

Article Title

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Abstract

The abstract should serve both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. Authors should check any journal-level instructions for word limits and whether citations, equations, or subheadings are permitted in the abstract.

Keywords: keyword 1; keyword 2; keyword 3; keyword 4

1. Introduction

This sample manuscript is meant to demonstrate the TOCSS class file. It is based on the `article.cls` file converted to a Word template, and includes the main structural elements typically found in broad-scope journal templates: title and affiliation block, abstract, keywords, figures, tables, equations, algorithms, theorem-like environments, methods, declarations, appendix, and references. Citations appear as numbered references, for example [1, 2].

Cross-references may be added in the standard way: Figure 1, Table 1, Equation (1), and Algorithm 1.

2. Results

Sample body text. Sample body text. Sample body text.

2.1. Example subsection

Sample body text. Sample body text. Sample body text.

2.1.1. Example subsubsection

Sample body text. Sample body text. Sample body text.

3. Equations

Inline mathematics can be written in the usual way, for example $H\psi = E\psi$.

Displayed equations may use standard environments:

$$\frac{dx_i}{dt} = f_i(\mathbf{x}, t), \quad i = 1, \dots, N \quad (1)$$

or:

$$\|X(k)\|^2 \leq \frac{\sum_{i=1}^p \|Y_i(k)\|^2 + \sum_{j=1}^q \|Z_j(k)\|^2}{p+q},$$

$$D_\mu = \partial_\mu - ig \frac{\lambda^a}{2} A_\mu^a \quad (2)$$

4. Tables

Table 1: Example table with table footnotes.

Column 1	Column 2	Column 3	Column 4
row 1	data 1	data 2	data 3
row 2	data 4	data 5 ¹	data 6
row 3	data 7	data 8	data 9 ²

Source: Example of a table footnote.

¹ Example of a first table footnote.

² Example of a second table footnote.

Please use LaTeX if you require rotated tables.

5. Figures



Figure 1: Example figure insertion. Captions should be informative enough that the figure is understandable on its own.

6. Algorithms, Program Codes and Listings

Algorithm 1 Calculate $y = x^n$

Require: $n \geq 0$ or $x \neq 0$

Ensure: $y = x^n$

```

1:   $y \leftarrow 1$ 
2:  if  $n < 0$  then
3:     $X \leftarrow 1/x$ 
4:     $N \leftarrow -n$ 
5:  else
6:     $X \leftarrow x$ 
7:     $N \leftarrow n$ 
8:  end if
9:  while  $N \neq 0$  do
10:   if  $N$  is even then
11:      $X \leftarrow X \times X$ 
12:      $N \leftarrow N/2$ 
13:   else
14:      $y \leftarrow y \times X$ 
15:      $N \leftarrow N - 1$ 
16:   end if
17: end while

```

Verbatim code can be included as follows:

```

for i := 1 to 10 do
  print(i)

```

Or with listings:

Listing 1: Example code snippet.

```

import networkx as nx

G = nx.erdos_renyi_graph(n=1000, p=0.01)
largest_cc = max(nx.connected_components(G), key=len)
print(len(largest_cc))

```

7. Examples for Theorem-like Environments

Theorem 1 (Illustrative theorem). *Suppose a finite dynamical system admits a strict Lyapunov function. Then it has no nontrivial periodic orbit.*

Proof. A strict Lyapunov function decreases along every non-stationary trajectory, so it cannot return to a previous value after finitely many steps. Hence there can be no nontrivial periodic orbit. $\square$

Proposition 1. *Example proposition text.*

Example 1. Example text illustrating a definition, method, or phenomenon.

Remark 1. These theorem-like environments are optional and need only be used in disciplines where they are natural.

Definition 1 (Example definition). A complex system is a system composed of many interacting components whose collective behavior is not trivially reducible to the isolated behavior of those components.

Quoted text may be typeset in the standard quote environment.

8. Methods

Topical subheadings are allowed in Methods. Authors should include sufficient methodological detail for reproducibility.

8.1. Ethics statement

Where applicable, manuscripts should include statements on ethics approval, consent to participate, consent for publication, and compliance with relevant guidelines and regulations.

8.2. Data and code descriptors

Data descriptor. Describe datasets, provenance, access conditions, ethical or legal constraints, and persistent identifiers where relevant.

Code descriptor. Describe code availability, version information, dependencies, execution instructions, and license terms.

9. Discussion

Discussion should interpret the results, emphasize relevance, and note limitations where appropriate.

10. Conclusion

Conclusions may restate the main findings, explain their significance, note limitations, and outline future work.

Supplementary information. If the article has accompanying supplementary files, state that here.

Acknowledgements

Acknowledgements are optional. Grant numbers and other support may be included here.

Declarations**Funding**

Not applicable.

Competing interests

Not applicable.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Data availability

State where the data are available.

Materials availability

State where materials are available, if relevant.

Code availability

State where the code is available.

Author contributions

Provide a concise contribution statement.

A. First appendix title

Appendices may contain supplementary derivations, robustness analyses, additional figures, or other supporting material.

References

- [1] M. E. J. Newman. *Networks: An Introduction*. Oxford University Press, 2010.
- [2] Albert-László Barabási. *Network Science*. Cambridge University Press, 2016.