



## 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:** Aveteca  
**Format of Textbook:** HTML

<b>Assistive Technology (AT) Evaluation Score: Overall</b>	<b>5.9 (Maximum score = 10)</b>
<p><b>Assistive Technologies (AT) Evaluations</b> 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"> <li>• Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels)</li> <li>• Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator)</li> <li>• Third-party accessibility software and hardware:</li> <li>• Screen readers (e.g. JAWS, Window Eyes)</li> <li>• Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech)</li> <li>• Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000)</li> <li>• Refreshable Braille displays</li> </ul>	
<b>Non- Assistive Technology (NAT) Evaluation Score: Overall</b>	<b>5.5 (Maximum score =10)</b>
<p><b>Non-Assistive Technologies (NAT) Evaluations</b> 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.

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## **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.	<b>Fail</b>
Additional Information:	<b>No content found.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>No content found.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>No content found.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>1/1 chapter passed.</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>1/1 chapter passed.</b>
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).	<b>Pass</b>
Additional Information:	<b>1/1 chapter passed.</b>



#### 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><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>0/30 web pages pass.</b></p>
<p>B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>No page numbers were used in the online book to be able to compare it to other formats.</b></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><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>5/5 pages pass.</b></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><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>1/1 chapters pass.</b></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,</p>	<p><b>Pass</b></p>



media player, or reader that offers this functionality).	
Additional Information:	<b>11/11 lists pass.</b>
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.	<b>N/A</b>
Additional Information:	<b>Not using the reader application.</b>

### 7. Tables

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).	<b>N/A</b>
Additional Information:	<b>No tables found.</b>

### 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.	<b>N/A</b>
Additional Information:	<b>Table of contents in home page were used for hyperlink section. All pass.</b>
B. Live hyperlinks take you to any website or webpages external to the book.	<b>Pass</b>
Additional Information:	<b>50/50 home links pass.</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Pass</b>
Additional Information:	<b>50/50 home links pass.</b>



D. Live links are descriptive enough for the users to know where it should take them.	<b>Pass</b>
Additional Information:	<b>50/50 home links pass.</b>

### 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.	<b>Fail</b>
Additional Information:	<b>0/1 chapters pass.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>1/1 chapters pass.</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>1/1 chapters pass.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>1/1 chapters pass.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>
Additional Information:	<b>No simple images found.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>lang="es" and lang="en."</b>
B. If the digital resource includes passages in a foreign language, these passages include	<b>Pass</b>



markup that declares the language in a manner that is compatible with assistive technology.	
Additional Information:	<b>lang="es" and lang="en."</b>

### 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).	<b>Fail</b>
Additional Information:	<b>0/1 chapters pass.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	<b>N/A</b>
Additional Information:	<b>No decorative images found.</b>
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).	<b>N/A</b>
Additional Information:	<b>No complex images found.</b>

### 12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>Fail</b>
Additional Information:	<b>0/3 pass.</b>
B. A transcript is provided with all audio content.	<b>Pass</b>
Additional Information:	<b>2/3 pass.</b>
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.	<b>N/A</b>



Additional Information:	<b>Not using additional assistive technology.</b>
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### *13.Flickering*

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

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
B. STEM graphs have appropriate markup that indicates that the image is a graph.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
C. STEM equations have appropriate markup that indicates that the image is an equation.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
D. STEM tables have appropriate markup that indicates the image is a table.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>
Additional Information:	<b>No stem content found.</b>
G. STEM equations have appropriate notation markup that conveys both the notation	<b>N/A</b>





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

### ***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.	<b>Fail</b>
Additional Information:	<b>Interactive elements do not respond to tab key.</b>
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	<b>Fail</b>
Additional Information:	<b>No markup.</b>
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).	<b>Fail</b>
Additional Information:	<b>No text prompts.</b>



## 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.	<b>Fail</b>
Additional Information:	<b>Not found.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>Not found.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>Not found.</b>

### 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.	<b>Fail</b>
Additional Information:	<b>1/27 pages work properly. And one page that worked read spanish text in english. Home page and chapters 1-27 worked. The only one that worked was the home page.</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>27/27 pass. Chapters 1-27 were passed.</b>
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,	<b>Fail</b>



media player, or reader) that offers this functionality).	
Additional Information:	<b>1/27 pages work properly. Only the home page works. For the other pages only the background changes color, where the actual content lies nothing changes. Homepage, 1-27 chapters were checked.</b>

#### 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).	<b>Fail</b>
Additional Information:	<b>0/30 chapters/pages reflow when making web browser smaller or zooming to 200%. Home page, chapters 1-30 were checked.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>No printed/pdf material found.</b>

#### 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.	<b>N/A</b>
Additional Information:	<b>Non-assistive technology only.</b>

#### 6. Structural Markup/Navigation

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	<b>N/A</b>
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such as a browser, media player, or reader that offers this functionality).	
Additional Information:	<b>Non-assistive technology only.</b>
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).	<b>N/A</b>
Additional Information:	<b>Non-assistive technology only.</b>
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.	<b>N/A</b>
Additional Information:	<b>Non-assistive technology only.</b>

## 7. Tables

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).	<b>N/A</b>
Additional Information:	<b>Non-assistive technology only.</b>

## 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.	<b>N/A</b>
Additional Information:	<b>HTML documents only contain live links, inbook links are available.</b>



B. Live hyperlinks take you to any website or webpages external to the book.	<b>Pass</b>
Additional Information:	<b>Average score.</b>
C. Live links take you to the correct webpage that is functioning properly.	
Additional Information:	<b>20/20 links work. These links are found on the table of contents. Also link are found in each chapter to next and previous chapter and these links work as well.</b>
D. Live links are descriptive enough for the users to know where it should take them.	
Additional Information:	<b>20/20 are descriptive. Home page, chapter 1-27 pass.</b>

### 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.	<b>Pass</b>
Additional Information:	<b>When hovering over links and the color changes to show it is a link, the link is also underlined.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>Average score.</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>Non-assistive technology only.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>27/27 pass. Chapters 1-27 were passed.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>



Additional Information:	<b>No simple images found.</b>
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### 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.	<b>Fail</b>
Additional Information:	<b>1/27 chapters pass. Only the home page passes. Home page, chapters 1-27 were checked.</b>
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.	<b>Fail</b>
Additional Information:	<b>1/27 chapters pass. Only the home page has tag for the second language, spanish. Home page, Chapters 1-27 were checked.</b>

### 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).	<b>Pass</b>
Additional Information:	<b>27/27 chapters pass using w3c. Home page, chapters 1-27 checked.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	<b>Pass</b>
Additional Information:	<b>27/27 pass. Chapters 1-27 were passed.</b>
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	<b>N/A</b>



player, or reader) that offers this functionality).	
Additional Information:	<b>No comple images found in text.</b>

### ***12.Multimedia***

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>N/A</b>
Additional Information:	<b>No multimedia found.</b>
B. A transcript is provided with all audio content.	<b>N/A</b>
Additional Information:	<b>No multimedia found.</b>
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.	<b>N/A</b>
Additional Information:	<b>No multimedia found.</b>

### ***13.Flickering***

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	<b>Pass</b>
Additional Information:	<b>No flickering. Home page, chapter 1-10 were checked.</b>

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

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



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

### ***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.	<b>N/A</b>
Additional Information:	<b>No interactive elements found in content.</b>
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	<b>N/A</b>
Additional Information:	<b>No interactive elements found in content.</b>





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).	<b>N/A</b>
Additional Information:	<b>No interactive elements found in content.</b>

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