



California Open Online Library for Education & Accessibility

COOL4Ed (the California Open Online Library for Education) was created so that faculty can easily find, adopt, utilize, review and/or modify free and open etextbooks for little or no cost. The COOL4Ed accessibility open textbook evaluations can inform faculty, staff, and students how the free and open etextbooks meet 15 accessibility “checkpoints” that could impact the learning of learners with a range of disabilities.

SUMMARY OF ACCESSIBILITY EVALUATION:

Textbook: To Tell the Truth
Format of Textbook: PDF

Assistive Technology (AT) Evaluation Score: Overall	4.3 (Maximum score = 10)
<p>Assistive Technologies (AT) Evaluations applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, see list below, are typically not used or available by the general public into the accessibility evaluation process.</p> <ul style="list-style-type: none"> • Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels) • Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator) • Third-party accessibility software and hardware: • Screen readers (e.g. JAWS, Window Eyes) • Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech) • Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000) • Refreshable Braille displays 	
Non- Assistive Technology (NAT) Evaluation Score: Overall	6.3 (Maximum score =10)
<p>Non-Assistive Technologies (NAT) Evaluations applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.</p>	



COOL4Ed Accessibility Evaluation Methods:

The California State University [Accessible Technology Initiative](#) and [MERLOT](#) (Multimedia Educational Resources for Learning and Online Teaching) developed the rubric or “checkpoints” for the accessibility evaluation. [CAST](#), a nationally recognized organization with expertise in accessibility and UDL, reviewed and affirmed the appropriateness and value of the accessibility evaluation rubric and contributed the references and support resources to help people learn how best to design, evaluate, and remediate the learning materials to maximize the accessibility of the learning resources for all. The “checkpoints” have been built upon the Section 508 technical standards and has been organized and tailored to the typical characteristics of digital resources used in higher education courses.

The accessibility evaluations were performed by the [Center for Usability in Design and Accessibility](#) at California State University, Long Beach; faculty and graduate students with expertise in human factors, usability, and accessibility performed the evaluations of over 150 free and open etextbooks. COOL4ed.org has published the accessibility evaluation rubric and provides a detailed description of the methodology used to evaluate the accessibility of the etextbooks in COOL4ed.

LOOKING FOR DETAILED ACCESSIBILITY REPORTS?

[See Detailed Accessibility Evaluation Report using Assistive Technologies](#)

[See Detailed Accessibility Evaluation Report using Non-Assistive Technologies](#)



DETAILED ACCESSIBILITY EVALUATION REPORT using Assistive Technologies

Assistive Technologies (AT) Evaluations applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, such as Kurzweil and NVDA, are typically not used or available by the general public into the accessibility evaluation process.

1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	Fail
Additional Information:	Could not find this information.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	Could not find this information.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	Could not find this information.

2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	Fail
Additional Information:	NVDA read all the text on pages 12-16. However the pace was very fast and it always read the footers on each page which disrupted the flow of reading. Additionally, if there was a background color or image behind text it would often interrupt the flow the text and say "graphic."

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	Used Adobe Reader XI and the text size adjusted on pages 12-16.



<p>B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser, media player, or reader) that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Used Adobe Reader XI to adjust the font and colors. Checked pages 12-16 and the font color did not change to green on every page. The font color only changed on half of page 14 and on pages 15-16.</p>

4. Reading Layout

<p>A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>Used Adobe Reader XI and the text reflowed on pages 12-16.</p>
<p>B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No printed version.</p>

5. Reading Order

<p>A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Used NVDA and checked the digital resource layout on pages 13, 25, 31, 35, 38. The reading order did not logically correspond to the page. It read everything on the left side of the page first and then on the right side (it did not continue what it was previously reading) and when there were graphics it often interrupted the reading flow by saying "graphic".</p>



6. Structural Markup/Navigation

<p>A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Used NVDA and checked pages 12-21. No headings were found. "No next heading"</p>
<p>B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Used NVDA and checked lists on pages 15, 17, 19, 21, 22, 23, 25, 26, 44, 60. No lists were found. "No next list"</p>
<p>C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Not using reader application.</p>

7. Tables

<p>A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No tables found.</p>



8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	N/A
Additional Information:	No in book links found.
B. Live hyperlinks take you to any website or webpages external to the book.	Fail
Additional Information:	Checked live links on pages 192, 193, and 196. No other links were found in the book.
C. Live links take you to the correct webpage that is functioning properly.	Fail
Additional Information:	0/20 live links were functional.
D. Live links are descriptive enough for the users to know where it should take them.	Fail
Additional Information:	0/20 live links had an acceptable description. All live links used the web URL.

9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	Fail
Additional Information:	Text and background color was changed very often but no color was used to convey things such as links. There was no color redundancy, when colors changed there was nothing to differentiate between different color texts and backgrounds except for color. Checked pages 12-21.
B. Information is conveyed from the sub-categories for contrast.	Pass



Additional Information:	Checked pages 12-21.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Most headers passed color contrast requirements except when headers had images behind them.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Most text passed color contrast requirements. Some issues when background colors were dark.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	Fail
Additional Information:	Simple images on pages 12 and 13 do not pass.

10. Language

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	N/A
Additional Information:	Cannot check this because do not have Adobe Acrobat Pro.
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	N/A
Additional Information:	Cannot check this because do not have Adobe Acrobat Pro.

11. Images

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a	Fail
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browser, media player, or reader that offers this functionality).	
Additional Information:	NVDA was able to detect non-decorative images or "graphics" but images did not have alternative text and the descriptions were not descriptive enough. Checked pages 12-31.
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	Fail
Additional Information:	NVDA did not skip over decorative images and it was disruptive to flow of text. Checked pages 12-31.
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	Fail
Additional Information:	NVDA was able to detect complex images or "graphics" but images did not have alternative text and the descriptions were not descriptive enough. Checked pages 12-31.

12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	N/A
Additional Information:	No multimedia found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No multimedia found.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No multimedia found.



13. Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	No flickering found.

14. Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	Fail
Additional Information:	0/10 figures had labels. Checked figures on pages 28, 37, 38, 39, 45, 48, 54, 57, 61, 66.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No graphs found.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No equations found.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No tables found.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	5/10 figures had descriptions and the reader skips over the figures.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No graphs found.
G. STEM equations have appropriate notation markup that conveys both the notation	N/A



(presentation) and meaning (semantics) of the STEM content.	
Additional Information:	No equations found.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No tables found.

15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	N/A
Additional Information:	No interactive elements found.
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	N/A
Additional Information:	No interactive elements found.
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No interactive elements found.



DETAILED ACCESSIBILITY EVALUATION REPORT using Non-Assistive Technologies

Non-Assistive Technologies (NAT) Evaluations applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.

1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	Fail
Additional Information:	No Content Found
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	No Content Found
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	No Content Found

2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	Pass
Additional Information:	Pgs 11-16 were checked. The text is available to assistive technology that allows user to enable text-to-speech functionality.

3. Text Adjustment

A. Text is compatible with assistive technology.	Fail
Additional Information:	Pgs 11-16 were checked. When the window page chaged in size, a horizontal bar appeared. The font size of all pages checked could be adjusted however a horizontal scrolling bar appeared.
B. The resource allows the user to adjust the font size and font/background color (or is	Fail



rendered by an application such as a browser, media player, or reader) that offers this functionality).	
Additional Information:	Pgs 11-16 were checked. When changing the font/background color to green text on black, the background color did change to black and the font color did change to green. However the first page disappeared. The first page had text previously and the entire page was black.

4. Reading Layout

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	Pass
Additional Information:	Pgs 11-16 were checked. When reflowing the text, the text to speech function did work. The text was available for assistive technology. This was consistent on all pages checked. The text did reflow.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	N/A
Additional Information:	Need additional information. We do not have printed material to compare it too.

5. Reading Order

A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.	Pass
Additional Information:	Pgs 11-16 were checked. The reading order was logical on all five pages.



6. Structural Markup/Navigation

<p>A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>The Tagged PDF, Title, Headings and bookmarks all failed using the accessibility checker.</p>
<p>B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>There were no list structural markups. The Tagged PDF, Title, Headings, and Bookmarks all failed using the accessibility checker.</p>
<p>C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No additional eReader used.</p>

7. Tables

<p>A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>Tables on page 62 (2 tables) and 63 (2 tables) were checked manually. Only four tables were found throughout the book. The text to speech function</p>



	seperated and read the tables by row. Using the accessibility checker, the rows TH and TD, headers and regularity all failed.
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8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	N/A
Additional Information:	No within book hyperlinks found.
B. Live hyperlinks take you to any website or webpages external to the book.	Fail
Additional Information:	13/20 live links worked. Pg 192 was checked. However all links were not descriptive.
C. Live links take you to the correct webpage that is functioning properly.	Fail
Additional Information:	13/20 live links worked. Pg 192 was checked.
D. Live links are descriptive enough for the users to know where it should take them.	Fail
Additional Information:	0/20 live links had a description. Pg 192 was checked. 20 out of 20 links were in html (URL) form and did not have a description on where the link would take you.

9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	Pass
Additional Information:	Pgs 11-21 were checked. Information not conveyed by color alone. Size of font was used to convey information. The chapter titles larger is size compared to the rest of the text. The chapter



	numbers were in white with red background as too where the chapter titles.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Pgs 11-21 were checked. Most pages had the contrast ratio of 4.51:1 and above (16.3:1). The chapter titles were larger in size compared to the rest of the text. The chapter titles passed with a 4.21:1 because is was greater than 18 size font. The chapter titles in blue and red passed with 3.01:1 and 5.11:1 (the text was greater than size 18 font). Subsections in red passed with a ratio of 6.72:1.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Pgs 11-21 were checked. Large chapter headings passed with a ratio of 4.21:1 due to it being larger than size 18 size font.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Pgs 11-21 were checked. Most of the text was above the ratio 4.51:1 (12.87:1). Large text, which in this case were chapter titles, passed with a 4.21:1. Text that was red in color passed with a ratio of 6.72:1.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	Fail
Additional Information:	Pgs 28-38 were checked. Simple images failed with a ratio of below 4.51:1 (2.46:1 on page 28).

10. Language

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	Fail
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Additional Information:	Using the accessibility checker the primary language failed.
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	Fail
Additional Information:	Using the accessibility checker the primary language failed.

11.Images

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	Fail
Additional Information:	6/10 non decorative images had descriptions that did convey meaning (descriptions were not sufficient to convey meaning). Pgs 28, 30, 34, 37, 38, 39, 40, 42, 44, and 45 had images and were checked.Four images did not contain descriptions. Using the accessibility checker, figures alternate text failed.
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	N/A
Additional Information:	No Decorative images found.
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	Fail
Additional Information:	0/4 image descriptions did convey meaning (descriptions were not sufficient to convey meaning). Pg 62 and 63 had images and were checked. There was only four complex images found throughout the



	book. The images did not contain a description. Using the accessibility checker, figures alternate text failed.
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12. Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	N/A
Additional Information:	No content found
B. A transcript is provided with all audio content.	N/A
Additional Information:	No content found
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No content found

13. Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	Pgs 1-10 were checked. No flickering content was observed. Using the accessibility checker, screen flicker passed.

14. Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	N/A
Additional Information:	No figures were found throughout the book.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No graphs were found throughout the book.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A



Additional Information:	No equations were found throughout the book.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No tables were found throughout the book.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No figures were found throughout the book.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No graphs were found throughout the book.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No equations were found throughout the book.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No tables were found throughout the book

15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	N/A
Additional Information:	No Interactive Element Present.
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	N/A
Additional Information:	No Interactive Element Present.



C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No Interactive Element Present.

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