

# Description and Illustration of Use: A $\text{\LaTeX}$ Template for *Mathematics Magazine*

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*Mathematics Magazine* aims to provide lively and appealing mathematical exposition. The best contributions provide a context for the mathematics they deliver, with examples, applications, illustrations, and historical background. The expository writing should be clear and accessible to undergraduates and would, ideally, be helpful in supplementing undergraduate courses or in stimulating student investigations. Manuscripts on history are especially welcome, as are those showing relationships among various branches of mathematics and between mathematics and other disciplines. Articles should aim to be a maximum of 14 pages in length. A PWW should be 1–2 pages in length.

## Manuscript Preparation

*Mathematics Magazine* authors are expected to submit their manuscripts in  $\text{\LaTeX}$ . Using this template as a guide will save everyone time and allow your article to smoothly navigate through the submission process.

Note that the *Mathematics Magazine* template incorporates the following  $\text{\LaTeX}$  packages.

- times
- graphicx
- color
- AMS styles: amsmath, amsthm, amsfonts, amssymb
- url
- hyperref

Use of other  $\text{\LaTeX}$  packages should be minimized as much as possible. Math notation, like  $c = \sqrt{a^2 + b^2}$ , can be left in  $\text{\TeX}$ 's default Computer Modern typefaces for manuscript preparation; or, if you have the appropriate fonts installed, the `mathtime` or `mtpro` packages may be used, which will better approximate the finished article.

Web links can be embedded using the `\url{...}` command, which will result in <https://www.maa.org>. These links will be active and stylized in the online publication.

**Headings** `\section{...}` the first word in a section heading has an initial capital letter. The rest of the section heading is set lower case, with the exception of proper nouns. There is space above and below the heading.

`\subsection{...}` subsections run into the text and the first word has an initial capital letter. The rest of the subsection heading is set lower case, with the exception of proper nouns. This heading is bold.

**Graphics** Figures for this MAGAZINE can be submitted as either color or black & white. If color graphics are included with the submission, they will be used for the online publication only, and converted to black & white images for the print journal. If an author wishes to receive a quote to have color images printed, please let the Editorial Office know.

Please follow these guidelines to ensure that your figures look their best online and in print.

1. Line weight should be no less than .5 pt and rarely thicker than 1 pt. This can be a problem in TikZ where the default is less than .5 pt. See the documentation for TikZ for how to specify line weight.
2. Use the appropriate fonts (Times New Roman, italic, bold, etc. to match the text) and font size for figures (9 pt labels and 8 pt for axes).
3. The appropriate resolution for bitmaps (JPG, PNG, TIF, BMP) is a minimum of 300 dpi. High resolution bitmaps are acceptable as long as you use the correct fonts, font size, and line weight—bitmaps are not editable in the same way as EPS or SVG files are, so you must negate the need for them to be edited.
4. The text area for the print journal is 5 inches wide and 8 inches long. Figures cannot be greater than 5 inches wide.
5. **Do not scale your figures in your L<sup>A</sup>T<sub>E</sub>X document.** Scaling your figures in your L<sup>A</sup>T<sub>E</sub>X document can result in your line weights becoming too thin and your fonts becoming too small.
6. Line art will reproduce best if provided in vector form, preferably EPS or SVG.
7. Please **EXPORT** figures from programs like Mathematica or Maple. Do not use “save as.”
8. Creating a PDF does not affect whether the graphic is a bitmap or vector; saving a scanned piece of line art as PDF does not convert it to editable vector line art.
9. If you are generating graphics using a T<sub>E</sub>X package, such as TikZ, please be sure to provide a PDF of the manuscript with the T<sub>E</sub>X file of the graphic. In the production process, T<sub>E</sub>X-generated graphics will eventually be converted to more conventional graphics so the MAGAZINE can be delivered in e-reader formats.

**Tables** Tables in the MAGAZINE’S style should be set in an “open” style: rules above and below the heading and a rule to end the table. Note the use of \abru1e and \brule to improve spacing in the table. The caption is above the table.

TABLE 1: Sample table

Under	$\pi(x) = \#\{\text{primes} \leq x\} =$	$= \text{Li}(x) \pm \text{Error}$
500000	41556	$41606.4 - 50.4$
1000000	78501	$79627.5 - 126.5$
1500000	114112	$114263.1 - 151.1$
2000000	148883	$149054.8 - 171.8$
2500000	183016	$183245.0 - 229.0$
3000000	216745	$216970.6 - 225.6$

**Theorems, definitions, proofs, etc.** Following the defaults of the `amsthm` package, styling is provided for `theorem`, `definition`, and `remark` styles, although the latter two use the same styling.

**Theorem 1.** *Theorems, lemmas, axioms, and the like are stylized using italicized text. These environments can be numbered or unnumbered, at the author's discretion.*

*Proof.* Proofs set in roman (upright) text, and conclude with an “end of proof” (q.e.d.) symbol that is set automatically when you end the proof environment. When the proof ends with an equation or other non-text element, you need to add `\qedhere` to the element to set the end of proof symbol; see the `amsthm` package documentation for more details. ■

**Definition.** Definitions, remarks, and notation are stylized as roman text. They are typically unnumbered, but there are no hard-and-fast rules about numbering.

**Remark.** Remarks stylize the same as definitions.

Displayed equations in the MAGAZINE should be numbered if the equation is referenced elsewhere in the paper. Otherwise equations should not be numbered. Our style is to place the equation numbers on the right side of the equation as below.

$$c = \sqrt{a^2 + b^2} \tag{1}$$

**References** Beginning in 2024 the MAGAZINE will use the NLM reference style. Bib<sub>T</sub>E<sub>X</sub> users should use `vancouver.bst` to typeset their references. If you do not use Bib<sub>T</sub>E<sub>X</sub>, you should manually set your references in the NLM style. There are several examples at the end of this template and more information can be found in `Vancouver.tex`. `VancouverExamples.bib` also gives a variety of examples of how to set up different types of material in a Bib<sub>T</sub>E<sub>X</sub> database.

*The Code* To cite a reference in-text use

`\cite{key}`

where `key` is the name of the reference used in your `.bib` file. In the place where you want to put your bibliography, type the following commands:

`\bibliographystyle{vancouver}`  
`\bibliography{VancouverExamples}`

where `vancouver` is the name of a `.bst` file and `VancouverExamples` is the name of your `.bib` file.

*Example with Citations* We will cite many authors in this paper whose work is notable, such as [1–7]. The works by these authors are important to read, [8–10]. In addition, this work is important [11].

## Manuscript submission

*Mathematics Magazine* is now accepting submissions through Taylor & Francis' Submission Portal (<https://rp.tandfonline.com>). The Submission Portal removes the need to have multiple system accounts and instead provides a centralized author dashboard displaying all your past and present submissions in the Taylor & Francis portfolio of journals.

**Files needed for the submission portal** To prepare your manuscript for submission, please have the following files ready to submit:

- A manuscript with the names of all authors and co-authors.
- A manuscript that is anonymous, i.e., omitting all author names and other identifying information of the author(s).
- Figure files.
- Table files.
- Supplemental files, if applicable.

Questions concerning submission of papers can be addressed to the editor at [math-mag@maa.org](mailto:math-mag@maa.org).

Please submit your manuscript to *Math Mag* through Taylor & Francis' Submission Portal. <https://rp.tandfonline.com>

**Manuscript** Please be aware that the *Mathematics Magazine* uses a double-blind review process per the MAA's policy.

**Author details** Authors' affiliations are the affiliations where the research was conducted. If any of the named co-authors moves affiliation during the peer-review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after your paper is accepted.

### Mathematics subject classification

- Authors should also provide appropriate 2020 Mathematics Subject Classification terms for their paper.
- The "Mathematical Subject Classification Index (MSC)," available at <http://www.ams.org/msc/msc2020.html>, or in PDF form at <https://mathscinet.ams.org/msc/pdfs/classifications2020.pdf>.
- When submitting your manuscript, please provide at least one and up to three 5-digit MSC classifications that best describe your paper.

### Funding information

If applicable, please supply all details required by your funding and grant-awarding bodies as follows:

- For single agency grants: This work was supported by the [Funding Agency] under Grant [number xxxx].
- For multiple agency grants: This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].

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**Summary** Summaries for articles should entice the prospective reader into exploring the subject of the paper and should make it clear to the reader why this paper is interesting and important. It should highlight the concepts of the paper rather than summarize the mechanics. The summary is the first impression of the paper, not a technical summary of the paper. Excessive use of notation is discouraged as it can limit the interest of the broad readership of the MAA and can limit searchability of the article. Your summary should be 250 words or less.

**AUTHOR NAME 1** (MR ID or ORCID) Insert author bio here.

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