this section, you can disable it directly from the main.tex. Set `false` in `\setbool{corres-info}{true/false}`. The content will be adjusted automatically.

If you want this section but, for example, you do not need the doi, just do not declare the command in the preamble and the content will be adjusted automatically.

3. Other elements

3.1. Lettrine

The `\gjstart{}` command provides a personalized lettrine for the beginning of a paragraph as shown in this document example.

3.2. Line numbering

By implementing the `lineno` package, the line numbering of the document can be placed with the command `\linenumbers`.

We recommend placing the command after the table of contents for a better appearance (comment or delete if not required).

4. Equations

4.1. Inline Equations

Here are some examples of inline equations: The quadratic formula $ax^2+bx+c=0$ has solutions given by $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$. The famous mass-energy equivalence $E=mc^2$ revolutionized physics. The Pythagorean theorem states that $a^2+b^2=c^2$.

4.2. Display Equations

Here's a simple display equation:

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6} \quad (1)$$

A more complex display equation:

$$\oint_C \mathbf{B} \cdot d\mathbf{l} = \mu_0 \left(I_{enc} + \epsilon_0 \frac{d\Phi_E}{dt} \right) \quad (2)$$

4.3. Multi-line Equations

Using align environment for multiple aligned equations:

$$(a+b)^2 = a^2 + 2ab + b^2 \quad (3)$$

$$(a-b)^2 = a^2 - 2ab + b^2 \quad (4)$$

$$(a+b)(a-b) = a^2 - b^2 \quad (5)$$

4.4. Split Equations (Across Columns)

Here's a matrix equation:

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix} \quad (6)$$

A long equation that may split across columns:

There is another wide equation that spans both columns.

A physics equation with fractions and integrals:

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}, \quad \nabla \times \mathbf{B} = \mu_0 \left(\mathbf{J} + \epsilon_0 \frac{\partial \mathbf{E}}{\partial t} \right) \quad (9)$$

Equation 10, shows the Schrödinger equation as an example.

$$\frac{\hbar^2}{2m} \nabla^2 \psi + V(\mathbf{r})\psi = -i\hbar \frac{\partial \psi}{\partial t} \quad (10)$$

The `amssymb` package was not necessary to include, because `stix2` font incorporates mathematical symbols for writing quality equations. In case you choose another font, uncomment the package in *Global Journals class*.

In case you want to change the values that adjust the spacing above and below in the equations, go to `gj-class/gj.cls/math packages` section and play with `\setlength{eqskip}{8pt}` value until the preferred spacing is set.

5. Global Journals packages

5.1. GJenvs

This template has its own environment package `gjenvs.sty` designed to enhance the presentation of information within documents. Among these custom environments are `gjenv`, `info` and `note`.

There are two environments which have a predefined title. These can be included by the command `\begin{note}` and `\begin{info}`. All the environments have the same style.

An example using the Global Journals environment is shown below.

[Environment with custom title] Hello! I am an example of the `gjenv` included in `gjenvs` L^AT_EX package. Here you can include relevant information or notes about your work. You can modify my title directly in the code.

GJenv is the only environment that you can customize its title. On the other hand, `info` and `note` adapt their title to Spanish automatically when the language package is defined.

5.2. GJbabel

In this new version, we have included a package called `gjbabel`, which have all the commands that automatically translate from English to Spanish when this language package is defined.

By default, Global Journals displays its content in English. However, at the beginning of the document you will find a recommendation when writing in Spanish.

Note: You may modify this package if you want to use other language than English or Spanish. This will make easier to translate the document without having to modify the class document.

6. Figures

6.1. Sample figure

Figure 1 shows an example figure.

$$\begin{aligned} H(Y|X) &= - \sum_{x \in \mathcal{X}} p(x) \sum_{y \in \mathcal{Y}} p(y|x) \log p(y|x) \\ &= - \sum_{x \in \mathcal{X}} \sum_{y \in \mathcal{Y}} p(x, y) \log p(y|x) \end{aligned}$$

(7)

$$\frac{\partial}{\partial t} \int_V \rho \phi dV + \int_S \rho \phi \mathbf{v} \cdot \mathbf{n} dS = \int_V \rho q dV + \int_S \Gamma \nabla \phi \cdot \mathbf{n} dS$$

(8)

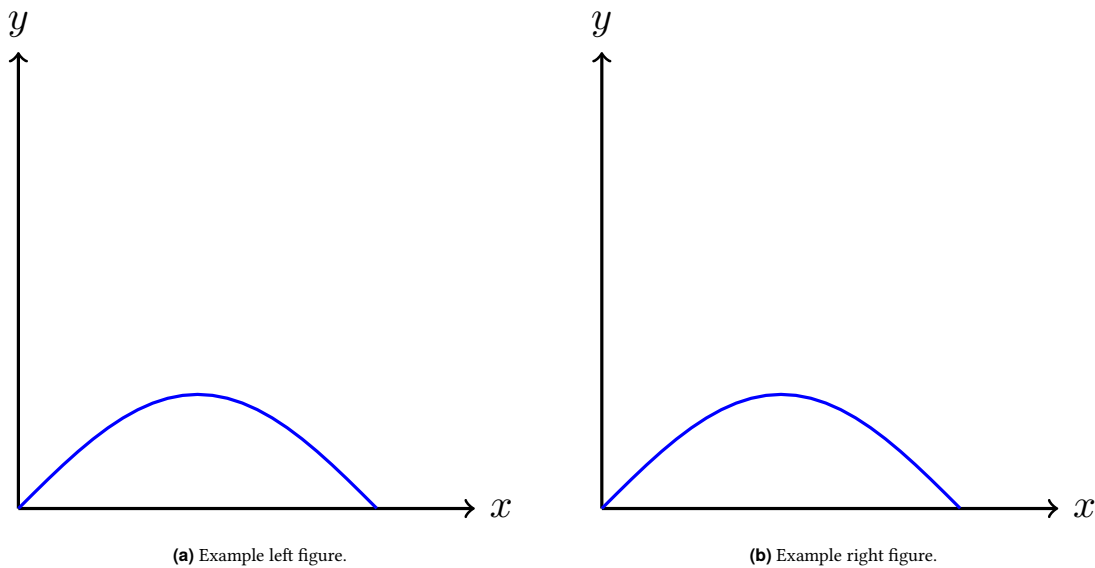


Figure 2. Example figure that covers the width of the page obtained from PGFPlots [?].

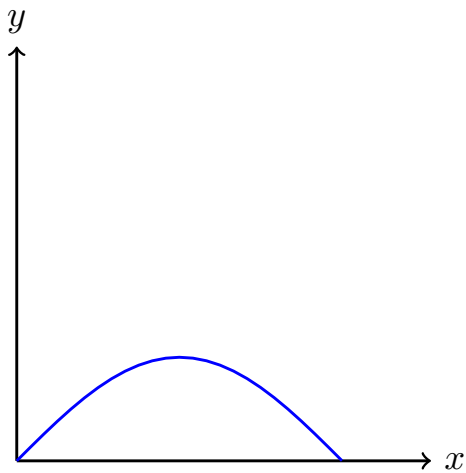


Figure 1. Example figure obtained from PGFPlots [?].

Table 1. Example of a single-column table.

Month	Temperature	Rainfall
January	10°C	50mm
February	12°C	45mm
March	15°C	35mm

You can also create inline tables that appear exactly where you place them in the text using the [H] placement specifier, as shown in Table 2.

Table 2. Example of an inline table.

Left	Center	Right
L1	C1	R1
L2	C2	R2

7.2. Double Column Table

For wider tables that need more space, you can use the full page width as shown in Table 3.

8. Codes

This class¹ includes the listings package, which offers customized features for adding codes specially for C, C++, L^AT_EX and Matlab. You can customize the format in Global Journals class file.

```
function fibonacci_sequence(num_terms)
    % Initialize the first two terms of the sequence
    fib_sequence = [0, 1];
```

¹Hello there! I am a footnote :)

6.2. Sample double figure

Figure 2 shows an example of a two-picture floating figure that covers the width of the page. It can be positioned at the top or bottom of the page. The space between the figures can also be changed using the \hspace{Xpt} command.

7. Tables

7.1. Single Column Table

Table 1 shows an example of a single-column table that fits within the text width.

Table 3. Example of a table that spans both columns.

Day	Min Temp	Max Temp	Summary
Monday	11°C	22°C	A clear day with lots of sunshine. Strong breeze will bring down the temperatures.
Tuesday	9°C	19°C	Cloudy with rain, across many northern regions.
Wednesday	10°C	21°C	Rain will still linger for the morning. Conditions will improve by early afternoon and continue throughout the evening.

Note: Obtained from $\LaTeX$ tables [?].

```
4
5  if num_terms < 1
6      disp('Number of terms should be greater than or
7      equal to 1. ');
8      return;
9  elseif num_terms == 1
10     fprintf('Fibonacci Sequence:\n%d\n',
11     fib_sequence(1));
12     return;
13 elseif num_terms == 2
14     fprintf('Fibonacci Sequence:\n%d\n%d\n',
15     fib_sequence(1), fib_sequence(2));
16     return;
17 end
18
19 % Calculate and display the Fibonacci sequence
20 for i = 3:num_terms
21     fib_sequence(i) = fib_sequence(i-1) +
22     fib_sequence(i-2);
23 end
24
25 fprintf('Fibonacci Sequence:\n');
26 disp(fib_sequence);
27 end
```

Code 1. Example of matlab code.

If line numbering is enabled, we recommend placing the command `\nolinenumbers` at the beginning and `\linenumbers` at the end of the code.

This will temporarily remove line numbering and the code will look better.

9. Author Guidelines

Authors preparing manuscripts for submission to Global Journals should adhere to the following professional guidelines:

- Manuscripts must be written in clear, concise English, maintaining a professional tone throughout.
- Utilize the provided LaTeX template to ensure compliance with formatting standards.
- We recommend using Cursor AI with the LaTeX Workshop Extension to help you write your manuscript in LaTeX.
- Include all essential sections such as Abstract, Introduction, Methodology, Results, and Conclusion.
- Ensure all figures and tables are accurately labeled and referenced within the text.
- Adhere to the IEEE/APA citation style for all references.
- Submit the final manuscript in ZIP with the compiled TeX and PDF files, ensuring all content is complete and formatted correctly.