Submitted exclusively to the London Mathematical Society
doi:10.1112/0000/000000

Using the LMS class file

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A dedication can be included here

Abstract

This is a combined guide and sample `.tex` file for authors choosing to prepare their papers for the journals of the London Mathematical Society with the LMS LaTeX 2_ε class file. Papers written in `article.cls` or `amsart.cls` are easily converted to `lms.cls`, and this can reduce the time to publication. The LMS class is compatible with commonly used mathematical packages such as `amsmath`.

An *abstract* written in English is required and should preferably have fewer than 200 words. Please do not include citations, footnotes or references to numbered equations, figures, tables or theorems in your abstract. Avoid complicated formulae or displayed equations, if possible.

Part I. Use this type of header for very long papers only

1. *Preparation and submission*

The LMS class file `lms.cls` is distributed with the following files:

(1) `readme-lms.txt`, *notes* for unpacking and installation;
(2) `lms2eau.tex`, a *sample file* for preparing your manuscript;
(3) `lms2eau1.ps, lms2eau1.pdf`, the *guide* 'Using the LMS class file'.

This guide is the printable `.ps` or `.pdf` output produced from the sample file by the LaTeX or PDFLaTeX compiler, respectively. The guide displays a number of useful examples but is by necessity brief. If you cannot find the answer to your query here, please look in the accompanying file `lms2eau.tex` for the corresponding LaTeX source code and for further clues, which are supplied as comment lines beginning with percent signs. It is convenient to use the sample file as a template from which you can build your article. Please remember, however, to keep a copy of the original file `lms2eau.tex` for your reference.

General instructions for the preparation of manuscripts and submission are available on the web at `http://www.lms.ac.uk/publications/submission.html`.

Please refrain from inserting extra formatting or spaces into your paper, as this makes the work of the copy-editor more difficult. Avoid beginning sentences with a mathematical symbol, and do not attach plurals or genitives to mathematical symbols (such as D's or Ds). Instead, insert descriptive nouns where needed before a mathematical symbol, for example, 'the discriminants D'.

Note. From 2007 onwards, the journals of the London Mathematical Society are published in the larger page format demonstrated in these sample pages.

2000 *Mathematics Subject Classification* 11B83 (primary), 11J71, 37A45, 60G10 (secondary). Please refer to `http://www.ams.org/msc/` for a list of codes.

Acknowledgements of grants and financial support should be included here; more general *Acknowledgements* are better placed either immediately before the bibliography (see page 4) or at the end of the introduction. Since author names should not carry footnote marks, instead refer to 'The first author', etc. No 'keywords' should be supplied. This guide was last revised on 20 November 2007 and documents `lms.cls` version 2.1.9.

2. *Mathematical statements and expressions*

2.1. *Mathematical statements*

Environments for theorems are built into the LMS class file, and the `amsthm` package should not be used.

Any theorem-like statement that requires a proof (such as Proposition, Lemma, Theorem or Corollary) must be defined in the preamble of the `.tex` file using the command

'`\newtheorem{`*theoremname*`}{`*Printedname*`}`'.

THEOREM 2.1 (Optional argument here [**2**, p. 193]). *The string of commands* '`\begin{`*theoremname*`}[(Optional argument here)]` *Theorem text* `\end{`*theoremname*`}`' *produces a numbered theorem-like statement headed 'Printedname'. Please note that parentheses must be included in the optional argument.*

THEOREM. '`\begin{`*theoremname*`*}` *Theorem text* `\end{`*theoremname*`*}`' *produces an unnumbered theorem-like statement headed 'Printedname'.*

Any other independent statement that *does not* require a proof must be defined in the preamble using the '`\newnumbered{`*statementname*`}{`*Printedname*`}`' command. In the next example the argument in square brackets is optional.

REMARK (NB). '`\begin{`*statementname*`*}[(NB)]` Text `\end{`*statementname*`*}`' produces an unnumbered independent statement headed '*Printedname*'.

EXAMPLE 1. '`\begin{`*statementname*`}` Text `\end{`*statementname*`}`' produces a numbered independent statement headed '*Printedname*'.

The numbering sequence of all mathematical statements can be controlled via options in the `\newtheorem` and `\newnumbered` commands (see [**2**, p. 193]).

Two proof statements are predefined in the LMS class. The `proof` statement ends with a square box, while the `proof*` statement does not. In the second proof below, we use the optional argument of the command `\begin{proof*}[`of Theorem`~{\rm\ref{mythm}}]` to refer back to the appropriate theorem.

Proof. Here, '`\begin{proof}` Proof text `\end{proof}`' produces a proof with a square box marking the end. □

Proof of Theorem 2.1. Using '`proof*`' does not produce a square box.

Proof with aligned box. If the proof ends with a single displayed equation, using `proof*` one should align a square box with that equation by putting `\singlebox` and `\esinglebox` as the first and last commands *inside* the equation, whence

$$0.999999\ldots \equiv 1.$$

If the proof ends with an `eqnarray*` environment, using `proof*` one should align a square box with the last equation of the `eqnarray*` environment by *surrounding* that environment with a pair of `\multbox` and `\emultbox` commands.

2.2. *Mathematical expressions*

Use `\[ ... \]`, *not* `$$ ... $$`, for unnumbered displayed equations. Do not leave blank lines above and below displayed equations unless a new paragraph is intended. If the command `\simpleequations` is included in the preamble, equations will be numbered $(1),(2),(3)\ldots$ instead of $(1.1),(1.2)\ldots$.

Bold math italic symbols can be obtained with the command `\boldsymbol{}`, which is part of the `amsbsy` package. It may also be defined in the preamble as

```
\providecommand{\boldsymbol}[1]{\mbox{\boldmath $#1$}}.
```

Blackboard-bold and *fraktur* symbols can be obtained with the `\mathbb{}` and `\mathfrak{}` commands, which are part of the `amssymb` package.

Non-standard functions or mathematical operators that contain more than one character should be typeset in roman font and should be defined as a macro using the command `\mathop.` Examples of such functions are the principal value of the logarithm, Log, and the two Airy functions Ai and Bi; examples of operators are the real and imaginary parts Re and Im. You may also wish to define something like an `\infsup` command that takes *limits* as a subscript `_{}` and a superscript `^{}`. For example, by putting

```
\providecommand{\Log}{\mathop{\rm Log}\nolimits},
\providecommand{\Arg}{\mathop{\rm Arg}\nolimits},
\providecommand{\infsup}{\mathop{\rm infsup}}
```

in the preamble, we can easily write (the second example is for illustration only)

$$\begin{gathered}\operatorname{Log} z = \ln|z| + i\operatorname{Arg} z,\\ \mathop{\mathrm{infsup}}_{x\to 1}\mathcal{B} = \mathop{\mathrm{infsup}}_{x\to -1}^{0\leftarrow y}\mathcal{A} = e.\end{gathered} \tag{2.1}$$

For single-character mathematical symbols in roman, use `\mathrm{}`.

Proper horizontal alignment of indices in a tensorial equation such as

$$d\omega_q{}^p - \omega_q{}^s\wedge\omega_s{}^p = \tfrac{1}{2}R_q{}^p{}_{rs}\omega^r\wedge\omega^s \tag{2.2}$$

can be ensured by inserting a pair of braces `{}` at each vertical jump:

```
d\omega_q{}^p - \omega_q{}^s\wedge\omega_s{}^p =
\tfrac{1}{2}R_q{}^p{}_{rs} \omega^r\wedge\omega^s.
```

3. *Tables, figures and lists*

As you can see in Table 1, the LMS class does not provide vertical side rules on tables. The contents of Figure 1 provide detailed information about how one can incorporate a figure into a paper. Lists generated with `enumerate` (for a list of short phrases) or `flushenumerate` (for a list of long paragraphs) are preferred. Bullet points should be avoided if possible.

TABLE 1. *A small table.*

α	β	γ
1	2	3

Figures can be inserted with the standard LaTeX 2_ε command `\includegraphics` (see [**2**]), which requires the line `\usepackage{graphics}` to be present in the file's preamble.

You can also use a package such as `\epsfig`, `\psfig` or `\graphicx`. Please use `\epsfig` rather than `\epsf`, which has become obsolete.

Please do *not* incorporate captions into any of your `.eps` or `.ps` figure files, but use the `\caption{}` command inside the `figure` environment instead.

If you provide artwork separately, you can leave room for it using a `\vspace*{}` command inside the `figure` environment.

FIGURE 1. *How to insert a figure.*

Appendix. *About the bibliography*

References in the bibliography should be listed alphabetically by the authors' surname(s) and, for the same set of authors, by publication year. Detailed formatting (italic, etc.) should be avoided; please concentrate on giving full and clear information, such as (for books) the *name* and *location* of the publisher and (for a book in a book series) the *volume number*. Do not include papers 'in preparation' in the bibliography; these are better mentioned in the main text only.

Acknowledgements. The `acknowledgements` environment may be used to acknowledge indebtedness to colleagues, host institutions and referees. Accounts of grants and financial support should be made as a footnote on the title page using the `\extraline{}` command in the preamble.

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