

Guidelines for ETNA manuscripts

1 Essentials of the ETNA journal style

For a quick start, we provide a list of essential steps for formatting papers according to ETNA's style, followed by a checklist. The details are discussed in the later sections.

- *Manuscript language* is English. See Section 2.
- *Text formatting* is by \LaTeX . See Section 2.
- *Output* is a pdf-file using a compilation by `pdflatex`. See Section 3.
- *Documentclass* is the ETNA \LaTeX class `etna.cls`. See Section 3.
- *Packages required*: ETNA \LaTeX class `etna.cls` and the \LaTeX packages `hyperref` and `microtype`. See Section 3.
- Author should provide manuscript data in the title section as shown in the example document `example.tex`. Essentially this involves (for details, see Section 3)
 - Paper's title at `\title{.....}`
 - Author's names, affiliation and email at `\author{... \and ...}`
 - Short title for page headers at `\shorttitle{...}`
 - Author's names for page headers at `\shortauthor{...}`
 - Paper's abstract at `\begin{abstract}... \end{abstract}`
 - Keywords at `\begin{keywords}... \end{keywords}`
 - AMS classification numbers at `\begin{AMS}... \end{AMS}`

Checklist

		See
General L ^A T _E X	documentclass: <code>\documentclass[final,leqno,letterpaper]{etna}</code>	1
	compilation by <code>pdflatex</code>	2
	<code>hyperref</code> , <code>microtype</code> available for system	2
	avoid incompatible packages	3
Title Page	paper's title	5
	(optional) funding acknowledgments	7
	author's names, affiliation, and email addresses (the latter set in typewriter fonts (<code>\tt</code>))	8, 9
	running heads: <code>\shorttitle</code> and <code>\shortauthor</code>	10
	paper's abstract; avoid <code>\cite</code> in abstract	11
	keywords	12
	AMS numbers	13
Sectioning	section titles non-capitalized	4
	(optional) appendix before bibl.	4
	(optional) acknowledgments before appendix/bibl.	4
Environments	Predefined: Theorem, Lemma, Corollary, Proposition, Definition	5
	Predefined: Example and Remark	5
	proofs in proof-environments	5
Refs and cites	Table X.Y., Figure X.Y., Section X.Y. (capitalized)	6, 6
	equation (X.Y) (non-capitalized), <code>\eqref</code> recomm.	6
	no number to non-referenced equations	6
	combine multiple citations: <code>\cite{aa,bb,cc}</code>	6
	sort citations by numbers	6
Fig. and Tab.	table caption on top	7
	figure caption on bottom	7
	all caption end with “.”	7
	table style with few lines	7
Math	matrices in square brackets	8
Grammar	comma after e.g., i.e.,	9
	parenthetical remark at end: “;”	9
	serial comma	9
Bibliography	bib-file is recommended	10
	only cited refs in bibliography	10
	check entries against MathSciNet	10
	use SIAM-style: authors set by <code>\textsc</code> or <code>\sc</code>	10
	title set by <code>\emph</code> or <code>\em</code>	10
	<i>NOTE</i> : title non-capitalized except	
	for books, collection titles and theses	10
	book collections need editor	10
	book collections and books	10
	need publisher and publisher address	10

2 General formatting guidelines

1. A manuscript for ETNA must be written in English. It may be in color provided it is equally readable when displayed in black and white.
2. Any manuscript submitted to ETNA must be developed in L^AT_EX using the ETNA style files and must follow the general guidelines described in this document. ETNA papers are compiled using `pdflatex`.
3. For compilation, the ETNA L^AT_EX class file `etna.cls` is required. This file can be retrieved at <http://etna.mcs.kent.edu/submissions/latex/>. For installation, all these files need to be downloaded and unpacked in a directory where L^AT_EX can find it. Additionally, the packages `hyperref` and `microtype` are mandatory. Usually these packages are already installed on most L^AT_EX distributions. If not, the packages have to be installed, too.

3 Title page and paper data

1. Preamble `\documentclass[final,leqno,letterpaper]{etna}`. The option `\leqno` is mandatory and puts the equation numbering on the left.
2. Required packages:
The packages `hyperref`, `microtype` are mandatory and have to be available for your local L^AT_EX installation. If not, you have to install them.
These packages are loaded automatically by the ETNA class file, i.e., they *do not* have to be included by the authors via `\usepackage`.
3. Packages incompatibilities. There are several L^AT_EX packages that are incompatible with the ETNA style (mainly because of the `hyperref` package). It is recommended to use *as few additional packages as possible*. The following is an incomplete list of packages that are recommended or should not be used
 - Recommended: `amsmath`, `amssymb`
 - Not recommended: `subfigure`, `subcaption`, `float`, .. and many more; see the `hyperref` README¹, section Package Compatibility.
 - Incompatible: `amsthm`
4. Adding meta data to your document is recommended (but optional). It makes your document easier to process for, e.g, internet search engines. Thus, include the appropriate equivalent of the following code

¹<http://mirrors.ctan.org/macros/latex/contrib/hyperref/README.pdf>

```

\hypersetup{%
  pdftitle={Document title},
  pdfauthor={John Doe, Erwin Schr\`odinger},
  pdfkeywords={a keyword, another keyword, and another one}
}

```

5. Add Paper's title after `\title{`: non-capitalized except for names and the first word:

```
\title{On Hilbert's third problem\thanks{%
```

6. The Received/Accepted/Published/Recommended-phrase at `\thanks{`: this is for internal use and can be ignored by authors.
7. Acknowledgments to funding grants can go at `\thanks{...}` after the Received/Accepted/Published/Recommended-phrase. Alternatively, acknowledgments can go also to the end of the paper before the bibliography; see below.
8. Add the author's name at `\author{...}`: full first names preferred, names are separated by `\and`. The author's affiliation and email are provided by a footnote at the name: `author's name\footnotemark[2]`, or by

```
author's name\thanks{affiliation ({\tt email address}).}
```

9. The email address is written in parenthesis after the author's affiliation and address and set in typewriter-fonts: (`{\tt author@uofi.edu}`). For authors from the same institution there should be one *common* footnote and the email address is written as (`{\tt \{authorA,authorB\}@uofi.edu}`).
10. For the running page headers, provide a short title and the abbreviated author's list. Include this via the `\shorttitle{...}` and `\shortauthor{...}` commands. Here the text is in uppercase and the first names of the authors are abbreviated. Use the serial comma. For instance,

```

\shorttitle{SHORT TITLE}
\shortauthor{F. ~FIRTA, S.~SECONDA, AND T.~THIRDA}

```

11. Add abstract in `\begin{abstract}.. \end{abstract}` environment. *Note*: Citations in the abstract should be avoided. If this is not possible, then the authors' names and the publication details should be given. For example, "Golub and Kahan [SIAM J. Numer. Anal., 2 (1965), pp. 205–224] show that ...".
12. Add keywords in `\begin{keywords}.. \end{keywords}` environment. Non-capitalized except for names, separated by commas. No period at the end. For example:

```
\begin{keywords}
  eigenvalues, determinant, sparse matrices
\end{keywords}
```

13. Add AMS subject classification numbers in `\begin{AMS}.. \end{AMS}` environment, separated by commas. No period at the end. For example:

```
\begin{AMS}
  74B20, 65G12, 65J22
\end{AMS}
```

4 Text structuring

Sections. It is recommended to organize the text into sections, subsections, etc. *All (sub)section titles are non-capitalized except for names and the first word.*

```
\section{The longest proof ever}
```

Appendix. Appendices should be at the end of the paper, immediately before the bibliography. An appendix is introduced by the `section{..}` command preceded by an `\appendix`.

```
\appendix                or                \appendix
\section{More stuff}      \section*{}
```

Further acknowledgments. Further acknowledgments (e.g., to individuals, institutions, etc.) can be given in a non-numbered section at the end before the bibliography and before the appendix.

```
\section*{Acknowledgments}
Text of Acknowledgments
```

5 Environments: theorems, lemmas, examples, remarks, etc.

Math-environments. Several math-environments are predefined: `theorem`, `lemma`, `corollary`, `proposition`, and `definition`. They are invoked by enclosing the text into a `\begin{...} ... \end{...}` structure.

```
\begin{theorem}\label{mytheorem}
Text of theorem.
\end{theorem}
```

```
\begin{lemma}\label{mylemma}
Text of lemma.
\end{lemma}
```

Environment numbering. The predefined math-environments are automatically numbered in the same way and format as theorems, namely as “Example X.Y”, where X is the section number and Y is a running number.

You may define additional math/text-environments, but they should be numbered in a similar way. This is done by the `\newtheorem` command *with* the `[theorem]` option. For instance, to generate the theorem-like environment “Assumptions”, you should add the commands

```
\newtheorem{assumptions}[theorem]{Assumptions}
```

to the preamble of your tex-file.

Text-environments in roman. Text-environment refers to environments that are “remark-like“. There are two *predefined* text environments for remarks and examples: `remark` and `example`. The usage is similar as for math-environments. However, the text is *automatically* set in roman fonts.

```
\begin{remark}
  Text of remark.
\end{remark}
```

```
\begin{example}
  Text of example.
\end{example}
```

Additional text-environments can be defined by the user similar as in the previous paragraph:

```
\newtheorem{commentary}[theorem]{Commentary}
```

Important: All user-defined text-environments should be *typeset in roman* (not in italics as in definitions, theorems, lemmas, and corollaries). This can be achieved by enclosing the text into a `\rm` group as follows:

```
\begin{commentary}
  {\rm Text }
\end{commentary}
```

Proofs. If possible, proofs should be enclosed into the predefined `proof` environment. Proofs should begin with “*Proof.*” and end with the symbol “ \square ” (Halmos box). At the end of a proof, there should be a gap between the last word and the “endproof” symbol. This is achieved by the `proof`-environment as follows:

```
\begin{proof} Text of the proof. \end{proof}
```

If the proof ends with a displayed equation you should indicate by `\endproofhere` at the displayed equation the end of a proof:

```

\begin{proof}
Text of the proof.
 $a^2+b^2=c^2$ . \endproofhere $$
\end{proof}

```

If the proof does not appear right after the theorem/lemma/proposition etc., then you should add the reference to the appropriate theorem/lemma/proposition:

```

{\em Proof of Theorem~\ref{theorem}}.
Text of the proof. \endproofhere

```

Algorithms. ETNA has no general rules how Algorithms are written. In any case they should have a `\label` and should be numbered and referenced as explained above.

They can be provided formally as (pseudo)code or informally as text. They can be included in a text-environment (see above) or via the packages `algorithm`, `algorithmicx`, or `algorithm2e`.

6 Referencing

Sections. Sections should be referred to by “Section X.Y” (capitalized) and not “§ X.Y”. Subsections (and subsubsections) should be referred similarly to by “Section X.Y.Z” and *not* by “Subsection X.Y.Z”.

Equation numbering. ETNA uses the `hyperref` package that produces hypertext links in the document. All references in the manuscript should be “clickable”, which means that all numbers of sections, definitions, theorems, equations, etc., should be labeled. This is automatically achieved by the `\label{. .}` and `\ref` or `\eqref` commands.

Equations that are not referenced should not be numbered.

It is recommended to use the `\eqref` commands from the `amsmath` package for referencing equations and to explore the capabilities of the `amsmath` equation environments: `\begin{align} \end{align}`, `\begin{split} \end{split}`, etc.

Capitalizing referenced items. When referring to a specific table, figure, algorithm with a label number, then the corresponding item is capitalized (e.g, “This can be seen from Table 2.1 and Figure 3.1.”, etc.). However, references to equations are not capitalized! (“From equation (3.1) it follows,...”)

Citations In the text, references should be cited using the command `\cite{. .}`. The argument of `\cite{. .}` contains a list of keys (i.e., the names of your bib-items), separated by commas. Multiple citations should be concatenated:

Use:	instead of
<code>\cite{ArbGol188,ArbGol195}</code>	<code>\cite{ArbGol188}, \cite{ArbGol195}</code>

The list of references should be ordered alphabetically, and citations should be sorted according to numbers, that is [3,5,12], instead of [12,3,5]. This can be done automatically by the L^AT_EX `cite`-package that is invoked (if installed) as follows in the preamble:

```
\usepackage[space,noadjust,nocompress]{cite}
```

7 Figures and Tables

Figures Figures should be submitted as vector graphics and not as bitmaps whenever possible. Typically, figures are included via the `\includegraphics{...}` command and the `graphicx` package. Authors are responsible to guarantee compatibility with a compilation via `pdflatex`.

Captions. Tables and figures should have captions. Note: *Table caption should be above the table. Figure captions below! Caption text ends with a period “.”.*

```
\begin{table}
\caption{Here goes the table caption.}
\begin{tabular}
....
\end{tabular}
\end{table}

\begin{figure}
\includegraphics{myfile}
\caption{Here goes the figure caption.}
\end{figure}
```

Table style. Tables should have as few lines as possible. For example:

Use:																			
<table style="border-collapse: collapse; margin: auto;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">$C1$</td> <td style="border-right: 1px solid black; padding: 5px;">$C2$</td> <td style="padding: 5px;">$C3$</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">a_1</td> <td style="border-right: 1px solid black; padding: 5px;">a_2</td> <td style="padding: 5px;">a_3</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">b_1</td> <td style="border-right: 1px solid black; padding: 5px;">b_2</td> <td style="padding: 5px;">b_3</td> </tr> </table>	$C1$	$C2$	$C3$	a_1	a_2	a_3	b_1	b_2	b_3	instead of <table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <td style="padding: 5px;">$C1$</td> <td style="padding: 5px;">$C2$</td> <td style="padding: 5px;">$C3$</td> </tr> <tr> <td style="padding: 5px;">a_1</td> <td style="padding: 5px;">a_2</td> <td style="padding: 5px;">a_3</td> </tr> <tr> <td style="padding: 5px;">b_1</td> <td style="padding: 5px;">b_2</td> <td style="padding: 5px;">b_3</td> </tr> </table>	$C1$	$C2$	$C3$	a_1	a_2	a_3	b_1	b_2	b_3
$C1$	$C2$	$C3$																	
a_1	a_2	a_3																	
b_1	b_2	b_3																	
$C1$	$C2$	$C3$																	
a_1	a_2	a_3																	
b_1	b_2	b_3																	

In particular, do not use lines on top and bottom. The use of the L^AT_EX `booktab` package is accepted.

8 Mathematical Styles

Number Fields. \mathbb{R}, \mathbb{C}

The symbols used for real, complex numbers, etc., are `\mathbb{R}`, `\mathbb{C}`, etc, where `\mathbb` is available by including the `amsfonts` of `amssymb` package.

Matrices. $\begin{bmatrix} M & A & T \\ R & I & X \end{bmatrix}$

For matrices, *square brackets* should be used, e.g, with the `\bmatrix` command (or alternatively via `\left[... \right]`).

9 Grammar

Common abbreviations. The abbreviations “et al.”, “i.e.”, and “e.g.”, in the text should always be in roman font. In English, there is always a comma after “i.e.” and “e.g.”.

Parenthetical remarks. A parenthetical remark in the middle of the sentence (e.g., this one) is in parenthesis, while at the end of the sentence follows a semicolon; e.g., this one. (This situation often occurs when referencing to literature using a phrase with “see”: “...it is well-known that $a = b$; see [12]”.)

Serial comma. ETNA employs the serial comma (“Oxford comma”): a comma is placed immediately before the conjunction (“and” or “or”) in a series of *three or more* terms. For instance:

“Assume that (2.1), (2.6), and (2.7) hold for some τ .”

“An algorithm given by Calvetti, Golub, Gragg, and Reichel”

Colon. After a colon (“:”), the following word is set in lowercase in general, unless what follows consists of two or more complete sentences.

10 Bibliography and references

To facilitate the editing process, authors are especially urged to carefully prepare the references of their manuscripts. It is the authors’ responsibility to provide complete details such as editors, publisher, city of publication, page numbers, department and institution, as well as correct abbreviations of names of serials. All of this information can be found, for example, on MathSciNet²; The tool betterbib³ can be used to automatically adapt existing BibTeX files.

Important notes.

- *The list of references should be ordered alphabetically.*
- *Only references cited in the text should be included in the bibliography.*
- *The authors should cross-check their bibliography with the MathSciNet-entries (if available)!*

²<http://www.ams.org/mathscinet/>

³<https://github.com/nschloe/betterbib>

- *Manuscripts may be returned to authors if the manuscripts and the references are not properly prepared.*
- *You are strongly urged to provide a bib-file together with your submission!*
- *The preferred way for formatting the references is to use BIBTeX with the SIAM bibliography style.*

To use the SIAM bibliography style:

```
\bibliographystyle{siam}
\bibliography{YourBibFile}
```

It is possible, though not recommended, to avoid BIBTeX and provide the references via `\bibitem` entries; see below.

Essentials of reference styles

- author's names are set in small caps by `\textsc` (or by `\sc`), titles are set in italic by `\emph` (or by `\em`)
- serial comma for author's names
- paper citations: non-capitalized title, volume number is mandatory, issue number is omitted
- book citations: use headline style for title (all words capitalized except short ones); publisher and publisher address are mandatory
- Thesis: headline style for title; write, e.g., "Ph.D. Thesis" after title; department and institution are mandatory.
- Collections: editors, publisher, and publisher address are mandatory.

Details of reference styles

- Examples for paper citations:

```
\bibitem{ArbGol88}
\textsc{P. Arbenz and G.~H. Golub},
\emph{On the spectral decomposition of {H}ermitian matrices
modified by low rank perturbations with applications},
SIAM J. Matrix Anal. Appl., 9 (1988), pp.~40--58.
```

- Examples for papers that are submitted or to appear:

```
\bibitem{Cay58}
\textsc{A. Cayley},
\emph{Generalising Hamilton's theorem to higher order matrices},
```

Math. Ann., submitted, 1858.

```
\bibitem{Gau10}
\textsc{C.~F. Gauss},
\emph{Another proof of the fundamental theorem of algebra},
J. Reine Angew. Math., to appear, 2010.
```

Note: Giving the journal name is not required, and the publication year should only be added if known.

- Example for book citations:

```
\bibitem{FoxPar68}
\textsc{L. Fox and I.~B. Parker},
\emph{Chebyshev Polynomials in Numerical Analysis},
Oxford University Press, Oxford, UK, 1968.
```

Note: All major words in book titles have to be capitalized (headline style).

- Example for citations from collections:

```
\bibitem{Mor90}
\textsc{J.~J. Mor'e},
\emph{A collection of nonlinear model problems}, in
Computational Solutions of Nonlinear Systems of Equations,
E.~L. Allgower and K. Georg, eds., Lectures in
Appl. Math., 26, Amer. Math. Soc., Providence,
1990, pp.~723--762.
```

Note: Editors are required and collection title in headline style.

- Example for an arXiv-preprint:

```
\bibitem{Sood14}
\textsc{K.~M. Soodhalter}, \emph{Two recursive GMRES-type
methods for shifted linear systems with general
preconditioning}, Preprint on arXiv, 2014.
\url{https://arxiv.org/abs/1403.4428}
```

Note: For arXiv-preprints: provide url. (Not needed for Tech. Reports.)

Further instructions concerning the references

- Citations in the abstract should be avoided; see above
- References to ETNA papers should include the URL should to the citation, e.g.,

```
\url{http://etna.math.kent.edu/vol.26.2007/pp453-473.dir}
```

- Some journals have “paper numbers” instead of conventional page numbers. An example is the Journal of Fluids Engineering. Papers in such journals should be cited using the paper number and the number of pages; e.g., J. Fluids Eng., 130 (2008), 051202 (10 pages).
- In the second (and further) paper(s) by the same author(s) the name(s) should be replaced by the command `\sameauthor`, which is defined by the SIAM LaTeX style. For instance, for a second paper by P. Arbenz and G. H. Golub, write

```
\bibitem{ArbGol95}
\sameauthor,
\emph{Matrix shapes invariant under the symmetric
{QR} algorithm}, Numer. Linear Algebra
Appl., 2 (1995), pp.~87--93.
```

11 Submission

Submitted manuscripts that are to be reviewed (i.e., not yet accepted), should include a line numbering. This is achieved by using the `\lineno` package and adding the following in the preamble:

```
\usepackage{lineno}
\linenumbers
```

To submit a manuscript, send a PDF file containing the whole manuscript by email to etna@math.kent.edu.

```

\documentclass[final,leqno,letterpaper]{etna}

\hypersetup{%
  pdftitle={Document title},
  pdfauthor={John Doe, Erwin Schr\"odinger},
  pdfkeywords={a keyword, another keyword, and another one}
}

\title{Paper's title\thanks{%
Received... Accepted... Published online on... Recommended by...
% optional here: work supported by ...
}}

\author{First author's name\footnotemark[2]
  \and Second author's name\footnotemark[3]}

\shorttitle{SHORT TITLE}
\shortauthor{F.~FIRTA AND S.~SECONDA}

\begin{document}

\maketitle

\renewcommand{\thefootnote}{\fnsymbol{footnote}}

\footnotetext[2]{First author's address.}
\footnotetext[3]{Second author's address.}

\begin{abstract}
Paper's abstract.
\end{abstract}

\begin{keywords}
paper's key words, non-capitalized except for names
\end{keywords}

\begin{AMS}
AMS subject classifications
\end{AMS}

\section{First section} This is typically the paper's Introduction.
...

```

Figure 1: Example for the initial part of a paper prepared according to the SIAM L^AT_EX style and with some ETNA specific commands.