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RESEARCH ARTICLE

A demonstration of the LaTeXclass file for Statistics in Medicine with Rmarkdown

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KEYWORDS:
Class file; LaTeX; Statist. Med.; Rmarkdown;

1 | THE ARTICLE HEADER INFORMATION

YAML header:

```
output:
  rticles::sim_article:
    keep_tex: TRUE
```

Configure the YAML header including the following elements:

- `title`: Title
- `author`: List of author(s) containing `name` and `num`
- `address`: List containing `num` and `org` for defining `author` affiliations
- `presentaddress`: Not sure what they mean with this

- `corres`: Author and address for correspondence
- `authormark`: Short author list for header
- `received`, `revised`, `accepted`: dates of submission, revision, and acceptance of the manuscript
- `abstract`: Limited to 250 words
- `keywords`: Up to 6 keywords
- `bibliography`: BibTeX `.bib` file
- `classoption`: options of the `WileyNJD-v2` class
- `longtable`: set to `true` to include the `longtable` package, used by default from `pandoc` to convert markdown to LaTeXcode

1.1 | Remarks

1. In `authormark` use *et al.* if there are three or more authors.
2. Note the use of `num` to link names and addresses.
3. For submitting a double-spaced manuscript, add `doublespace` as an option to a `classoption` line in the YAML header: `classoption: doublespace`.
4. Keywords are separated by semicolons.

2 | THE BODY OF THE ARTICLE

2.1 | Mathematics

Use mathematics in Rmarkdown as usual.

2.2 | Figures and Tables

Figures are supported from R code:

```
x = rnorm(10)
y = rnorm(10)
plot(x, y)
```

...and can be referenced (Figure 1) by including the `\\label{}` tag in the `fig.cap` attribute of the R chunk: `fig.cap = "Fancy Caption\\label{fig:plot}"`. It is a quirky hack at the moment, see here.

Analogously, use Rmarkdown to produce tables as usual:

```
if (!require("xtable")) install.packages("xtable")
```

```
## Loading required package: xtable
```

```
xt <- xtable(head(cars), caption = "A table", label = "tab:table")
print(xt, comment = FALSE)
```

Referenced via 1. You can also use the YAML option `header-includes` to includes custom LaTeXpackages for tables (keep in mind that `pandoc` uses `longtables` by default, and it is hardcoded; some things may require including the package `longtable`). E.g., using `ctable`:

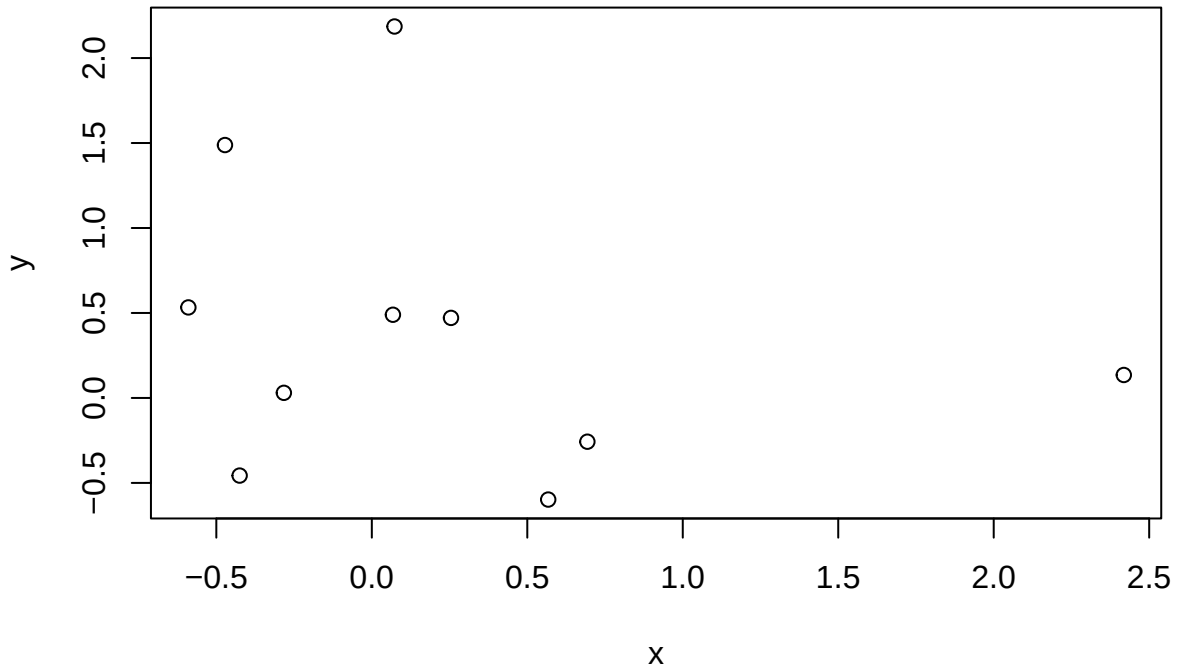

FIGURE 1 Fancy Caption

	speed	dist
1	4.00	2.00
2	4.00	10.00
3	7.00	4.00
4	7.00	22.00
5	8.00	16.00
6	9.00	10.00

TABLE 1 A table

```
header-includes:
- \usepackage{ctable}
```

Then, just write straight-up LaTeXcode and reference is as usual (`\ref{tab:ctable}`):

```
\ctable[cap = {Short caption},
        caption = {A long, long, long, long, long caption for this table.},
        label={tab:ctable},]
        {cc}
        {
        \tnote[$\ast$]{Footnote 1}
        \tnote[$\dagger$]{Other footnote}
        \tnote[b]{Mistakes are possible.}
        }{
        \FL
        COL 1\tmark[a] & COL 2\tmark[$\ast$]
        \ML
        6.92\tmark[$\dagger$] & 0.09781 \\
        6.93\tmark[$\dagger$] & 0.09901 \\
```

```
        97 & 2000
        \LL
}
```

It is also possible to set the `YAML` option `longtable: true` and use markdown tables (or the `knitr::kable` function): `knitr::kable(head(cars))` produces the same table as the `xtable` example presented before.

2.3 | Cross-referencing

The use of the Rmarkdown equivalent of the LaTeXcross-reference system for figures, tables, equations, etc., is encouraged (using `[@<name>]`, equivalent of `\ref{<name>}` and `\label{<name>}`). That works well for citations in Rmarkdown, not so well for figures and tables. In that case, it is possible to revert to standard LaTeXsyntax.

2.4 | Double Spacing

If you need to double space your document for submission please use the `doublespace` option in the header.

3 | BIBLIOGRAPHY

Link a `.bib` document via the YAML header, and bibliography will be printed at the very end (as usual). The default bibliography style is provided by Wiley as in `WileyNJD-AMA.bst`, do not delete that file.

Lemma (Pumping Lemming). Let L be a regular language. Then there exists an integer $p \geq 1$ called the "pumping length" which depends only on L, such that every string $w \in L$ of length at least p can be divided into three substrings $w = xyz$ such that the following conditions hold:

- $|y| \geq 1$
- $|xy| \leq p$
- $xy^n z \in L$, for all $n \geq 0$.

That is, the non-empty substring y occurring within the first p characters of w can be "pumped" any number of times, and the resulting string is always in L.

Use the Rmarkdown equivalent of the LaTeXcitation system using `[@<name>]`. Example: (Taylor and Green 1937), (Knupp 1999; **Kamm2000?**).

To include all citation from the `.bib` file, add `\nocite{*}` before the end of the document.

4 | FURTHER INFORMATION

All LaTeXenviroments supported by the main template are supported here as well; see the `.tex` sample file here for more details and example.

Knupp, PM. 1999. "Winslow Smoothing on Two-Dimensional Unstructured Meshes." *Eng Comput* 15: 263–68.

Taylor, GI, and AE Green. 1937. "Mechanism of the Production of Small Eddies from Large Ones." *P Roy Soc Lond A Mat* 158 (895): 499–521.