LaTeX Style Guide for the *Journal of Integer Sequences*

Version 1.27

Most authors of papers in *Journal of Integer Sequences* prepare their papers in LaTeX. Please observe the following guidelines.

1 LaTex advice

Please avoid the use of special-purpose macros whenever possible. Strip your paper of references to any packages and definitions that you do not actually use. (Do *not* just comment them out.) Remove all commented lines, if possible.

It may be worthwhile to download the latex file for a paper already published in the journal and model your paper on it.

Do not include a date in your paper.

Acknowledgments should be in a *separate, numbered section* at the end of the paper.

Please do *not* include any commands that tweak the spacing (such as `\noindent`, `\newpage`, `\pagebreak`, etc.) since when your paper is formatted for final publication, the page breaks and spacing will probably be quite different from what you currently see.

Avoid the use of PicTeX; it uses too many registers and is often not compatible with packages we use to publish your paper. If you absolutely have to use it, consider the use of `pictexwd` instead.

2 Common Grammatical Errors

1. Avoid the passive voice. Instead of saying "In [1] it is shown that all primes > 2 are odd", say "Smith [1] showed that all primes > 2 are odd".

2. Avoid use of weak constructions such as "this number". For example, instead of saying

   Wrong: Let x be a prime. We now square this number.

   Right: Let x be a prime. We now square x.

3. Avoid the use of constructions, such as "don't", "can't", "isn't", etc.

Wrong: The number 7 is prime, since it isn't divisible by $2, 3, 4, 5$, or 6.

Right: The number 7 is prime, since it is not divisible by $2, 3, 4, 5$, or 6.

4. The word "precise" is not a verb in English.

   Wrong: We now precise the connection between α and β.

   Right: We now make the connection between α and β more precise.

5. Use the word "expansion", not "development".

   Wrong: Let $[a_0, a_1, \ldots]$ be the continued fraction development of x.

   Right: Let $[a_0, a_1, \ldots]$ be the continued fraction expansion of x.

6. Use "associate with", not "associate to".

   Wrong: We now associate x to y.

   Right: We now associate x with y.

7. Use "root" for equations, and "zero" for polynomials.

   Wrong: Let α be the positive root of $x^2 - x - 1$.

   Right: Let α be the positive zero of $x^2 - x - 1$.

   Right: Let α be the positive root of $x^2 - x - 1 = 0$.

8. Use the term "pair", not "couple", to denote two objects.

   Wrong: Let (α, β) be a couple of real numbers.

   Right: Let (α, β) be a pair of real numbers.

9. Avoid run-on sentences. A run-on sentence is one that expresses two thoughts in a single phrase. Fix by separating into two or more sentences, or by connecting with a semi-colon or a conjunction such as "and". More information can be found in the Wikipedia article on run-on sentences.

   Wrong: Let Σ be a finite alphabet, Σ^* denote the set of all finite words over Σ.

   Right: Let Σ be a finite alphabet, and let Σ^* denote the set of all finite words over Σ.

   Wrong: Let p be a prime number ≥ 3, then $2^p \equiv 2 \pmod{p}$.

   Right: Let p be a prime number ≥ 3. Then $2^p \equiv 2 \pmod{p}$.

10. Avoid starting sentences or phrases with notation.

    Wrong: f maps integers to real numbers.

    Right: The function f maps integers to real numbers.

11. Avoid treating citation numbers as objects of prepositions. Treat them syntactically like footnotes.

    Wrong: In [1] it is proved that e is irrational.

    Wrong: The article [1] proves that e is irrational.

    Right: Euler [1] proved that e is irrational.

12. Words like "notation" and "information" are mass nouns in English, and as such, rarely appear in the plural.

    Wrong: We now introduce some definitions and notations.

    Right: We now introduce some definitions and notation.

    The Wikipedia article on mass nouns contains more information.

3 Common punctuation errors

- Use colons properly. Colons should not immediately follow verbs.

  Wrong: The resulting equation is:
  $$x = y^2.$$

  Right: The resulting equation is
  $$x = y^2.$$

  Right: The resulting equation is as follows:
  $$x = y^2.$$

- Always put a comma after "i.e." and "e.g.".

  Wrong: Let x be a minimal element i.e. an element such that if $y \leq x$ then $y = x$.

  Wrong: Let x be a prime e.g. 2.

  Right: Let x be a minimal element, i.e., an element such that if $y \leq x$ then $y = x$.

  Right: Let x be a prime, e.g., 2.

- Avoid excessive and inappropriate capitalization.

  Wrong: We let $H(x)$ denote the Hankel Transform of x.

  Right: We let $H(x)$ denote the Hankel transform of x.

  Wrong: Now we use the Cayley-Hamilton Theorem.

  Right: Now we use the Cayley-Hamilton theorem.

4 Common LaTeX Errors

This section lists a few of the common errors made when preparing papers in LaTeX.

4.1 Blackboard Bold

For blackboard bold symbols such as $\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{R}$, $\mathbb{C}$, use `\mathbb{Z}`, for example. You may need to include the command `\usepackage{amssymb}`.

4.2 Variables

Usually, variables such as x, y, n, etc., should appear in the italic font. This will occur automatically if you remember to enclose your equations (even references to a single variable) in dollar signs or double-dollar signs, or use a latex equation environment.

Wrong: `Let n be the number of integers in the list.`
Right: `Let $n$ be the number of integers in the list.`

4.3 Accents

Be careful to use the proper accents. The name Erdős, for example, uses a Hungarian accent, and should be formatted with `\H`. Create accents using the LaTeX abbrevations; do *not* use UNICODE, keyboard shortcuts, or an exotic character set to make them.

4.4 Floor and Ceiling

Be sure to use the built-in TEX commands `\lfloor`, `\rfloor` and `\lceil`, `\rceil`, not square brackets, when using these integer functions.

4.5 Min and Max

Be sure to use the built-in TEX commands `\min` and `\max` when using these functions.

4.6 Gcd and Lcm

Be sure to use the built-in TEX command `\gcd` for greatest common divisor. Don't write (a, b) for the gcd of a and b; write $\gcd(a, b)$ instead. For lcm, you will have to define your own command so that it appears in the roman font. The best way to do this is to use the command

```
\DeclareMathOperator{\lcm}{lcm}
```

4.7 Multi-letter functions

As a general rule, all multi-letter functions such as $\sin, \cos, \tan,$, etc., should appear in the roman font. For these functions you can use the built-in TEX commands `\sin, \cos, \tan`, etc., but for others (e.g., Li for the logarithmic integral) you may have to define your own commands. Again, the best way to do this is, e.g.,

```
\DeclareMathOperator{\Li}{Li}
```

4.8 Parentheses

Use parentheses for grouping, not square brackets or braces. You can get different sizes of parentheses using, for example, `\bigl(` and `\bigr)`.

4.9 Mod

Draw a distinction between the use of "mod" as a function of two arguments, mapping $a \bmod b$ to the least non-negative residue of a modulo b, and "mod" as an equivalence relation. For the first, use the TEX command `\bmod`. For the second, use the TEX command `\pmod` for displayed equations; for in-line equations write something like

```
$x \equiv a$ (mod $b$),
```

which typesets as follows: $x \equiv a \pmod{b}$. Do not use notation like $x \equiv y\ [p]$.

4.10 Quote marks

Do not enclose words in ordinary quotation marks `"like this"`. This results in the following ugly output:

"like this"

Instead, use the left-quote and right-quote symbols, ``` ``like this'' ```, which gives the correct

"like this" .

4.11 Proper use of `\ldots` and `\cdots`

Be sure to use `\ldots` and `\cdots` properly. The rule is as follows: you should use `\ldots` if the center of mass of the items on either side is below the middle of the line — for example, if the items on either side are commas. You should use `\cdots` if the center of mass of the items on either side is in the middle of the line — for example, if the items on either side are alphabet symbols. For example:

Wrong: Consider the product $a_1 a_2 \ldots a_n$. (Here we used `\ldots`.)
Right: Consider the product $a_1 a_2 \cdots a_n$. (Here we used `\cdots`.)

Wrong: Consider the sequence $a_1, a_2, \cdots, a_n$. (Here we used `\cdots`.)
Right: Consider the sequence $a_1, a_2, \ldots, a_n$. (Here we used `\ldots`.)

4.12 Proper punctuation of case statements

Please punctuate case statements as follows:

$$f(x) = \begin{cases} 1, & \text{if } x \text{ is irrational;} \\ 0, & \text{otherwise.} \end{cases}$$

Do *not* use the `array` environment to do case statements. Use `\begin{cases}... \end{cases}`. Within a case statement, use `\text{...}`, not `\mathrm{...}`.

5 Definitions

Terms that are being defined should be in a special font, such as italic or slant.

For example,

A *flern* is a 3-dimensional hypersquare.

Avoid introducing new terms and notation when there are already accepted equivalents widely in use in the mathematical community. For example, for the Fibonacci numbers, you should use the notation F_n, and the numbers defined by $F_0 = 0$, $F_1 = 1$, $F_n = F_{n-1} + F_{n-2}$ for $n \geq 2$.

6 Theorems

Use the `\begin{theorem}` ... and `\end{theorem}` environments for theorems, lemmas, propositions, etc. Theorems should be numbered. Refer to theorems, lemmas, propositions, sections, equations, tables etc. using labels; do *not* hard-code references to them.

To get proper definitions, use the `\usepackage{amsthm}` command.

7 Definitions, Examples, and Remarks

All definitions, examples, and remarks should be stated in the roman font, except (of course) for any mathematical symbols. You can use the following code as an example.

```
\theoremstyle{definition}
\newtheorem{defn}{Definition}
```

8 Proofs

Use the commands `\begin{proof}` and `\end{proof}` to delimit proofs. These are available in the `amsthm` package mentioned above.

9 Tables

Tables should be **centered** on the page, using the `center` environment. Each table should have a number.

10 Introduction

Papers should have an introductory section that provides motivation and history of the problems discussed.

11 Abstract

Every paper should have a short abstract of 50 to 200 words. The abstract should be free of symbols whenever possible, and *should not* contain citations to the bibliography or section numbers of the paper. When referring to other work in the abstract, you can refer to author's names, but avoid mentioning years, journal names, or other information.

12 Sequence Numbers

Be sure to include sequence numbers from Sloane's online *Encyclopedia of Integer Sequences* for all sequences you discuss in your paper. The list of all such sequences should be summarized at the end of your paper, sorted in ascending order. If the sequences do not exist in the *Encylopedia*, please submit them to `www.oeis.org` and record the A-numbers assigned, and add those to your paper.

13 Citations

Use citations syntactically like footnotes, not as objects of prepositions. Avoid saying things like "In [1] we find the following result." Instead, say "Jones [1] proved the following result." Use the LaTeX command `\cite`; do *not* hard-code references to the bibliography.

When listing citations, if the author has two initials, be sure to place a space between the two initials.

Wrong: N.J.A. Sloane
Right: N. J. A. Sloane

Two authors should be separated with "and":
Wrong: J. Smith, D. Jones
Right: J. Smith and D. Jones

Three or more authors should be separated with the "Oxford comma".
Wrong: J. Smith, D. Jones and Z. Xu
Right: J. Smith, D. Jones, and Z. Xu

When simultaneously citing multiple references, use syntax similar to `\cite{ref1,ref2,ref3}` to combine all references in a single pair of brackets; do *not* write `\cite{ref1}, \cite{ref2}, \cite{ref3}`.

When citing a theorem or page number in another work, say `\cite[p.\ 123]{ref1}` or something similar. Note in particular the backslash and space after the dot. This is needed because LaTeX assumes that a dot following a lowercase letter indicates the end of a sentence, and hence inserts extra space.

Please use the following examples when preparing citations. Pay careful attention to punctuation and the use of roman, italic, and bold fonts. In particular, notice that page ranges should be separated by two hyphens in LaTeX: write `123--145`, not `123-145`.

Please use the standard *Mathematical Reviews* abbreviations for journal names, with the exception that for particularly obscure journals you may provide the entire name.

The *Mathematical Reviews* journal abbreviation list can be found here:

`http://www.ams.org/msnhtml/serials.pdf`

Do not include citations to reviews of the articles, such as those appearing in *Zentralblatt* or *Math. Reviews*.

13.1 Article citation

1. J. Chan and F. E. Smith, An article about Chan-Smith numbers, *J. of Chan-Smith Numbers* **13** (1998), 123–124.

Provide the volume, but **not** the issue number, unless the issue number is required to uniquely specify the paper. Note that words in article titles should *not* be capitalized, with the following exceptions: the first word, proper nouns, and German nouns. The journal name should be in italics; the volume number should be in bold. Do not use "pp." to provide page numbers for articles.

13.2 Book citation

2. A. Alces, *Introduction to Moose Theory*, Springer, 1995.

Book titles should be in italics. Note that words in book titles should be capitalized, with the exception of very short unimportant words, such as "to", "of", "and", etc. Do not include the ISBN number. It is not necessary to give the place of publication unless it is a very rare or hard-to-find book.

13.3 Article in Conference Proceedings or Book

3. B. Franklin, The public library as an aid to research, in G. Washington and T. Jefferson, eds., *Public Libraries in the United States*, Addison-Wesley, 2001, pp. 16–32.

4. P. Flajolet, How to count, in *Automata, Languages, and Programming: Proc. ICALP 1990*, Lect. Notes in Comp. Sci., Vol. 443, Springer, 1991, pp. 220–234.

Capitalize the name of the book, but *not* the paper you are referring to in the book. Note that here, unlike the case of a journal article, the abbreviation "pp." is used.

13.4 Unpublished Material or Material on the Web

5. B. Obama, G. Bush, and W. J. Clinton, Combinatorial reasoning in American elections, preprint, `http://www.barackobama.com/combin.pdf`.

6. J. Schmoe, Pattern avoidance, preprint, `http://arxiv.org/abs/1111.2222`.

You can use the command `\url` to specify the URL of electronic manuscripts.

14 Other Issues

All sections of your paper should be numbered. Do not hard-code references to section numbers.

Please be sure that your paper contains a list of *key words and phrases* and the appropriate *2000 Mathematics Subject Classifications*. (A list of all these classifications can be found at `http://www.ams.org/msnhtml/classification.pdf`.) **Provide only one classification as primary** and any additional ones as secondary.

Avoid starting a line of your file with the word "From". Many mailers insert a > character in such lines, causing a question mark to appear in your text. If you must start a line of the file with the word "From", you can insert a space first.