

# Accessible Documents in LaTeX

[https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)

Version 1.1

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## 1 Introduction

On January 8, 2026, we were notified by campus that, beginning in April 2026:

“The updated requirements of the ADA require that digital course materials provided to students, even materials inside password-protected course sites like bCourses, will need to comply with accessibility standards (Web Content Accessibility Guidelines ([WCAG](#)) 2.1 Level AA).”

Many of us use  $\text{\LaTeX}$  to create teaching materials—both slides and documents. Standard  $\text{\LaTeX}$  (including Beamer) does not automatically generate accessible PDFs.

### 1.1 Converting to accessible LaTeX is straightforward

- Your existing  $\text{\LaTeX}$  skills transfer - you’re just adding accessibility features
- The changes are minimal and follow consistent patterns

Six common requirements for both slides and articles:

1. Add `\DocumentMetadata` before `\documentclass`
2. Enable math accessibility: `\tagpdfsetup{math/alt/use}`
3. Tag figures with alt text
4. Tag table header rows
5. Use accessible colors
6. Compile with LuaLaTeX for automatic MathML generation

### 1.2 What’s Different

For articles: Keep using your existing class!

- No need to change `\documentclass{article}`
- Just add the common requirements above
- Works with `article`, `report`, `book`, etc.

**For slides:** Use the new `ltx-talk` class (replaces Beamer)

- Change `\documentclass{beamer}` to `ltx-talk`
- Similar `frame` syntax, but themes/templates don't work
- You'll need to recreate styling using standard LaTeX packages
- Handles slide-specific tagging automatically
- Part of the [LaTeX Tagging Project](#)

Both require LaTeX kernel 2025-11-01 (update via TeX Live Manager/Utility). See [latest detailed instructions](#).

## 2 What is this project?

An experiment exploring accessible L<sup>A</sup>T<sub>E</sub>X documents using the L<sup>A</sup>T<sub>E</sub>X Tagging Project:

- Two templates: Articles (`article` class) and slides (`ltx-talk`)
- Shows: What's common to both, what's different
- Contains: Working examples with math, text, graphics, and tables
- Scores: Perfect 100% from the bCourses accessibility checker (Ally)

### 2.1 How to use it

1. Learn the common requirements: Apply to any L<sup>A</sup>T<sub>E</sub>X document
2. See class-specific needs: Understand slides vs. articles
3. Copy and adapt: Use as templates for your documents
4. Study the code: Heavily commented for learning

Available at: [https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)

## 3 Common requirements for ALL documents

Whether you're creating slides or articles, these requirements are [the same](#):

### 3.1 Document Metadata

- Every accessible document **must** begin with `\DocumentMetadata`
- Goes *before* `\documentclass`

```
\DocumentMetadata{  
    pdfstandard=A-2u,      % PDF/A-2u format  
    lang=en-US,           % Language for screen readers  
    tagging=on            % Enable PDF tagging  
}
```

This configures the PDF for accessibility compliance.

## 3.2 Images and Tables

- **Images:** All images must include alt text descriptions
  - Allows screen readers to describe visual content
  - Even decorative images need marking
  - See dedicated “Figures” section for examples
- **Tables:** Must specify which rows are headers
  - Helps screen readers navigate table structure
  - Essential for data accessibility
  - See dedicated “Tables” section for examples

## 3.3 Colors and Math

- **Accessible colors:** WCAG 2.1 requires 4.5:1 contrast ratio

```
\colorlet{AccessibleRed}{red!80!black}
\colorlet{AccessibleGreen}{green!40!black}
% Standard blue is fine as-is
```

- **Automatic MathML:** Add to your preamble

```
\tagpdfsetup{math/alt/use}
```

## 3.4 LuaLaTeX Compilation

- You **must** compile with LuaLaTeX (not pdfLaTeX or XeLaTeX)
- **Why LuaLaTeX?**
  1. **Automatic MathML:** Makes math accessible without manual work
  2. **Full tagging support:** Complete PDF accessibility features
  3. **Modern fonts:** Handles Unicode and OpenType fonts

- **How to switch:**

- Command line: `lualatex filename.tex`
- Most editors: Select “LuaLaTeX” from compiler menu

## 4 TeX version requirements (both slides and articles)

- **Minimum:** TeX Live 2023 or later with all packages updated
- **Critical:** Must have LaTeX kernel 2025-11-01
  - Update via TeX Live Manager (Windows) or TeX Live Utility (Mac)
  - Or use Overleaf Labs (see next section)
- **Will NOT work:** TeX Live 2022 or earlier

## 5 You CAN use Overleaf (both slides and articles)

- `ltx-talk` requires a very recent TeX Live version
- This is available through Overleaf's [Labs program](#) (not standard Overleaf)

### 5.1 Using Overleaf (2 steps)

#### 1. Join Overleaf Labs:

- Visit <https://www.overleaf.com/labs/participate>
- Opt in and enable "Rolling TeX Live releases"

#### 2. Configure project:

- Set TeX Live version to "Rolling TeXLive (labs)" (bottom of list)
- Set Compiler to [LuaLaTeX](#)

Resources: <https://docs.overleaf.com/writing-and-editing/creating-accessible-pdfs>

## 6 The basics

- Use standard L<sup>A</sup>T<sub>E</sub>X environments: `section`, `subsection`, `itemize`, `enumerate`, etc.
- **Existing source files don't need a lot of editing**
- Here's some gratuitous *math* for the accessibility checker

## 7 Figures

When including a figure, you **must provide alt text** describing the image for screen readers. This is *required* for accessibility compliance.

```
\includegraphics[height=.4\textheight,alt={A capybara}]{capybara.jpg}
```



Figure 1: A picture of a capybara

## 8 Tables

When including a table, you **must specify which rows are headers**. Screen readers use this information to help users navigate table content. Use `\tagpdfsetup{table/header-rows={...}}` before the `tabular` environment:

- Use `{1}` for 1 header row
- Use `{1,2}` for 2 header rows
- Use `{1,2,3}` for 3 header rows, etc.

### 8.1 Example: Table with 3 Header Rows

```
\tagpdfsetup{table/header-rows={1,2,3}}
\begin{tabular}{ccccccccc}
\toprule
← 3 header rows
\midrule
\textcolor{green}{\text{data rows}}
\bottomrule
\end{tabular}
```

Payment date	Caplet expiry date	$DF_{\text{pay}}$	Forward rate	Days to expiry	Days in accrual period	$T_{\text{expiry}}$	$\Delta$	Caplet
2004/12/01	—	0.99550	0.01790	0	91	0.00000	0.25278	—
2005/03/01	2004/11/29	0.99008	0.02188	89	90	0.24384	0.25000	1,178.77
2005/06/01	2005/02/25	0.98401	0.02413	177	92	0.48493	0.25556	4,844.73
2005/09/01	2005/05/27	0.97733	0.02675	268	92	0.73425	0.25556	10,016.71

Table 1: A table

## 9 Common pitfalls

- **Forgetting alt text for images**
  - Every `\includegraphics` needs an `alt={...}` parameter
  - Even decorative images need alt text (use `alt={decorative}`)
- **Not specifying table header rows**
  - Add `\tagpdfsetup{table/header-rows={...}}` before each table
  - Use `{1}` for 1 header row, `{1,2}` for 2 header rows, etc.
- **Insufficient color contrast**
  - WCAG 2.1 requires 4.5:1 contrast ratio for normal text
  - Avoid light colors: `yellow`, `cyan` fail contrast requirements
  - Darken `red` and `green`: use `red!80!black`, `green!40!black`
  - Standard `blue` is fine and meets WCAG requirements
  - Test with a contrast checker: <https://webaim.org/resources/contrastchecker/>
- **Using the wrong compiler**
  - Make sure your editor is set to use `LuaLaTeX`, not `pdfLaTeX`

- Old TeX distribution
  - TeX Live 2022 or earlier won't work
  - Update packages using TeX Live Manager (Windows) or TeX Live Utility (Mac)

## 10 Getting started: Common steps for both

1. **Setup environment:** Use Overleaf Labs OR install/update TeX Live locally
  - Overleaf: See earlier section for Labs setup
  - Local: Update via TeX Live Manager (Windows) or TeX Live Utility (Mac)
2. **Get templates:** Download from [https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)
3. **Add accessibility features:**
  - Add `alt` text to images
  - Add `table/header-rows` to tables
4. **Set compiler to LuaLaTeX**
5. **Compile and test!**

## 11 Getting started: What's different by document type

### 11.1 For Articles (using `article`, `report`, `book`, etc.)

- Add `\DocumentMetadata` before `\documentclass`
- Add `\tagpdfsetup{math/alt/use}` to preamble
- Switch to `fontspec` and `unicode-math` packages
- Keep your existing `documentclass`!

### 11.2 For Slides (migrating from Beamer)

- Copy preamble from `accessible_slides.tex`
- Change `\documentclass{beamer}` to `\documentclass[frame-title-arg]{ltx-talk}`
- Remove Beamer themes/templates/colors
- Recreate styling using standard LaTeX/xcolor
- One-time preamble work—then reuse for all future talks!

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