



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: Introduction to Music Theory

Format of Textbook: ePUB

Assistive Technology (AT) Evaluation Score: Overall	7.1 (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	8.7 (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:	Did not find any information about Merlot's formal accessibility policy.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	Did not find any information about Merlot's accessibility statement.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	Did not find any information about Merlot's accessibility evaluation report.

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:	5/5 pages had proper text to speech capabilities (Pg. 5, 10, 21, 26, 38). All of the text was read aloud without skipping any content other than the images. Only the text was read aloud while the images were skipped. Even though the display of the figures and the text was different with the text in between some of the images, all of the text was read aloud by the Kurzweil reader.



3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	2/2 pages were able to properly zoom in and out without horizontal scrolling (Pg. 11, 24).
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).	Fail
Additional Information:	0/2 pages were able to fully adjust font and background colors (Pg. 11, 24). The background of these pages were able to change colors, but the text and the images of the pages remained the same color.

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:	2/2 pages had proper reflow of the text (Pg. 11, 24).
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	Fail
Additional Information:	0/2 pages properly matched the printed material and reflow of text (Pg. 11, 24). The PDF version of the textbook had 97 pages while the EPUB version had 45 pages.

5. Reading Order

A. The reading order for digital resource content logically corresponds to the visual layout of	Pass
---	-------------



the page when rendered by assistive technology.	
Additional Information:	5/5 pages had proper reading order (Pg. 5, 10, 21, 26, 38). All of the text was read aloud without skipping any content other than the images. Only the text was read aloud while the images were skipped. Even though the display of the figures and the text was different with the text in between some of the images, all of the text was read aloud by the Kurzweil reader. All of the text was read in a logical order that was easy for users to understand and follow.

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 such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	Unable to check for structural markup on Kurzweil.
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).	N/A
Additional Information:	Unable to check for structural markup on Kurzweil.
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.	N/A
Additional Information:	Unable to check for structural markup on Kurzweil.



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>Unable to check for tables on Kurzweil.</p>

8. Hyperlinks

<p>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.</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>13/30 in-book hyperlinks were properly functioning (Pg. 2, 5(2), 6(2), 15(4), 23, 41(3)). The remaining 17 in-book hyperlinks did not connect the user to the correct places in the book, they lead to uncorrect pages and some do not work (Pg. 3(5), 5(2), 15, 23, 40(3)).</p>
<p>B. Live hyperlinks take you to any website or webpages external to the book.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>16/20 live hyperlinks were properly functioning (Pg. 2(2), 5, 6, 15(7), 23(4), 43). The remaining four hyperlinks were not functional and did not take the user anywhere (Pg. 23, 40(3)). 17/20 live hyperlinks had proper decription (Pg. 5, 6, 15(7), 23(5), 40(3)). The remaining three hyperlinks were labeled as URLs.</p>
<p>C. Live links take you to the correct webpage that is functioning properly.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>16/20 live hyperlinks were properly functioning (Pg. 2(2), 5, 6, 15(7), 23(4), 43). The remaining four hyperlinks were not functional and did not take the user anywhere (Pg. 23, 40(3)).</p>



D. Live links are descriptive enough for the users to know where it should take them.	Pass
Additional Information:	17/20 live hyperlinks had proper description (Pg. 5, 6, 15(7), 23(5), 40(3)). The remaining three hyperlinks were labeled as URLs.

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:	1/2 pages had consistent color redundancy with text and headers in black while links were blue (Pg. 11). The remaining pages of the book starting from page 24, had text that was all in blue. It was inconsistent with the rest of the textbook.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Black headers against a white background. Black and blue text against a white background. Black simple image against a white background.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Black headers against a white background.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Black and blue text against a white background.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	Pass
Additional Information:	Black simple image against a white background.



10. Language

<p>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.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Unable to check language on Kurzweil.</p>
<p>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.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Unable to check language on Kurzweil.</p>

11. Images

<p>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).</p>	<p>Fail</p>
<p>Additional Information:</p>	<p>0/5 pages had non-decorative images that were properly described by the Kurzweil reader in detail (Pg. 5, 10, 21, 26, 38). All of the images only had the captions used to describe the images and the captions did not contain enough information for the user to visualize what was in the images.</p>
<p>B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>No decorative images found.</p>
<p>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).</p>	<p>Fail</p>



Additional Information:	0/5 pages had complex images that were properly described by the Kurzweil reader in detail (Pg. 5, 10, 21, 26, 38). All of the images only had the captions used to describe the images and the captions did not contain enough information for the user to visualize what was in the images.
-------------------------	--

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 content found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No multimedia 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 multimedia 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:	No flickering content.

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 STEM content.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No STEM content.



C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No STEM content.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No STEM content.
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 STEM content.
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 STEM content.
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 STEM content.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No STEM content.

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	N/A



element's name, type, and status (e.g. "Play, button, selected").	
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 8-15 were checked. The narrator was able to read the text.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	Pgs 8-12 were checked. Text allowed to adjust the size of the font on all 4 pages.
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).	N/A
Additional Information:	Need AssistiveTechnology.

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).	N/A
Additional Information:	Need AssistiveTechnology.
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	N/A
Additional Information:	No printed material or PDF available to compare

5. Reading Order

A. The reading order for digital resource content logically corresponds to the visual layout of	N/A
---	------------



the page when rendered by assistive technology.	
Additional Information:	Need AssistiveTechnology.

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 such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	Need AssistiveTechnology.
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).	N/A
Additional Information:	Need AssistiveTechnology.
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.	N/A
Additional Information:	Need AssistiveTechnology.

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).	N/A
--	------------



Additional Information:	Need Assistive Technology.
-------------------------	-----------------------------------

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.	Fail
Additional Information:	21/30 total in-book links worked. 21 links appeared to be links and did function as links. --> (Beginning) Pgs 2 (1 link) and 4 (9 links) were checked=(9/10) hyperlinks worked. The in-book link found that did not work can be found on page 4. In addition, all links were descriptive enough, and provided enough information to where the link would take you. However, the links appeared to be links but did not function as links. --> (Middle) Pg 31 (10 links) were checked=(10/10) in book links worked. All links appeared to be links and functioned as links. --> (End) Pg 57 was checked=(10/10) in book links did work. All links appeared to be links and functioned as links.
A. Live hyperlinks take you to any website or webpages external to the book.	Fail
Additional Information:	20/20 live links worked. Pgs 2 (2 links) and 68 (28 links) all had links and were checked. The links, however, were not descriptive enough because they were all in URL (html) form. The links did not give enough information on where the links would take you.
B. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	20/20 live links worked. Pgs 2 (2 links), and 68 (28 links) all had links and were checked. All links functioned.
C. 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. Pgs 2 (2 links), and 68 (28 links) all had links and were checked. All links were in Html (URL) form.
-------------------------	--

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 8-12 were checked. Information not conveyed by color alone. Size of font was used to convey information. Style of font (basic print, bold, underlined) was used to convey information.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Pgs 8-15 were checked. Most pages had the contrast ratio of 4.51:1 and above (18.88:1). The Chapter headings were larger in size (18+ font size) compared to the rest of the text, were in orange and bold. The chapter headings passed with a ratio of 3.51:1 (Passed because the text was larger than size 18 style font). The subsection headings were in blue and bold. These subsection headings passed with a ratio of 6.0:1. Underlined text in blue, hyperlinks, failed with a ratio of 6.0:1.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Pgs 8-15 were checked. Large chapter headings passed with a ratio of 3.51:1 because the text was larger than 18 size font. Subsection chapter headings passed with a ratio of 6.0:1.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Pgs 8-15 were checked. Most of the text was above the ratio 4.51:1 (18.88:1). The Chapter headings were larger in size (18+ font size) compared to the rest of

	<p>the text, were in orange and bold. The chapter headings text passed with a ratio of 3.51:1 (Passed because the text was larger than size 18 style font). The subsection headings were in blue and bold. These subsection headings text passed with a ratio of 6.0:1. Underlined text in blue, hyperlinks, failed with a ratio of 6.0:.1.</p>
<p>E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>Pgs 8-15 were checked. Simple image failed with a ratio of 4.51:1 and above (Example of simple image on page 8 which failed with a ratio of 6.48:1).</p>

10. Language

<p>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.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Need Assistive Technology.</p>
<p>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.</p>	<p>N/A</p>
<p>Additional Information:</p>	<p>Need Assistive Technology.</p>

11. Images

<p>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).</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>Did not find errors using pagina epub checker. Pgs 8-16 were checked. Pgs 8 (1 image), 9 (1 image), 10 (3 image), 11 (1 image), 12 (3 images), 13 (6 images), 14</p>



	(1 image), and 15 (5 images) all had images and were checked. All images did have alternative text and the narrator was able to read the text.
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.
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:	Pgs 19-26 were checked. Pg 19 had a complex image and were checked. The complex image did not have a sufficient enough explanation of the image.

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 8-18 were checked. No flickering content was observed.
-------------------------	---

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 Stem content found.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No Stem content found.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No Stem content found.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No Stem content found.
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 Stem content found.
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 Stem content found.
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 Stem content found.
H. Assistive technology used can access the content from the STEM tables.	N/A



Additional Information:	No Stem content 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.
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.
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.

© 2016 California State University (Version 1.0)



This work licensed under a Creative Commons Attribution 4.0 International License:

<https://creativecommons.org/licenses/by/4.0/>. Please attribute the California State University when using this work.