**AGH UNIVERSITY PRESS**

AGH UNIVERSITY OF KRAKOW

# Guidelines for Authors

Ensuring the Digital Accessibility of Documents

**MS Word • LaTeX**

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# Introduction

This document provides practical guidelines for authors preparing materials for publication by AGH University Press, taking into account digital accessibility requirements. The guidelines were developed based on:

- AGH Publishing's Digital Accessibility Policy;
- WCAG 2.1 guidelines, Level AA;
- the PDF/UA standard (ISO 14289-1);
- the EPUB Accessibility 1.1 standard.

Adhering to the following rules during the manuscript preparation stage helps avoid costly and time-consuming corrections during the digital production stage and ensures that publications are accessible to users of assistive technologies (screen readers, screen magnifiers, and Braille displays).

# Part A: General Rules (Editor-Independent)

## A.1. Document Structure

Each document must have a logical and hierarchical structure based on headings. Headings should form a consistent hierarchy – skipping levels (e.g., going from Heading 1 directly to Heading 3) is not permitted. The heading structure serves as the foundation for navigation by assistive technologies and is a key element of the PDF/UA standard.

## A.2. Alternative Text (alt text)

Every graphic element (drawing, diagram, photograph, chart) must have alternative text describing its content or function. Rules for creating alternative text:

- The description should be concise (ideally 1–2 sentences) but rich in information; it should not duplicate information contained in the figure's caption or in the accompanying text;
- Every graphic element requires alt text that describes its content and function and identifies the general type of graphic (e.g., pie chart, bar chart, diagram, map, etc.);
- Do not begin with "The image depicts…" or "The figure shows…" – assistive technologies themselves provide information about the type of element;
- For charts and tables containing data, the description should highlight a key trend or conclusion, rather than the full numerical data;
- Purely decorative elements should be marked as artifacts (they do not require alternative text);
- A long description of complex diagrams may be included in the main text as a supplementary description.

## A.3. Tables

Tables should be constructed in accordance with the following guidelines:

- Tables must have a clearly defined header row;
- Avoid merging cells, splitting cells, and using multi-level headers unless absolutely necessary;
- Do not use empty cells for formatting – use CSS or formatting attributes instead. No cells can remain empty. If no data is available or required in a particular cell, an en-dash or "N/A" must be used;
- Tables must not be inserted as images;

- Each table should have a caption placed immediately before the table;
- Tables should have as simple a structure as possible (a regular layout of rows and columns); if a table has a complex structure, consider breaking it down into several simpler tables or presenting the data in a different format (e.g., a list).

### A.4. Color and Contrast

Information must not be conveyed solely through color. For example, if the lines on a chart differ in color, they should also be distinguished by line style (solid, dashed, dotted) or data point markers. The contrast between text and background should be at least 4.5:1 (WCAG 2.1, Success Criterion 1.4.3).

### A.5. Document Language

The primary language of the document must be specified in the file's metadata. Passages in foreign languages (quotations, terms, proper nouns) should be marked with the appropriate language attribute so that screen readers can enable speech synthesis in the correct language.

### A.6. References and Hyperlinks

Hyperlink text should be descriptive and understandable out of context; it should clearly indicate where the link leads or what it contains (WCAG 2.1, Criterion 2.4.4). Phrases such as "click here," "more," or "link" are not acceptable. Instead, use, for example, "full text of Regulation (EU) 2024/1689."

### A.7. Mathematical Formulas

Mathematical formulas should be prepared in a way that allows them to be converted to MathML or another representation accessible to assistive technologies:

- in MS Word: the equation editor (Insert > Equation) based on OMML – do not insert formulas as images;
- in LaTeX: standard mathematical environments (equation, align, gather) – formulas are automatically converted to MathML during conversion to an accessible format.

## Part B: Specific Guidelines – MS Word

### B.1. Styles and Headings

To structure the document, use only the built-in heading styles (Heading 1, Heading 2, …, Heading 6) available on the Home tab. It is absolutely unacceptable to create pseudo-headings by manually increasing the font size or bolding the text, as such elements are not recognized by assistive technologies.

### B.2. Alternative Text for Images

In MS Word, you can add alternative text by right-clicking on an image and selecting "Edit Alt Text." In the dialog box, enter a concise, informative description. Images that are purely decorative should be marked as "Mark as Decorative."

### B.3. Tables

Tables should be inserted using the Insert > Table command. After creating the table, designate the header row: select the first row, then go to Table Design > Header Row. For multi-page tables, enable header row repetition: Layout > Repeat Header Rows.

### B.4. Lists

To create lists, use the built-in numbered and bulleted list styles (Home > Numbering / Bullets). Do not manually insert dashes, asterisks, or numbers – such lists are not recognized as structured lists.

### B.5. Document and Section Language

Set the main language of the document in File > Options > Language. To mark sections in foreign languages, select the text and choose the appropriate language in Review > Language > Set Proofing Language.

### B.6. Hyperlinks

To insert a hyperlink, use Insert > Link or the shortcut Ctrl+K. In the "Text to display" field, enter descriptive text (not a URL).

### B.7. Accessibility Check

Before submitting a manuscript, the author should run the built-in accessibility checker: Review > Check Accessibility. The tool will identify errors, warnings, and tips. A manuscript submitted to AGH Publishing should not contain any critical errors identified by this tool.

### B.8. Export to PDF

When exporting to PDF, make sure that the "Document structure tags for accessibility" option is enabled. In the File > Export > Create PDF/XPS window, click Options and select the appropriate checkbox.

## Part C: Specific Guidelines – LaTeX

### C.1. Packages Supporting Accessibility

To generate accessible PDF documents from LaTeX, it is recommended to use the following packages:

tagpdf – an experimental package (available since TeX Live 2021+) that allows you to generate tagged PDF files directly from LaTeX. It provides automatic tagging of the document structure (headings, paragraphs, lists). To enable it:

```
\usepackage{tagpdf}

\tagpdfsetup{activate, interwordspace}
```

accessibility / axessibility – a package that provides basic tagging of the document structure. Simpler to implement, but with fewer features than tagpdf:

```
\usepackage[tagged]{accessibility}
```

hyperref – a package necessary for creating active hyperlinks, bookmarks, and PDF metadata. Configuration for accessibility:

```
\usepackage {hyperref}

\hypersetup{

    pdftitle={Document Title},
```

```
        pdfauthor={First Name Last Name},

        pdflang={en},

        bookmarks=true,

        bookmarksnumbered=true

    }
```

## C.2. Document Structure

Use standard LaTeX sectioning commands:

- \chapter{}, \section{}, \subsection{}, \subsubsection{} – these create a hierarchical tagging tree structure;
- do not use \section*{} (unnumbered version) without explicitly adding the corresponding tag or entry in the table of contents, as unnumbered sections may not appear in the PDF bookmark tree;
- the table of contents (\tableofcontents) should be generated automatically.

## C.3. Alternative Text for Figures

In LaTeX, alternative text for figures is added using the pdfcomment package or tagpdf mechanisms. Here is an example using tagpdf:

```
\tagstructbegin{tag=Figure}

\tagmcbegin{tag=Figure,

    alttext={Alternative description of the figure}}

\includegraphics{figure.pdf}

\tagmcend

\tagstructend
```

Alternatively, you can use the pdfcomment package:

```
\pdftooltip{\includegraphics{fig.pdf}}{Alternative description}
```

## C.4. Tables

Tables in LaTeX should be created using the `table` environment, with a caption (`\caption{}`) placed before the actual `tabular` environment. Column headers should be emphasized using the `\textbf{}` command or a dedicated style. For users of `tagpdf`, the structure of table headers can be explicitly declared using the `TH` and `TD` tags.

### C.5. Document Language

The document language should be set both in the babel package (or polyglossia for XeLaTeX/LuaLaTeX) and in the PDF metadata:

```
\usepackage[english]{babel}

\hypersetup{pdflang={en}}
```

Text fragments in foreign languages should be marked with the following command:

```
\foreignlanguage{english}{This is an English-language text.}
```

### C.6. Mathematical Formulas

By default, mathematical formulas in LaTeX are created using standard environments (equation, align, gather, etc.), which constitute their semantic representation. When using LuaLaTeX with the tagpdf package, formulas can be automatically converted into an accessible format. For full PDF/UA compliance, it is recommended to:

- use numbered environments (equation, align) with appropriate labels (\label{});
- add alternative text describing the meaning of the formula (e.g., using /ActualText in tagpdf);
- avoid using $$ … $$ in favor of \[ … \] or dedicated environments.

### C.7. Compilation and Validation

Recommended workflow for creating accessible PDF documents from LaTeX:

1. Compile the document using LuaLaTeX (best support for `tagpdf`) or pdfLaTeX;
2. Validate the generated PDF using the PAC 2024 (PDF Accessibility Checker) tool;
3. Check the tag tree in Adobe Acrobat Pro (Accessibility panel);
4. Fix any issues – first in the LaTeX source, and as a last resort in Adobe Acrobat Pro.

## Checklist for Authors

Before submitting your manuscript, please review the following points:

| Requirement | Word | LaTeX |
|---|---|---|
| Heading hierarchy (without skipping levels) | Style Heading 1–6 | \section{} etc. |
| Alternative text for all images | Alt Text | tagpdf / pdfcomment |
| Tables with a labeled header row | Header Row | \textbf{} + tagpdf |
| Lists using built-in tools | Bullets / Numbering | itemize / enumerate |
| Document language specified in the metadata | File > Options | babel + pdflang |
| Foreign-language excerpts marked | Proofing Language | \foreignlanguage{} |
| Hyperlink descriptions | Ctrl+K | \href{url}{tekst} |
| Formulas in the equation editor (not images) | Insert > Equation | equation / align |
| Text contrast ≥ 4.5:1 | Manual verification | Manual verification |

| | | |
|---|---|---|
| Information not based solely on color | Additional markers | Additional markers |
| Checking Accessibility | Check Accessibility | PAC 2024 |
| Export PDF with structural tags | File > Export | LuaLaTeX + tagpdf |