



BSPH CENTER FOR
TEACHING AND LEARNING

Teaching Toolkit



JOHNS HOPKINS

BLOOMBERG SCHOOL
of PUBLIC HEALTH

Digital Accessibility in Our Classrooms

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Goals

- ▶ Consider access and ability as something limited by behaviors, environments, and systems
- ▶ Have a base understanding of digital accessibility so we:
 - ▶ Know the four principles
 - ▶ Have questions that help us check for the principles
 - ▶ Have questions that guide us to embrace the principles
- ▶ Understand the benefits of making things accessible
- ▶ Understand our role in making things accessible
 - ▶ Implement strategies in the classroom that apply to each of the principles
 - ▶ Consider next steps



Agenda

1. Review accessibility holistically
2. Discuss the four principles of digital accessibility
3. Learn about making things accessible: expectations of faculty
4. Complete a Persona & Scenario exercise matching individuals, barriers, and solutions
5. Review checking for digital accessibility
6. Invitation to put it into practice

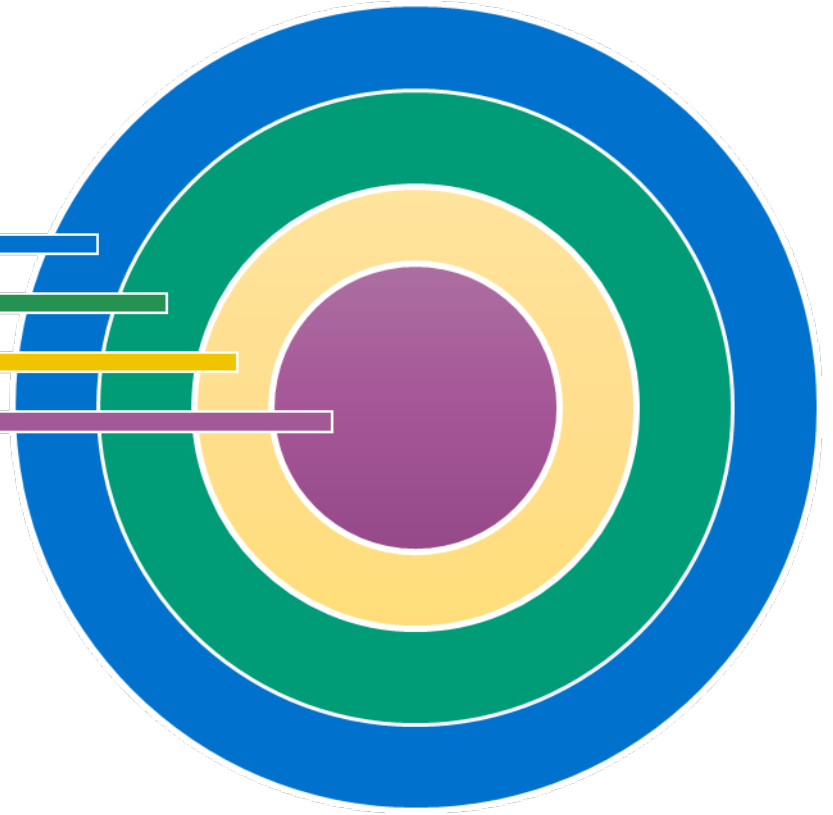


What is Accessibility?



Accessibility

- Universal, Inclusive Design
- Accessible Design
- Digital Accessibility
- Supporting Practices



Terminology

- **Universal, inclusive design** focuses on products, systems, and environments that can be used without modifications or alternate versions. One example is a door that automatically opens upon approach.
- **Accessible design** focuses on including features and removing barriers that benefit people with different abilities and impairments (medical conditions). One example is a door switch that can be operated using a “push to open” button.



Photo by George Morina: <https://www.pexels.com/photo/a-metal-signage-on-the-wall-5142572/>

Barriers Define Social Model of Disability

- **Medical Model of Disability** is a health condition that can be diagnosed as something affecting what a person is able or not able to do.
 - Treating the person is the focus of living better with this model of disability.
- **Social Model of Disability** is “the result of the interaction between people living with impairments and barriers in the [world around them].”
 - Changing society and environments to be more inclusive, including removing barriers, is the focus of living better with this model of disability.

Source: *Social model of disability*. People with Disability Australia. <https://pwd.org.au/resources/models-of-disability/>

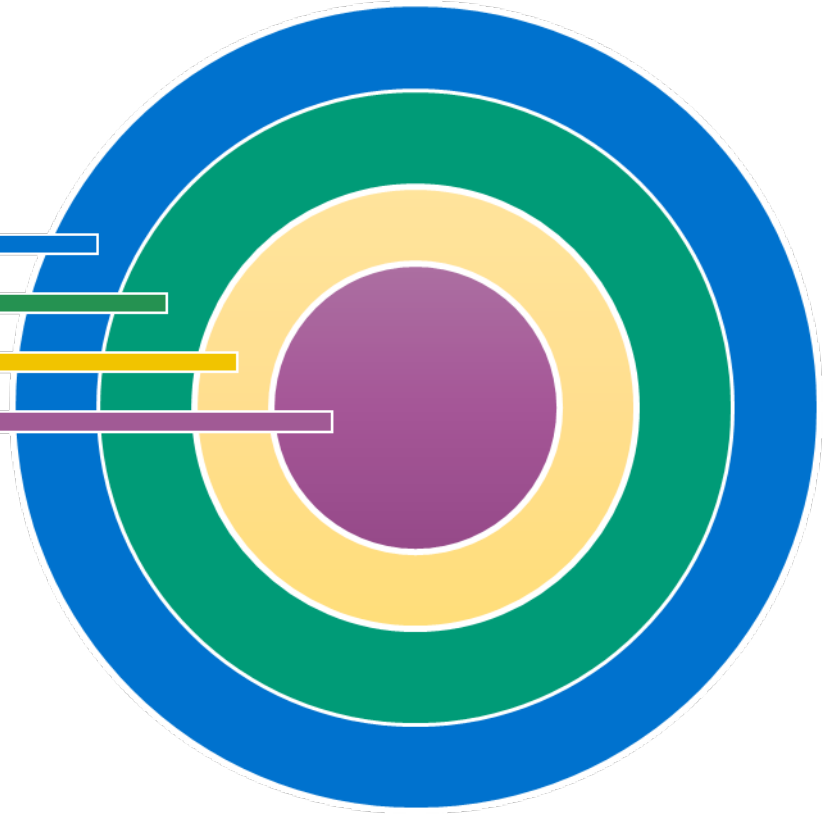
Digital Accessibility

- **Digital Accessibility** is a component of **accessible design**. It references **avoiding potential barriers** in the social model of disability for digital (electronic) resources. It is both:
 - The quality or measure the absence of barriers in digital resources (“How accessible is it?”), and
 - An editorial practice for creating accessible documents, websites, and any digital media (“Did you employ digital accessibility?”)



Supporting Practices Are at the Center

- Universal, Inclusive Design
- Accessible Design
- Digital Accessibility
- Supporting Practices



Understanding Digital Accessibility



POUR: Principles of Accessibility

- **P**erceivable
- **O**perable
- **U**nderstandable
- **R**obust



Photo by [Alberto Bogo](#) on [Unsplash](#)

P: Perceivable

In other words:

Resources and tools can be accessed and presented in manners that reach multiple senses.

“Perceivable content will make it possible for all your learners to see and hear the information.”

P: Questions

- Can the information be perceived with more than one sense?
- Can we customize the display?
- Are there text alternatives to embedded media?
- Is text readable and legible?
- Are there accessible alternatives for special notations?

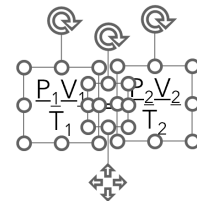
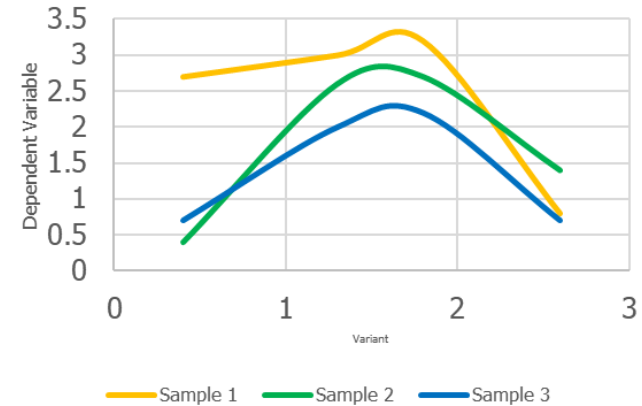
See references list at end of presentation for source information.



P: Flawed Examples

Is this perceivable?

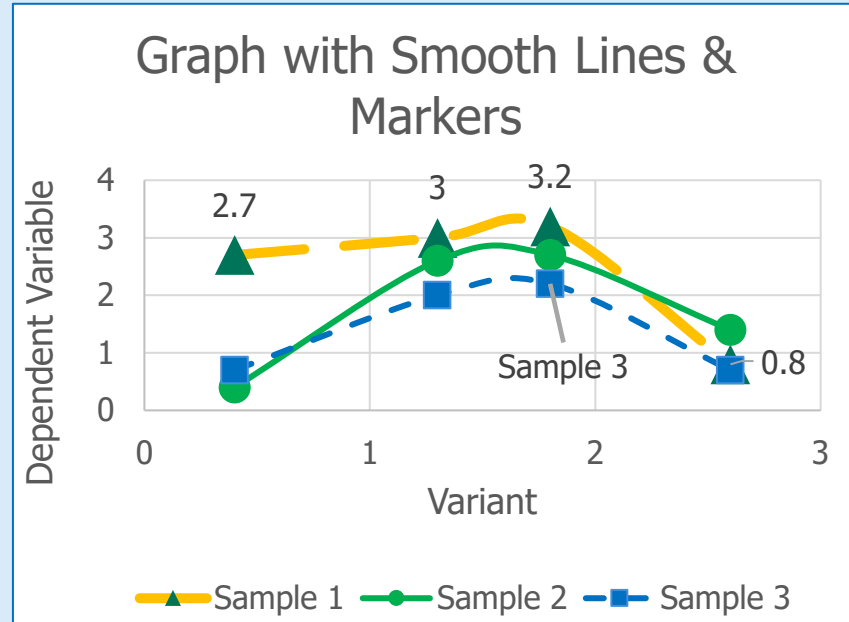
Graph with Smooth Lines & No Markers



P: Corrected Examples

- Data is connected to the image, allowing for altered display and “true” values to be read.
- All text is legible.
- Color is not the only thing used to distinguish the series and values.
- The built-in equation editor is used to write an equation that can be read by Assistive Tech.

This is perceivable.



$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

O: Operable

In other words:

Resources and tools can be maneuvered, or navigated, and used by everyone with minimal effort, including those using assistive technologies.

“Operable content will help all your learners navigate the information independently using their preferred tools.”

O: Questions

- Are there flexible options to control or respond to websites and materials?
- Is there a shortcut or aid to navigation so we know where we are?
- Do we know where a link will take us without having to click on it?
- Can we control timing and movement of media?
- Can we avoid inducing harm, such as seizures?

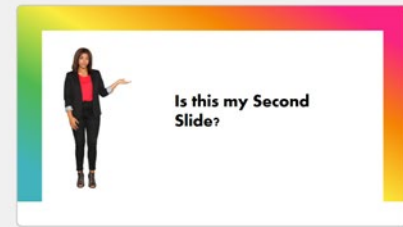
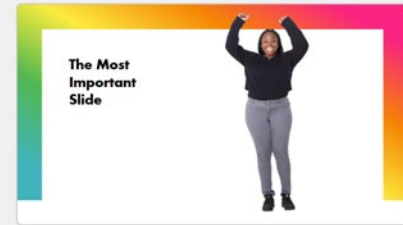
See references list at end of presentation for source information.



O: Flawed Examples

Is this operable?

To learn more, [click here](#).

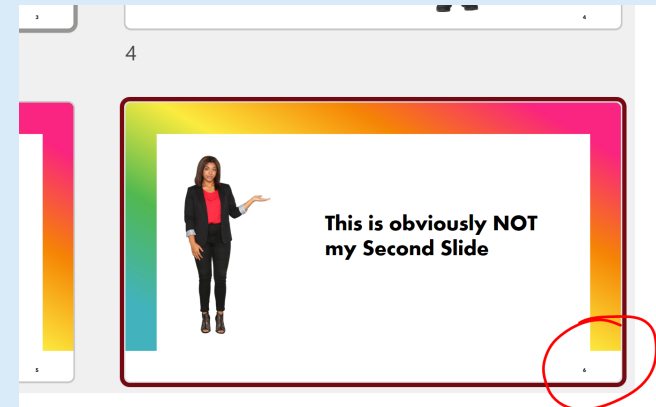
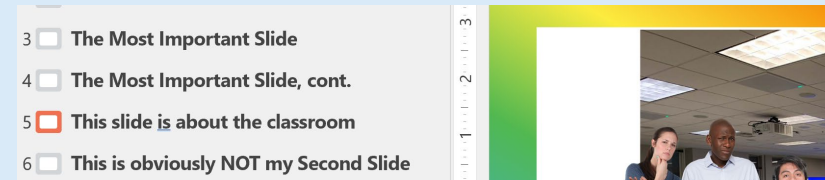


O: Corrected Examples

- The hyperlink is meaningful.
- Every slide has a unique title and can be easily referenced.
- The slide layouts all include the slide number.

This is operable.

To learn more, [visit CTL's Toolkit](#).



U: Understandable

In other words:

Resources and tools are consistent and predictable, or intuitive, without distracting from the information being communicated.

“Understandable content will support your learners' understanding through a consistent and predictable design.”



U: Questions

- Are the tone, style, words and phrases appropriate for the intended audience?
- Is the resource organized in a logical manner so that it is intuitive and consistent?
- Are interactive elements, including hyperlinks, understood without “clicking”, or interacting?
- Is there guidance to complete a task, including avoiding unnecessary errors?

See references list at end of presentation for source information.



U: Flawed Examples

Is this understandable?

- 45 patients presenting with NKDA were in the sample group.
- [Click here](#) after you [review the scenario](#).
- On the form, make sure to enter your phone number.



U: Corrected Examples

This is understandable.

- Acronyms are spelled out.
- Linked files present with their known filetypes and behavior.
- Unnecessary errors are prevented by providing sufficient instruction in the form completion.

- 45 patients presenting with NKDA (no known drug allergies) were in the sample group.
- Complete this assignment using [Dataset 1 \(*.csv file download\)](#), after you [review the scenario \(.mp4\)](#).
- On the form, make sure to enter your phone number using only digits and no special characters, *e.g. 4104550101*.



R: Robust

Resources and tools will work across platforms and technologies, including assistive technologies and future iterations of technologies.

In other words:

“Robust content will work for your learners on a range of current and future technologies, including assistive technologies.”

R: Questions

- Can the resource be saved or exported to a different format without losing structure and context?
- Does the resource work on different devices (laptop, phone)?
- Are there any restrictions to accessing and using the resource?

See references list at end of presentation for source information.



R: Flawed Examples

Is this robust?

Practice Accessibility in Word

Section 1

- First listed item
-  Second listed item
- Third listed item

Table

	Maryland	Nation
% Undergraduate	80.9	85.2
% African American	26.6	12.6

Styles

- Normal
- No Spacing
- Heading 1
- Heading 2
- Title
- Subtitle
- Subtle Emphasis
- Emphasis
- Intense Emphasis
- Strong
- Quote
- Intense Quote
- Subtle Reference
- Intense Reference
- Book Title
- List Paragraph

☐ Show Preview
☐ Disable Linked Styles

Protect Document
A password is required to open this document.

Inspect Document
Before publishing this file, be aware that it contains:
■ Document properties, document server properties, content type information, author's name and cropped out image data
■ Character formatted as hidden text

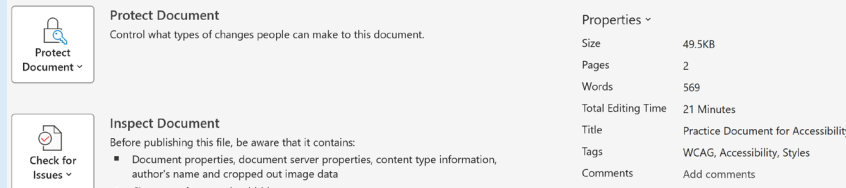
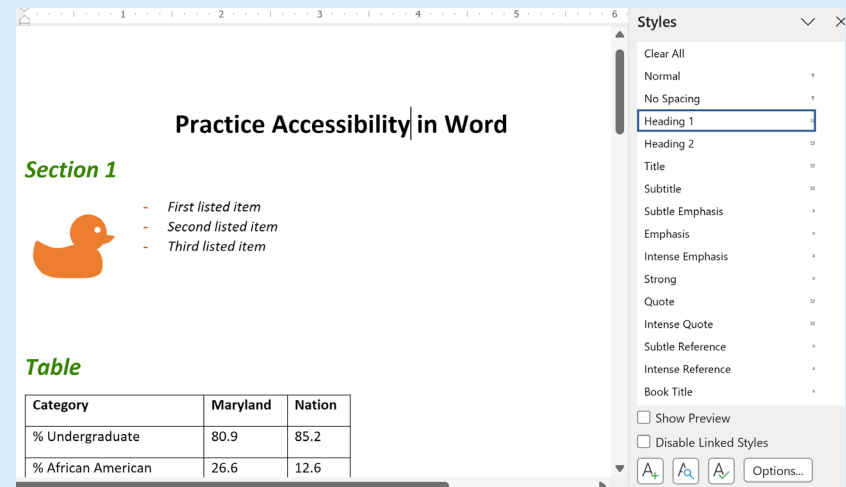
Properties

- Size: 42.2KB
- Pages: 2
- Words: 569
- Total Editing Time: 15 Minutes
- Title: Add a title
- Tags: Add a tag
- Comments: Add comments

R: Corrected Examples

- Styles are applied to the text so a heading will always be discerned as a heading, a list item as part of an itemized group, and the table will always be understood by the its header cells.
- The image is “inline” with the text’s reading order, and columns are used to control the page layout.
- The table has visible borders.
- The document is not protected and its metadata (file info) now includes a title and tags (keywords).

This is robust.



A Compiled List of Questions to Ask

Available from the CTL Teaching Toolkit Shelf:

[POUR Questions for a Digitally Accessible Classroom](#)

POUR

Digital accessibility is a measure of the absence of barriers to digital information. It is considered by four principles: is the information perceivable, operable, understandable, and robust? Together, these principles form the acronym, and mnemonic, POUR.

Here are some essential questions to ask when selecting and creating POUR materials for your class. Many were inspired by the document [Is It Accessible? Questions to Ask Before Selecting Educational Materials](#), by the National Center on Accessible Educational Materials.

Category 1	Category 2
Item 1	Detail 1
Item 2	Detail 2
Item 3	Detail 3

P: Perceivable

- Can the information be perceived with more than one sense?
- Can we customize the display, including enlarging it or changing its brightness?

Icons: AaBbCc, Heading 1, list icon, table icon, color palette, play button, image icon, alt text icon, document icon, speech bubble icon, CC icon.

The Toolkit Shelf can be found at <https://www.ctltoolkit.com/toolkit-shelf>

Getting things POUR



P: Strategies

- **P**erceivable
- **O**
- **U**
- **R**

In the classroom...

- Make sure your face is visible
- Use a microphone and keep background noise to a minimum
- Explain what you're displaying, including key points of graphics
- Describe your annotations & actions
- Record and provide accurate transcription/captions
- Share media with transcripts and captions



P: Strategies, cont.

- **P**erceivable
- **O**
- **U**
- **R**

Beyond synchronous...

- Share media with transcripts and captions
- Edit rich text with structured elements (headings, lists, etc.)
- Never use color alone to distinguish something
- Include appropriate alt text for images and other non-text elements
- Allow content to be resized without losing information



O: Strategies

- **P**
- **O**perable
- **U**
- **R**

In the classroom...

- Avoid time-based activities as the only option
- Build in user-choice, including providing options for active learning



O: Strategies, cont.

- **P**
- **O**perable
- **U**
- **R**

Beyond synchronous...

- Ensure all documents and websites are keyboard accessible
- Use page or slide numbers
- Use headings that would accurately reflect a document's outline or table of contents
- Use meaningful links, indicating what to expect if we "click"
- Avoid flashing content and any media that starts automatically



U: Strategies

- **P**
- **O**
- **U**nderstandable
- **R**

In the classroom...

- Speak clearly and evenly
- Take logical breaks and pauses for comprehension and more
- Take time to explain novel activities
- Explain unfamiliar terminology and acronyms, initialisms
- Direct attention to and relay key points of all graphics
- Consider a glossary or FAQ that can be built through the term



U: Strategies, cont.

- **P**
- **O**
- **U**nderstandable
- **R**

Beyond synchronous...

- Define unfamiliar words and acronyms
- Be consistent in communication & expectations
- Provide consistent navigation in the course site and any instructions
- Provide guidance for collaborative online tools
- Be clear about mandatory form fields and data types
- Use meaningful links, indicating what to expect if we “click”



R: Strategies

- **P**
- **O**
- **U**
- **R**obust

In the classroom...

- Avoid vernacular and outdated language when possible
- Be sure to explain any references that are not universally known
- Always plan for accommodations – temporary or permanent, documented or not



R: Strategies, cont.

- **P**
- **O**
- **U**
- **R**obust

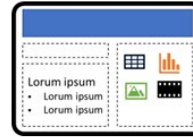
Beyond synchronous...

- Always create proper structure by using styles and placeholders
- Always check reading order and keyboard navigation
- Only create PDFs that are accessible, including structure tags and proper reading order
- Check your document (file) properties include title and keywords
- Never use passwords to protect a document



Minimum Expectations of BSPH Faculty

- Use templates
- Format with built-in tools
- Use tables with header rows & visible borders
- Avoid using color alone
- Watch contrast ratios
- Provide alt text
- Use meaningful hyperlinks
- Only use accessible, tagged PDFs
- Use accessibility checkers (and still check!)
- Provide alternate formats



Category 1	Category 2
Item 1	Detail 1
Item 2	Detail 2
Item 3	Detail 3



[Creating Universally Accessible Materials: Expectations of Faculty on the CTL Toolkit Site](#)

One More Easy Lift: Document Properties

Consider...	How to Achieve?
Title	Include a title, different from the file name. Most often, this will match the top-most heading (H1).
Tags	Provide key words that give more context to topics or categories to which the document is related.
Language	Depending on file type (HTML, PDF), specify the document's language. This attribute is used by assistive technologies and web search engines.
Restrictions	Try to avoid password protection or any other attribute that requires extra effort to open the document



More on Supporting Practices



Consider Barriers Beyond the Documents



Personas & Scenarios Exercise

- ▶ [_DigitalAccessibilityScenarioExercise.docx](#)
- ▶ For each persona, identify potential barriers
- ▶ For each scenario, provide strategies that might prevent unnecessary barriers



Checking Digital Accessibility



Regarding Testing for Accessibility

Testing is a 3-tier approach:

- ▶ Automated
 - ▶ Manual (using checklists and tools)
 - ▶ True users that are part of the disability community
- ▶ Automated tools (including the built-in checkers) are not enough
 - ▶ Knowing an assistive technology tool exists doesn't mean it is intuitive to use
 - ▶ Knowing a tool exists doesn't mean it works alone (e.g. NVDA works with plug-ins)



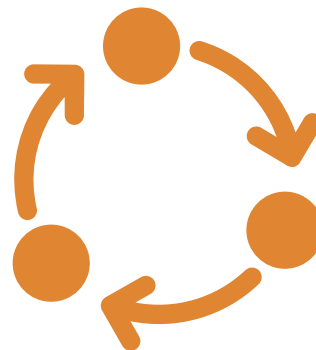
Automated Testing

▶ DOCUMENTS:

- ▶ Built-in checkers: Microsoft, Adobe Acrobat
- ▶ PDF Accessibility Checker (PAC)*
- ▶ Ally (for Canvas)

▶ WEBSITES:

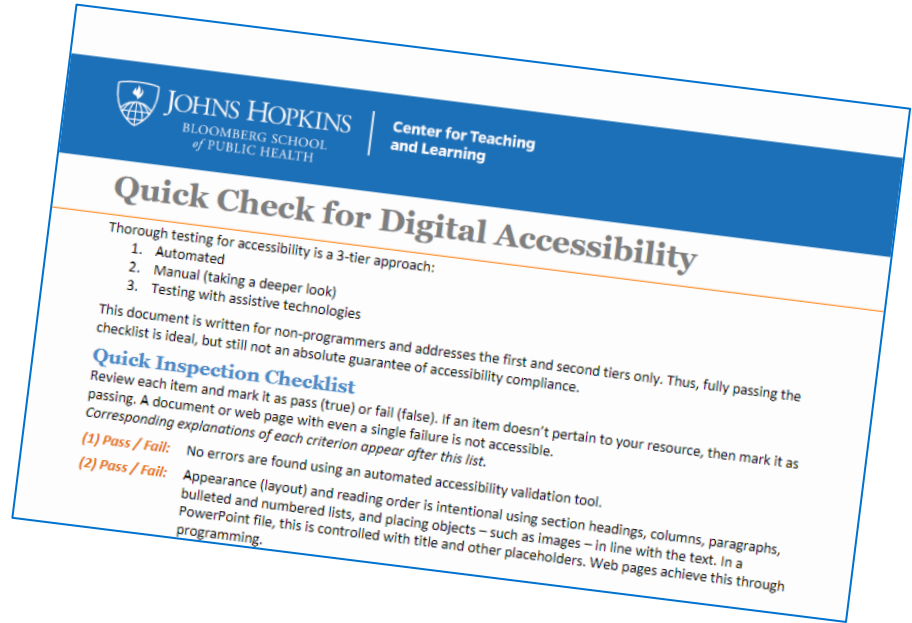
- ▶ WAVE browser extension tool (Chrome or Firefox)
- ▶ AI Inspector for Firefox
- ▶ Sitelymprove (JHU subscription)
- ▶ Pope Tech



Manual Testing

Available from the CTL Teaching Toolkit Shelf:

[Quick Check for Digital Accessibility](#)



The Toolkit Shelf can be found at <https://www.ctltoolkit.com/toolkit-shelf>

You're Invited: An Authentic Commitment to Putting Accessibility in Practice



Self-check: Accessibility Challenge



Find the Accessibility Flaws

A Challenge to Find Barriers to Access

- ▶ Available on the [CTL Exemplars and Best Practices course site](#) on CoursePlus
 - ▶ Module 6: Accessibility inside CoursePlus
 - ▶ Also available by request
- ▶ Builds upon what you learned today
- ▶ Includes barriers beyond the ones caught by Microsoft's Accessibility Assistant



Self-check: Remediate PowerPoint & Word

Microsoft PowerPoint

- ▶ [_PracticePowerPoint.pptx](#)
- ▶ [PracticePowerPoint-Solution.pptx](#)

Microsoft Word

- ▶ [_PracticeDoc.docx](#)
- ▶ [PracticeDoc-Solution.docx](#)



2-Minute, Anonymous Workshop Evaluation (AY25-26)

Scan the QR code below or go to <https://forms.office.com/r/wuJyapK8fo>

BSPH CTL: Teaching Toolkit
Workshop Evaluation AY25-26



References

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