

Accessible Documents in LaTeX

https://github.com/rhstanton/accessible_LaTeX

Version 1.1

Richard Stanton
richard.stanton@berkeley.edu
UC Berkeley

February 9, 2026

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 L^AT_EX to create teaching materials—both slides and documents. Standard L^AT_EX (including Beamer) does not automatically generate accessible PDFs.

1.1 Converting to accessible LaTeX is straightforward

- **Your existing L^AT_EX 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 \LaTeX documents using the \LaTeX 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 \LaTeX 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

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^AT_EX 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}{cccccccr}
\toprule
← 3 header rows
\midrule
← data rows
\bottomrule
\end{tabular}
```

Payment date	Caplet expiry date	DF_{pay}	Forward rate	Days to expiry	Days in accrual period	T_{expiry}	Δ	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
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!

Questions or suggestions? richard.stanton@berkeley.edu