RMxAA LaTeX template for article preparation v4.6

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Abstract

This document (`rmxaa_main.tex`—last updated February, 2026) provides a brief tutorial on the use of version 4.6 of the RMxAA LaTeX macros and can also serve as a template for the preparation of papers to be published in the Main Journal of the Revista Mexicana de Astronomía y Astrofísica. It provides brief tutorial information and common rules for the authors. We have included information about the section content, as well as examples of figures, tables, and code lines. We are making use of the rho(ρ) LaTeX class, specially designed for academic purposes. It is assumed that you are already familiar with the rudiments of LaTeX. In case you are not, we recommend the manuals provided by Overleaf (https://www.overleaf.com/learn/latex/Tutorials).

Resumen

Este documento (`rmxaa_main.tex`— última actualización febrero 2026) describe de manera breve el uso de la versión 4.6 de los macros RMxAA LaTeX y funciona como un template común para la preparación de artículos que se deseen publicar en la parte principal de la Revista Mexicana de Astronomía y Astrofísica. El documento provee textos instructivos breves y reglas básicas para los autores. hemos incluído información sobre el contenido de las secciones, así como ejemplos de figuras, tablas y la inclusión de líneas de código. Se hace uso de la clase rho (ρ) LaTeX, especialmente diseñada para propósitos académicos. Se asume que el autor está familiarizado con los rudimentos de LaTeX. En caso de que no sea así, recomendamos los manuales que provee la plataforma Overleaf (https://www.overleaf.com/learn/latex/Tutorials).

1. INTRODUCTION

Welcome to the RMxAA LaTeXtemplate to prepare your academic article. Articles considered for publication in the main journal can be easily prepared using this template. The style of this template is based on the *rho class* style[1]. It requires minimal or no typesetting adjustments to provide a version of your manuscript that is close to the final printed version. This style also has ample margins to allow for a comfortable number of words per line and leaves room for adding marginal notes.

The version of the rmaa-rho document class described in this User Guide is 1.0 (February 10, 2026). Its use requires a relatively recent version of LaTeX, although it is optimized to work directly online using **Overleaf**. The current version of the LaTeX Project Public License is 1.3c (2008). For the author who requires a general introduction to LaTeX, we recommend starting at The LaTeX Project website https://www.latex-project.org/about/, or using the Overleaf LaTeX guide https://www.overleaf.com/learn/latex/Free_online_introduction_to_LaTeX_(part_1).

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[1]The RMxAA paper template is based on the rho LATEX class, created by Luis Guillermo Jiménez López and Eduardo Gracidas Reyes.

2. PREAMBLE

The first line to appear in your document should be

```
\documentclass{rmaa-rho}
```

or

```
\documentclass[optionlist]{rmaa-rho}
```

which configures the document to use the rmaa class, using the default `manuscript` option, which is designed for use by authors who submit articles to the main RMxAA journal. The following commands can be used after the `documentclass` command, but before `\begin{document}`.

2.1. Title

The `\title` command defines the title of the article. The title text should be entered in mixed-case letters. In general, for archival and reference purposes, it is recommended not to use mathematical expressions in a title, but they are allowed if necessary; for example,

```
35    \documentclass{title text}
```

2.2. Author information

The `\author` command defines the article authors. In addition to this command, the `\affil` command can be used to define the authors' affiliations. This will be typed below the authors' names in the final version of the manuscript. Individual authors should be entered in the style `A.~B.~Lastname` to avoid line breaks within the name. Authors may use their first name instead of the initial before their second initial and last name. Line breaks may be inserted by hand using a double backslash symbol "\\". If the authors have various affiliations, you can put more than one of them in square brackets preceding the author name, as in the example below: Note that we also included the ORCID number and link for each author.

```
49    \author[affiliation      list]{author first & last name}
50    \orcidlink {author ORCID}
```

and the affiliation details with the command line

```
52    \affil[number or symbol]{affiliation text}
```

2.3. Footer information

The `\leadauthor` command is used to provide the last name and initials of the leading author of the article, and will be visible at the top of every odd numbered page. Please do not modify the text of the `\smalltitle` and `\institution` commands, which define the footer text at the bottom of the first page of every article in RMxAA.

2.4. Corresponding author information

Please use the `\corres` and `\email` commands to define the name and e-mail address of the corresponding author, respectively. In most cases, this will probably coincide with the lead author, as in this example. We note that the only email used in the manuscript is that of the corresponding author; the remaining authors are identified by their ORCID and affiliations.

2.5. Keywords

Keywords are provided by the authors and placed below the author´s addresses. A minimum of three and a maximum of five keywords must be placed using the command `\keywords{}`.

2.6. Abstract

In this section, you need to provide the abstract in both Spanish and English. The abstract text may contain several paragraphs, but it should not be overly long, as both abstracts must fit on the first page[2]. The recommended length is 200 words for both English and Spanish abstracts. If the authors are unable to provide a Spanish version of the abstract, you can use the same text as the English abstract, and our editors will take care of it.

The text for the **abstract** and the **resumen** is placed with the `\begin{abstract} \end{abstract}` and `\begin{resumen} \end{resumen}` commands, respectively.

3. MAIN BODY

The main body of the document should be opened within the following pair of commands:

---

[2]this is a footnote
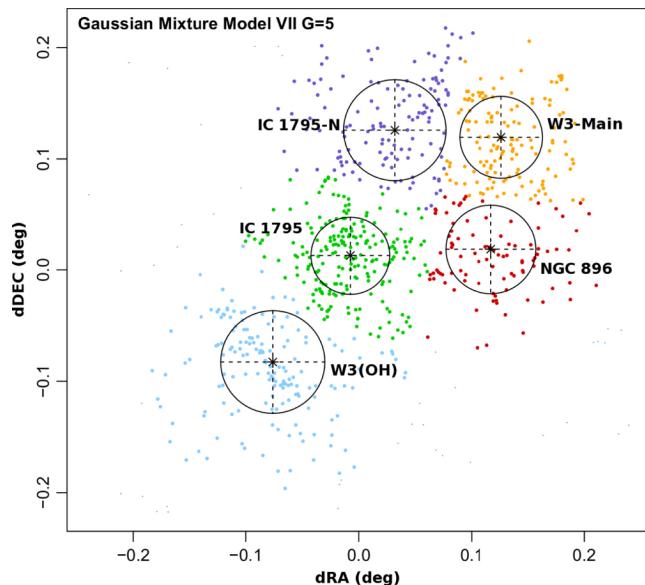
Figure 1. Example figure, from Román-Zúñiga et al. (2015).

```
85    \begin{document}
86    ...
87    ARTICLE TEXT
88    ...
89    \end{document}
```

The first command after the `\begin{document}` should be `\maketitle`. This will format the Title, Author(s), Abstract, Resumen, and Keywords sections.

Within the main body of the document, all standard LATEX commands can be used. The commands provided by many optional packages distributed with LATEX may also be used as long as the package is loaded using the `\usepackage` command in the preamble. However, authors are requested to avoid using commands that change the document fonts, page layout, or other 'stylistic' parameters. We should also note that not all optional packages have been tested for compatibility with the rmaa_rho class.

3.1. Sectioning commands and cross references

Authors are encouraged to use the standard LATEX sectioning commands to subdivide their articles as follows:

```
105    \section
106    \subsection
107    \subsubsection
108    \paragraph
```

Please use standard LATEX sectioning commands to subdivide your document into appropriate sections. You should use mixed cases for the section titles; however, in the current style, this only matters at the level of `\subsection` and below.

These will be automatically typed in the RMxAA style. Cross-referencing is made easier by the use of the `\label {LABEL}` command immediately after each sectioning command, where the LABEL text is a mnemonic string. Elsewhere in the document, the section can then be referred to as §`\ref {LABEL}`. The `\label` command can also be used with equations, figures, and tables (see below).
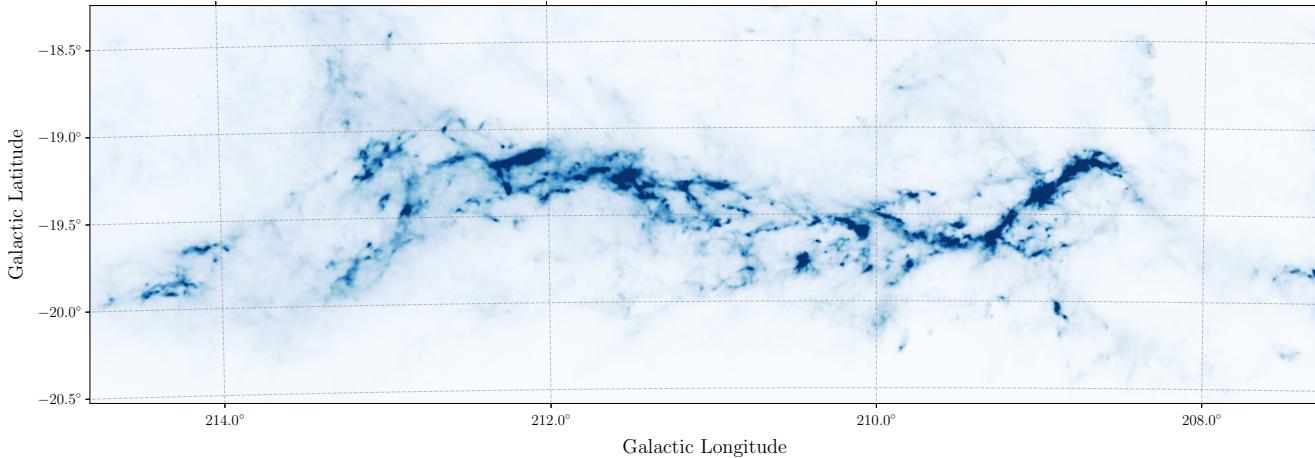
Figure 2. Second example figure

It is preferable to use the `\label/\ref` mechanism for cross-references to minimize the chance of errors and to allow automatic hyperlinks in the PDF output. The style that should be used for cross-references is, for example, Figure 3, Table 1, Equation (12), and §5.1, where the symbol of the section "§" is produced by the LaTeX command "§" S.

3.2. Math Symbols and Equations

Symbols for physical quantities should usually be in italics: velocity, v, density, N, etc. However, multi-letter symbols generally look better in Roman: FWHM, EM, etc.

The subscripts should be in roman (coded using `\mathrm`) unless they are themselves variables: N_e, T_{eff}, but $\sum_i a_i$.

Physical units should be in roman with thin spaces: 10 K, 1.2×10^{-12} erg cm^{-2} s^{-1}, etc.

Things generally come out best if you place an entire expression within a single pair of \$'s and then make judicious use of `\mathrm`. For example,

$$\mathrm{FWHM} = \int N_e N_i\, dz$$

Recall that the "minus sign" only exists inside math mode: minus two is -2, not -2, nor even –2! In addition, remember that spacing inside math mode is designed for equations, not words, so you should not use \$'s just to get italic text. Compare eff and *eff*.

The `\frac` command (and its TeX relative `\over`) is best used only in displayed equations, as in this case: Something like

$$x = \frac{a+b}{c} \tag{1}$$

looks fine, whereas $x = \frac{a+b}{c}$ looks somewhat cramped. It is better rewritten as $x = (a+b)/c$.

How to define a macro that can be used inside or outside math mode. Use the `\ensuremath` command. For example:

```
\newcommand{\fluxunits}{%
  \ensuremath{\mathrm{%
    erg\,s^{-1}\,cm^{-2}}}}
```

Then you can write either `15.1\,\fluxunits` or `$2.3\times 10^{-11} \, \fluxunits$`

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Then you can write either `15.1\,\fluxunits` or `$2.3\times 10^{-11} \, \fluxunits$`

3.2.1. Equations

Equation 2 shows the Schrödinger equation as the first example of an elegant equation with proper labeling.

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

Equation 2 shows the Riemann tensor as a slightly more complicated example using sub- and superscripts, respectively.

$$R^\alpha{}_{\epsilon\mu\nu} := \partial_\mu\Gamma^\alpha{}_{\nu\epsilon} - \partial_\nu\Gamma^\alpha{}_{\mu\epsilon} + \Gamma^\sigma{}_{\nu\epsilon}\Gamma^\alpha{}_{\mu\sigma} - \Gamma^\sigma{}_{\mu\epsilon}\Gamma^\alpha{}_{\nu\sigma}, \tag{3}$$

which, after contraction of the first and third indices, $R_{\mu\nu} := R^\alpha{}_{\mu\alpha\nu}$, yields an expression (4) that helps exemplify the use of *splitting* (Barrientos & Mendoza, 2017):

$$R_{\mu\nu} = R_{\mu\nu}(\{\}) + \tilde{\nabla}_\nu K^\alpha{}_{\alpha\mu} - \tilde{\nabla}_\alpha K^\alpha{}_{\nu\mu} \\ + K^\sigma{}_{\nu\mu}K^\alpha{}_{\alpha\sigma} - K^\sigma{}_{\alpha\mu}K^\alpha{}_{\nu\sigma}, \tag{4}$$

In another complex expression by the same authors, we can show the addition of intercalated text (italics) in the combined Eqs. 5 and 6

$$R_{\mu\nu}\{\} - \frac{1}{2}g_{\mu\nu}R\{\} - \frac{1}{2}g_{\mu\nu}\kappa(\tilde{\nabla}_\alpha T^\alpha + T^\alpha T_\alpha)^b \\ + \kappa b(\tilde{\nabla}_\alpha T^\alpha + T^\alpha T_\alpha)^{b-1}T_\mu T_\nu \\ - \kappa b T_\nu \tilde{\nabla}_\mu\left[(\tilde{\nabla}_\alpha T^\alpha + T^\alpha T_\alpha)^{b-1}\right] \\ = \frac{8\pi G}{c^4}\Sigma_{\mu\nu}, \tag{5}$$

for the null variations with respect to the metric, and

$$2T_\mu(\tilde{\nabla}_\alpha T^\alpha + T^\alpha T_\alpha)^{b-1} = \tilde{\nabla}_\mu\left[(\tilde{\nabla}_\alpha T^\alpha + T^\alpha T_\alpha)^{b-1}\right] \tag{6}$$
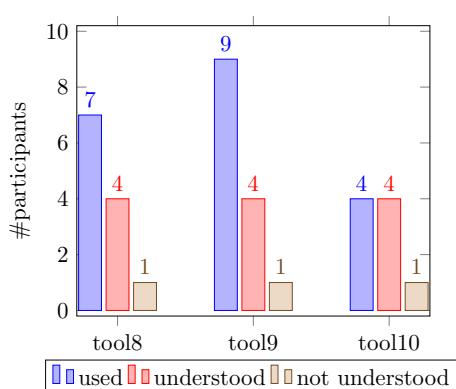
(a) Example left figure.
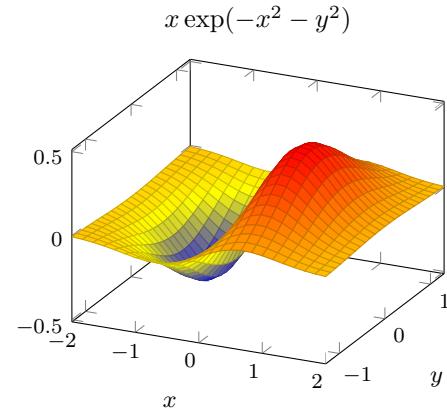
(b) Example right figure.

Figure 3. Example figure that covers the width of the page obtained from PGFPlots Feuersänger (2012). In this case, the caption length is quite long, so it is justified at the edges.

3.3. Special symbols

The commands for commonly used symbols in astronomy are listed in Table 1.

Table 1. Astronomy special symbols commands.

Command	Output	Meaning
\sun	$\odot$	Sun, solar
\earth	$\oplus$	Earth, terrestrial
\micron	μm	microns
\degr	°	degrees
\arcmin	′	arcminutes
\arcsec	″	arcseconds
\fdg	°.	fraction of a degree
\farcm	′.	fraction of an arcminute
\farcs	″.	fraction of an arcsecond
\fd	d.	fraction of a day
\fh	h.	fraction of an hour
\fm	m.	fraction of a minute
\fs	s.	fraction of a second
\fp	p.	fraction of a period
\sq	□	square, Q.E.D.

3.4. Ionization states

For ions, a \ion{}{} command is used for the correct typesetting of ionization states. For example, to typeset singly ionized calcium, use \ion{Ca}{ii}, which produces Ca II, while a double-ionized oxygen forbidden line produces [O III].

4. CONCEPT HIGHLIGHT BOX

The new RMxAA LᴬTEX macro allows the authors to use a colored box to highlight a concept or equation, as shown in this example.

The labels and reference points of the sections are included. Example: See the Concept box in Section 4.

Highlight Concept Box

Hello! This is an example of a concept highlight box (HCB) section. I can be placed anywhere in the body of the paper to briefly summarize important concepts. We do not allow HCBs larger than 40 words

---

5. FIGURES AND TABLES

5.1. Sample simple figure

Figure 1 shows an example of a simple figure occupying the space of one column. In most cases, this is a good option for displaying a relatively simple scatter plot or a histogram. We require that the font size of the axis labels be at least as large as that of the caption.

5.2. Sample wide figure

Figure 2 shows an example of another relatively simple figure, but this time the width of the figure is as large as the width of the page. In this example, the figure is placed at the top of the page.

5.3. Sample double figure

Figure 3 shows an example of a floating figure with two separate panels covering the width of the page. The figure can be placed at the top or bottom of the page. The space between the figures can also be modified using the \hspace{Xpt} command.

5.4. Sample simple table

Similar to figures, tables can be placed in one or two columns, depending on their length.

Table 1 is an example of a relatively simple table, with three columns, which is narrow enough to be shown inside a single column. The example is also useful as a quick guide to symbols commonly used in astronomy.

5.5. Sample wide table

Table 2, shows a second example of a table. This time, the content of the table is more adequate for a larger horizontal size. The

example is constructed such that the table covers the width of the page and is positioned at the bottom of the new page.

5.6. Landscape table

The third example of tables is shown in Table 3, where we show a more complex table rotated sideways to fit the landscape mode.

RMxAA uses the LaTeX package `tabular`, which is adequate for most applications. A good tutorial for tables, with direct applications of the `tabular` can be found in https://www.overleaf.com/learn/latex/Tables.

We do not recommend publishing very long tables in your paper. Large data collections may be more useful to readers in a machine-readable format (MRT). In the manuscript, a table with fewer rows may serve as a guide for the MRT document content. Please contact our editors to allocate direct link access to MRT tables in the RMxAA web page for the published version of your manuscript.

6. FACILITIES

For observational research, authors must include a brief list of facilities and instruments used, as well as proper acknowledgment of public catalogs and virtual observatory resources used.

7. REFERENCE STYLE

Our default formatting for references uses the journal-naming system from the AASTex style and the Astrophysics Data System (ADS). RMxAA follows the ADS bibliographic codes for both refereed https://adsabs.harvard.edu/abs_doc/refereed.html and non-refereed https://adsabs.harvard.edu/abs_doc/non_refereed.html publications.

If a paper has more than five authors, only the first three will be listed, followed by "et al.". The DOI of each publication was included in the dataset. At the end of this document, you will find an example of the default reference formatting.

The default formatting for references follows the Astrophysics Data System (ADS) BibTeX style. The author should provide a bibliography file using the command `\bibliography{bibfile}`, where all references are included. At the end of this document, you will find an example of the default reference formatting. Note that the DOI code is linked to references that have one; therefore, it is important to include it in the BibTeX bibliography (`.bib`) file.

The usual commands `\citep` for reference in parentheses, as in (Román-Zúñiga et al., 2023), and `\citet` for references with year in parentheses, as in Román-Zúñiga et al. (2023), are used in the main body of the article.

Authors must include their bibliography file with their manuscript, i.e. the bib file. The **rmxaa.bib file** is an example of a bib file that serves as a guide for the formatting.

■ REFERENCES

Barrientos, E., & Mendoza, S. 2017, European Physical Journal Plus, 132, 361, doi: 10.1140/epjp/i2017-11642-2

Feuersänger, C. 2012, PGFPlots - A LaTeX package to create plots. https://pgfplots.sourceforge.net/

Román-Zúñiga, C. G., Ybarra, J. E., Megías, G. D., et al. 2015, AJ, 150, 80, doi: 10.1088/0004-6256/150/3/80

Román-Zúñiga, C. G., Kounkel, M., Hernández, J., et al. 2023, AJ, 165, 51, doi: 10.3847/1538-3881/aca3a4

Wikimedia projects contributors. 2023, LaTeX/Tables, Pergamon Press. https://en.wikibooks.org/wiki/LaTeX/Tables

Table 2. Table example that covers the width of the page.

Day	Min Temp	Max Temp	Summary
Monday	11°C	22°C	A clear day with lots of sunshine. Strong breezes lower the temperature.
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 Wikimedia projects contributors (2023).

Table 3. My Results

FF			AA	BB	CC	DD	FF	GG	HH	II	JJJJ
Cccccccccc aaaaaaaaaa	aaaaa aaaaa	aa aa aaaaaa	aaa	aaaa aaaaa	aa + a-aaaaa	aa + a-aaaaa	aaa	aaaa aaaaa	aa + a-aaaaa	aa + a-aaaaa	aaa
aaaaaaaa	**0000**	**1111**	22222	333333	444444	5555	66666	77777	88888	99999	10100
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
aaaaaaaa	**0000**	**1111**	22222	333333	444444	5555	66666	77777	88888	99999	10100
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
aaaaaaaa	**0000**	**1111**	22222	333333	444444	5555	66666	77777	88888	99999	10100
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
aaaaaaaa	**0000**	**1111**	22222	333333	444444	5555	66666	77777	88888	99999	10100
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
	000	**1111**	22222	33333	44444	55555	66666	77777	88888	99999	10.10
Aaaaaaa		**0000**	**11**	**22**	**33**	**44**	**55**	**66**	**77**	**88**	**99**

8. ACKNOWLEDGEMENTS

Acknowledgements may be included to recognize funding sources and grants, to provide standardized acknowledgement text (including required references) for facilities or resources, and/or to recognize individuals who contributed to the research with any relevant discussion, resources, or services but are not listed as coauthors.

9. APPENDICES

If you have appendices to your article, you can use something like the following:

```
\begin{appendices}
\section{First Appendix}
\label{sec:ap-A}}
\{Text of first appendix.}
\section{Second Appendix}
\label{sec:ap-B}
\{Text of second appendix.}
\end{appendices}
```

The appendices follow the Acknowledgments section but precede the Bibliography section. Equations in the appendices are labeled A1, A2, B1, B2, etc.

10. CODES

This macro includes the *listings* package, which offers customized features for adding code or pseudocode. The package adds adequate syntax coloring for some of the most popular languages (C, C++, Python, and Matlab).

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

    if num_terms < 1
        disp('Number of terms should be greater than
         or equal to 1.');
        return;
    elseif num_terms == 1
        fprintf('Fibonacci Sequence:\n%d\n',
         fib_sequence(1));
        return;
    elseif num_terms == 2
        fprintf('Fibonacci Sequence:\n%d\n%d\n',
         fib_sequence(1), fib_sequence(2));
        return;
    end

    % Calculate and display the Fibonacci sequence
    for i = 3:num_terms
        fib_sequence(i) = fib_sequence(i-1) +
         fib_sequence(i-2);
    end

    fprintf('Fibonacci Sequence:\n');
    disp(fib_sequence);
end
```

Code 1. Example of matlab code.

```python
import numpy as np
import matplotlib.pyplot as plt
from scipy.optimize import curve_fit

def linear_model(x, m, b):
    return m * x + b

def fit_regression(x, y, ex, ey):
    # Ajuste ponderado por errores en y
    popt, pcov = curve_fit(linear_model, x, y, sigma=
     ey, absolute_sigma=True)
    m_opt, b_opt = popt
    perr = np.sqrt(np.diag(pcov))
    m_err = perr[0]  # Incertidumbre en la pendiente
    return m_opt, b_opt, m_err

def plot_regression(x, y, ex, ey, m_opt, b_opt, m_err):
    plt.errorbar(x, y, xerr=ex, yerr=ey, fmt='o',
     label='Datos', ecolor='gray', capsize=3)
```

Code 2. Example of Python code.

```
Pseudo Code:
Read isfive
If(isfive = 5)
 Write "your number is 5"
Else if (isfive = 6)
 Write "your number is 6"
Else
 Write "your number is not 5 or 6"
```

Code 3. Example of Pseudo-code.

During the paper edition process, line numbering will be enabled to facilitate the referee revision. We recommend placing the command \nolinenumbers at the beginning and \linenumbers at the end of the code. This temporarily removes the line numbering from the manuscript and provides code line numbers.