



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: Fundamentals of Physical Geography
Format of Textbook: HTML

Assistive Technology (AT) Evaluation Score: Overall	5.3 (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	7.8 (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:	No URL to Formal Accessibility Policy found.
B. The organization providing the online materials has an accessibility statement.	Fail
Additional Information:	No URL to Accessibility Statement found.
C. An Accessibility Evaluation Report is available from an external organization.	Fail
Additional Information:	No URL to Accessibility Evaluation Report 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:	2/2 Chapters pass. Chapters checked 1, 8. NVDA is able to read the text in order from the top of the pages to the bottom in both chapters that were checked.

3. Text Adjustment

A. Text is compatible with assistive technology.	Pass
Additional Information:	2/2 Chapters pass. Chapters checked 1, 8. The text was able to be manipulated by clicking on menu, then tools, and using - to decrease in size or + to increase the size of the text. It was also able to be increased in size by using CNTRL +/-.



<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>Pass</p>
<p>Additional Information:</p>	<p>2/2 Chapters pass. Chapters checked 1, 8. The background turned to black and the text changed to white when the Care Your Eyes function was enabled through Google Chrome.</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>Fail</p>
<p>Additional Information:</p>	<p>0/10 Chapters pass. Chapters checked: 1(a)-1(f), 2(a)-2(f), 3(a)-3(h), 4(a)-4(f), 5(a)-5(d), 6(a)-6(i), 7(a)-7(z), 8(a)-8(r), 9(a)-9(s), 10(a)-10(ah). The text reflowed in each chapter to a point but after 175% the reflow stopped functioning properly and words began to be cut off at the edge of the window.</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>The HTML format has no page numbers.</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>Pass</p>
<p>Additional Information:</p>	<p>5/5 Pages pass. Pages checked: 2(b), 3(a), 5(d), 7(i), 9(h). All pages checked were read by NVDA in a logical order from the top of the page to the bottom.</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>0/2 Chapters pass. Chapters checked 5, 10. NVDA was unable to navigate headings with the H key or keys 1-6 and a few times I tried when I pressed the H or number keys NVDA just repeated the name of the key and didn't even mention whether or not it found headings.</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>0/10 Lists pass. Lists found in: 4b, 4e, 5a, 5d(2), 7a, 7c, 7e, 7g, 7i. No lists found were recognizable by NVDA using the L key.</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 eReader application 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</p>	<p>Fail</p>
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technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	
Additional Information:	0/13 Tables pass. Tables found: 1b, 2d(11), 3e. None of the listed tables were able to be recognized as tables with cells or columns by NVDA.

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:	
B. Live hyperlinks take you to any website or webpages external to the book.	Pass
Additional Information:	Average of the Functionality and Description scores.
C. Live links take you to the correct webpage that is functioning properly.	Pass
Additional Information:	50/50 Links Pass. Links found: Chapter 1(7), 2(43). All links found redirected to authentic links. All links for the chapter were in a list marked as weblinks to keep them organized as well.
D. Live links are descriptive enough for the users to know where it should take them.	Pass
Additional Information:	50/50 Links Pass. Links found: Chapter 1(7), 2(43). All links found were descriptive of the destination and were not simply URL forms. All links in the chapters were also in a list form in the chapters and were organized.

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	Fail
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not perceive color, and information conveyed by color is also conveyed in other ways.	
Additional Information:	0/2 Chapter pass. Chapters checked: 1, 2. None of the links provided and checked were underlined. They were signified by a blue color to separate them from normal text but no other means of identification.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Average of the Header and Text contrast scores.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	2/2 Chapters pass. Chapters checked: 1, 5. Header text is black on a white background and passed the Colour Contrast Analyser with a contrast ration of 12.63 to 1.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	2/2 Chapters pass. Chapters checked: 1, 5. Body text is black on a white background and passed the Colour Contrast Analyser with a contrast ratio of 10.54:1.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	N/A
Additional Information:	No simple images found.

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
Additional Information:	No language code found.
B. If the digital resource includes passages in a foreign language, these passages include	N/A



markup that declares the language in a manner that is compatible with assistive technology.	
Additional Information:	No alternate language code found.

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:	0/6 Images pass. Images found: 1a(3), 1c, 5a(2). All images had descriptive text in the body but none had alternate text read by NVDA and weren't recognized as images by NVDA.
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).	N/A
Additional Information:	No complex images found.

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



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 in the book.

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 instances of flickering found in the book.

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 pass. Figures checked: 1a(3), 1c, 5(a)2, 6a(4). No figures checked were marked up in a way so NVDA would recognize them.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	Fail
Additional Information:	0/10 Graphs pass. Graphs checked: 6f(3), 6h, 6i(2), 7b, 7d, 7e(2). No graphs checked were marked up so that NVDA would recognize them as graphs.
C. STEM equations have appropriate markup that indicates that the image is an equation.	Fail
Additional Information:	0/10 Equations pass. Equations checked: 3e, 3g(4), 3h(5). Equations were not marked up to be recognized by NVDA.
D. STEM tables have appropriate markup that indicates the image is a table.	Fail
Additional Information:	0/13 Tables pass. Tables found: 1b, 2d(11), 3e. None of the listed tables were marked up to be recognized by NVDA.



E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	0/10 Figures pass. Figures checked: 1a(3), 1c, 5(a)2, 6a(4). No figures checked had notation that was recognized by NVDA.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	0/10 Graphs pass. Graphs checked: 6f(3), 6h, 6i(2), 7b, 7d, 7e (2). No graphs checked included notation that was recognized by NVDA.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	0/10 Equations pass. Equations checked: 3e, 3g(4), 3h (5). Equations checked did not have notation that was recognizable by NVDA.
H. Assistive technology used can access the content from the STEM tables.	Fail
Additional Information:	0/13 Tables pass. Tables checked: 1b, 2d(11), 3e. No table checked included notation that was recognizable by NVDA.

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 in the book.
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 in the book.
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 in the book.

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



2. Text Access

<p>A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>2/2 chapters pass with text to speech function on google chrome. Chapters 3 and 7 were checked.</p>

3. Text Adjustment

<p>A. Text is compatible with assistive technology.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>2/2 chapters pass with zoom function on google chrome. Chapters 3 and 7 were checked.</p>
<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>Pass</p>
<p>Additional Information:</p>	<p>2/2 chapters pass. However the page has to be refreshed for it to work. With other eTextbook this function works as soon you click the button. Chapters 3 and 7 were checked.</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>Fail</p>
<p>Additional Information:</p>	<p>0/2 chapters pass. Chapters reflow to a certain degree. Stops reflowing when you zoom to 150% and when you make web browser smaller. However since it does reflow to up to 150% I am rating this a 4. Other textbooks that do not reflow at all are given at 1.</p>



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 of pdf format found.

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.	N/A
Additional Information:	Non AT Tech only.

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:	Non AT Tech only.
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:	Non AT Tech only.
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:	Non AT Tech only.



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>Non AT Tech only.</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>N/A</p>
<p>Additional Information:</p>	<p>No within book links in HTML.</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>Average Score</p>
<p>C. Live links take you to the correct webpage that is functioning properly.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>20/20 links pass. Links are found on table of contents and within text.</p>
<p>D. Live links are descriptive enough for the users to know where it should take them.</p>	<p>Pass</p>
<p>Additional Information:</p>	<p>20/20 links pass.</p>

9. Color and Contrast

<p>A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do</p>	<p>Fail</p>
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not perceive color, and information conveyed by color is also conveyed in other ways.	
Additional Information:	Links are shaded blue but lack other code to demonstrate they are a link.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Average Score
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Headings are red, white with a white background.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass
Additional Information:	Text is black with a white background.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	N/A
Additional Information:	No simple images found.

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
Additional Information:	No lanugage mark up found.
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:	No other language found.



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>2/2 chapters pass. No img alt tags missing when checked with w3c tool.</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>Pass</p>
<p>Additional Information:</p>	<p>2/2 chapters pass. No img alt tags missing when checked with w3c tool.</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>
<p>Additional Information:</p>	<p>Complex images do not have alt tags.</p>

12.Multimedia

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



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. Chapters 2, 8, 12 and 24 were checked.

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	Pass
Additional Information:	8/10 figures have mark up. For the most part figures have a mark up but equations and tables do not (see additional information). Chapter 7 was checked for this portion. I will include equations and tables in this section since there were so little of them. I found a total of 1 equation and 1 table.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	9/10 figures had a mark up. The beginning of chapter 7 was checked.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	Equations were included in figures.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	Equations were included in figures.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Pass
Additional Information:	8/10 figures had notation.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A



Additional Information:	10/10 graphs have notation.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	Equations were included in figures.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	Equations were included in figures.

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:	Non-Assistive Technologies only.
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:	Non-Assistive Technologies only.
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:	Non-Assistive Technologies only.



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