

TEMPLATE FILE FOR PREPARING ARTICLES FOR STATISTICA

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1. INTRODUCTION

This is a sample document that illustrates the style file **statistica.cls** for formatting L^AT_EX submissions to STATISTICA. You can use it as a template for your own paper. **statistica.cls** is primarily built upon the class **statsoc.cls** of the Royal Statistical Society. This class depends on some packages for its proper functioning, almost all such packages are part of any standard L^AT_EX installation. Some other packages need to be installed in order to use this style file. Furthermore, users are free to make use of AMS math packages such as **amsmath.sty**, **amsfonts.sty**. All these packages work in tandem with **statistica.cls** without problems. On the contrary, the packages **amsthm.sty** and **amssymb.sty** are not compatible with **statistica.cls**. The bundle of STATISTICA style files includes:

1. **statistica.cls** the L^AT_EX document class
2. **template1.9.tex** source file of this document
3. **template1.9.pdf** pdf file of this document
4. **statistica.bst** the BiB_TE_X style file
5. **bibdatabase.bib** the BiB_TE_X data base file that contains the references of this document.

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2. USAGE

The class should be loaded with the command:

```
\documentclass[<options>]{statistica}
```

where the **options** can be the following:

- **final**: default option which formats the document for submission to STATISTICA.
- **garafonts**: requires the **mathdesign** package and uses the **urw-garamond** fonts. To be used by the editorial office. You do not need this option unless you would like to see how your manuscript would appear in its production version.

Before preparing a paper for submission, please examine a recent issue carefully and follow that arrangement of sections, formulae, references, tables, etc. closely. In particular please note the points given below. The preparation for press of a paper that is technically acceptable, but which does not follow these requirements, would involve the editors in a large amount of work, so it may be necessary to return such a manuscript for reformatting, leading to a delay in publication.

3. ADDRESS

For each author please give at least one address, including a department, city and country.

4. STYLE RULES

Only the first word of the section/subsection title should be capitalized, for instance the title of the present section is **STYLE RULES** and not **STYLE RULES**.

English sentences containing mathematical expressions or displayed formulae should be punctuated in the usual way: in particular please check carefully that all displayed expressions are correctly punctuated. Displayed expressions should be preceded by a colon only if grammatically warranted.

Words in common terms such as central limit theorem or Brownian motion are capitalized only if they are derived from proper names: thus bootstrap, lasso and mean square error rather than Bootstrap, Lasso, and Mean Square Error.

5. REFERENCES

Use of **BiBTeX** is strongly encouraged. For author's convenience there is a bibliography style file **statistica.bst** to be used with this document. **BiBTeX** users

do not have to worry about the bibliography style to use. Alternatively, references can be listed in the `thebibliography` environment. Each reference is a `\bibitem`; each `\bibitem` is identified by a label, by which it can be cited in the text. In connection with cross-referencing and possible future hyperlinking it is not a good idea to collect more than one literature item in one `\bibitem`. With the `statistica.bst` style file the literature can be cited as follows:

- Parenthetical: `\citep{Ken68}` produces (Kendall, 1968).
- Textual: `\citet{Ken68}` produces Kendall (1968).
- An affix and part of a reference: `\citep[see e.g.][for a discussion]{Bar72}` produces (see e.g. Barlow *et al.*, 1972, for a discussion).
- Multiple textual citations: `\citet{Ken68,Pea82,Bar71}` produces Kendall (1968); Pearson (1982); Bartholomew (1971).
- Multiple parenthetical citations: `\citep{Ken68,Pea82,Bar71}` produces (Kendall, 1968; Pearson, 1982; Bartholomew, 1971).

Alternatively, one can use the environment `thebibliography`.

6. MATHEMATICS

6.1. Theorem-like environments

You can use the following commands for theorem-like environments, as shown in Table 1. For instance:

DEFINITION 1. *Suppose \mathcal{S} is a bounded closed convex subset of a real or complex Hilbert space \mathcal{H} , equipped with the relative weak topology. The set of all continuous functions $f: \mathcal{S} \rightarrow \mathcal{H}$, where both spaces are equipped with the weak topology, is denoted by $C(\mathcal{S}, \mathcal{H})$. Similarly, $C(\mathcal{S}, [0, 1])$ stands for the set of all weakly-continuous functions $f: \mathcal{S} \rightarrow [0, 1]$.*

THEOREM 2. *Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text.*

PROOF. Here goes the proof. Here goes the proof. Here goes the proof. Here goes the proof. □

REMARK 3. *Recall that a bounded closed convex subset \mathcal{S} in a Hilbert space is weakly compact. Observe also that a bounded linear operator $A \in \mathbf{B}(\mathcal{H})$ is in $C(\mathcal{S}, \mathcal{H})$. Whenever we say that A is in $C(\mathcal{S}, \mathcal{H})$, we actually refer to the restriction of the operator $A \in \mathbf{B}(\mathcal{H})$ to the subset $\mathcal{S} \subset \mathcal{H}$.*

TABLE 1
Commands for theorem-like environments.

Command	Environment
<code>thm</code>	Theorem
<code>cor</code>	Corollary
<code>lem</code>	Lemma
<code>claim</code>	Claim
<code>axiom</code>	Axiom
<code>conj</code>	Conjecture
<code>fact</code>	Fact
<code>hypo</code>	Hypothesis
<code>assum</code>	Assumption
<code>prop</code>	Proposition
<code>crit</code>	Criterion
<code>defn</code>	Definition
<code>expm</code>	Example
<code>rem</code>	Remark
<code>prob</code>	Problem
<code>prin</code>	Principle
<code>alg</code>	Algorithm

For examples on the coding of mathematics in \TeX see the many excellent books on the topic, e.g. Knuth (1986); Lamport (1994). Simple displayed equations are formatted as follows:

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}. \quad (1)$$

Equations can be referenced by means of the command `\ref`. One instance is given above in Eq. (1).

THEOREM 4. *Text of the theorem.*

PROOF. Proof of the theorem. □

HYPOTHESIS 5. *This is an hypothesis.*

7. FLOATS

7.1. Figures

Figures are a common source of delay during production, usually because elementary guidelines have not been respected. All the elements of a graph, including

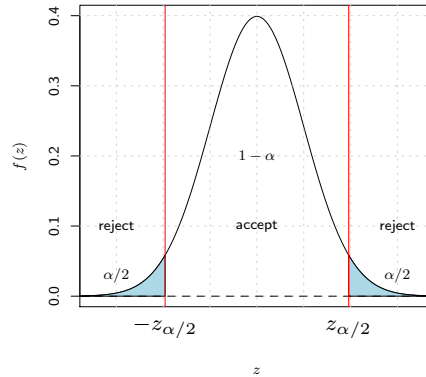


Figure 1 – Caption of the figure. Use the package *psfrag* for substituting the labels of the plot with \LaTeX lettering in eps files. This figure has been produced with the R package **knitr** plus the **tikz** device.

axis labels, should be large enough to be read easily, so the graph should be given a shape that will use the page space well. The use of large symbols, such as \times , for points should be avoided. If both axes of a panel show the same quantities, the panel should usually be square. Many graphs are made using the statistical environment R (R Core Team, 2020). If so, they should be made at roughly the size at which they will appear in the journal. Usually graphs reduced from A4 or US page sizes must be remade to ensure their legibility. Check that all the axes are labelled correctly and include units of measurement. Axis labels should have the format ‘Difference of loglikelihoods’: only the initial letter of the first word is upper-case.

Since STATISTICA is a full online journal, the use of colour in figures and tables is encouraged but care should be taken to ensure that any colours chosen will be distinguishable when printed in black and white. Figures should be referred to consecutively by number. Use of the \LaTeX `\label` and `\ref` commands to refer to figures and tables helps to reduce errors and so is preferred. Always refer to figures without abbreviations, e.g. Figure 1 is a reference to a figure.

Figure files can be in one of the formats recognized by \LaTeX , these include encapsulated postscript format (**eps**) (if standard \LaTeX is used) or other formats such as **pdf**, **png**, **tiff**, **jpeg** that are compatible with more recent versions of \LaTeX such as **pdf \LaTeX** that can produce a pdf file straight away. Figures must be included where they should appear, do not force the placement of the figure. The caption should be placed under it², see Figure 1. In case R is used to produce

² The caption should give a brief description of the contents of a figure or table, but its interpretation should be left to the text.

the figures, then authors are encouraged to use the R package `knitr` Xie (2020) combined with the L^AT_EX package `pgf` as to produce a figure lettering that is fully consistent with L^AT_EX. As an example, Figure 1 has been produced with it. For more details see also Xie (2015).

Please remember to use `keepaspectratio` when including graphic files. Figure 1 has been produced with the following command:

```
\includegraphics[width=0.45\linewidth,keepaspectratio]{fig1}.
```

7.2. Tables

Tables should be referred to consecutively by number, e.g. Table 2. Table is not abbreviated to Tab and layouts that have to be printed sideways should be avoided if possible. For this reason tables should not be more than 92 characters wide, including decimal points and brackets (1 character), and minus and other signs and spaces (at least 2 characters). Vertical rules are **not** used in tables, which should be arranged to be clear without them. The caption of the table should be placed above it.

Often tables can be improved by multiplying all the entries by a power of ten, so that 0.002 and 0.02 become 2 and 20 respectively, for example; this will often both save space and convey the message of the table more effectively. Very often tables containing results of Monte Carlo simulations use more digits than can be justified by the size of the simulation, and space can be gained and clarity improved by appropriate rounding. Standard errors or some other measure of precision should be given for Monte Carlo results. Please reduce the number of significant digits according to the corresponding standard errors. It makes no sense to report an estimate of 2.4454344 if the standard error is of the order of 0.1. This should be 2.45.

Please check that the figures and tables do not exceed the page borders, in case use sideways floats and reduce the plots. Please use the package `booktab` to produce professional tables, see Table 2 for an example.

TABLE 2

*This is the caption of the table. Vertical rules are **not** allowed.*

	a	b	c	d	e
Row 1	0.00	0.11	0.03	1.81	0.79
Row 2	0.11	0.00	1.47	0.95	0.95
Row 3	0.03	1.47	0.00	0.53	1.24
Row 4	1.81	0.95	0.53	0.00	0.45
Row 5	0.79	0.95	1.24	0.45	0.00
Row 6	0.79	0.95	1.24	0.45	0.00

ACKNOWLEDGEMENTS

Acknowledgements should appear after the body of the paper but before any appendices and be as brief as possible subject to politeness. Information of no interest to readers must be excluded.

APPENDIX

A. PROOFS

The appendix should be placed after the acknowledgements and before the references. Long proofs or mathematical derivations should be placed here.

B. SUPPLEMENTARY INFORMATION

The appendix is also the place to put additional information regarding simulations, computational details, etc.

REFERENCES

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- Y. XIE (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd ed. URL <https://yihui.org/knitr/>. ISBN 978-1498716963.
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SUMMARY

The abstract must be a single paragraph summary which should not contain formulae or symbols. The summary contains bibliographic references only if they are essential. It should indicate results rather than describe the contents of the paper: for example, ‘A simulation study is performed’ should be replaced by a more informative phrase such as ‘Simulation shows that our estimator has smaller mean square error than its main competitors.’

Keywords: Keyword 1; Keyword 2; Keyword 3.