

VSCC ACCESSIBILITY **Guide**

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The Anatomy of an Accessible Page

Heading 1 → Syllabus

Heading 2 → **DL 101 - Introduction to Online Learning**

Heading 3 → **Course Information:**


Format lists as proper lists

- **Course Title:** Introduction to Online Learning
- **CRN:** 12345
- **Credits:** 3
- **Term:** Winter 2014

Add Alternative (Alt) text to images

Heading 3 → **Instructor Information:**

Hello! My name is John Doe, and I'll be your instructor for this course. I've taught this course online for the past two years. Each time I teach it, I learn something new.



John Doe
Instructor

Heading 3 → **Assignments/Assessments:**

Heading 4 → Grading Scale

Table Column Header

Grade	Grading Scale by Points	Grading Scale by Percentages
A	202 - 225 +	90 - 100%
B	180 - 201	80 - 89%
C (or P)	157 - 179	70 - 79%
D	135 - 156	60 - 69%
F (or NP)	< 134	< 59%

Table Row Header

Heading 4 → Late Work & Make-up Policy

Assignments must be completed on time in order to earn full credit.
(Late assignments will earn 50% credit.)

Sufficient Color Contrast

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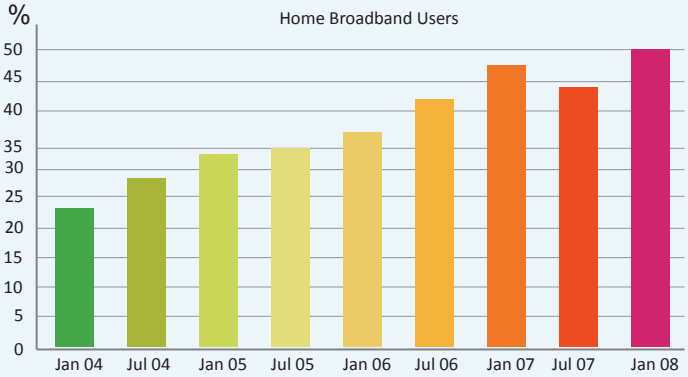
Write meaningful link texts

Special Accommodations:

Students who experience disability-related barriers should contact **Disability Services** (www.volstate.edu/disability). If students elect to use approved academic adjustments, they must provide in advance formal notification from Disability Services to the instructor.

DL 101 - Online Learning Best Practices

Best Practices when using complex graphics:



This graph summarizes the growth using home broadband during the period of January 2004 to 2008. The percentage increased from 22% in 2004 to 48% in 2008.

When using complex images, include Alt text as you would for any other image but also include additional description as a caption. If more description is needed, include it in the content of the page.

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Accessibility

Web Accessibility

Adhering to accessibility guidelines while developing your course materials will benefit all students, including those with visual, hearing, mobility and learning disabilities.

Vol State Accessibility Guidelines

Volunteer State Community College's accessibility guidelines are based on the internationally accepted Web Content Accessibility Guidelines A and AA standards (WCAG 2.0).*

This handbook is a reference guide. For more information, visit www.volstate.edu/accessibility.

* Web Content Accessibility Guidelines 2.0, W3C World Wide Web Consortium Recommendation 12 Month Year (<http://www.w3.org/TR/2008/REC-WCAG20-20081211/>), Latest version at <http://www.w3.org/TR/WCAG20/>)

Required by Law








Tennessee State Bill 1692

State Bill 1692 was passed in 2014. It requires public higher education institutions authorized by the Tennessee Higher Education Commission (THEC) to only develop, procure, maintain, or use electronic materials and related information technology that are accessible to individuals with disabilities.












Web Accessibility Guidelines

Component	Guideline	Why Is This Important?
 Headings	Use properly formatted headings to structure a page.	Headings help to organize content, making it easier for everyone to read. Headings are also a primary way for people using screen reading software to navigate a page of text.
 Lists	Format lists as proper lists.	Formatting is conveyed to assistive technologies and mobile devices so they can present information as it's meant to be presented. Properly formatted documents are more understandable and accessible.
 Links	Write meaningful link text.	Links embedded in text should describe the link's destination. This helps all users navigate more efficiently, especially screen reader users.
 Tables	Create tables with column and/or row headers, and ensure a proper reading order.	<ul style="list-style-type: none"> ▪ Why Column Headers in a Data Table are Important Using table headers is important to conveying tabular data accurately. ▪ Why the Reading Order in a Table is Important Screen readers read tables from left to right, top to bottom, one cell at a time (& only once). If cells are split or merged, it could throw the reading order off which may make the table difficult to comprehend by users who are blind and using a screen reader to navigate.
 Color	<ul style="list-style-type: none"> ▪ Use sufficient color contrast. ▪ Don't use color alone to convey meaning. 	Without sufficient color contrast between font and background, people who are color blind and low vision will not benefit from the information. And using color alone to convey meaning will leave those who are color blind or blind unable to interpret the meaning.
 Keyboard	Ensure that any action that uses a mouse can also be completed using only the keyboard.	Mobility and visual disabilities often make using a mouse impossible or ineffective. If content is not keyboard accessible, it will limit who can learn from the content.
 Images	Provide alternative (Alt) text descriptions for images.	Alt text is read by a screen reader. It should adequately describe what is being displayed and why it's important. This allows screen reader users to benefit from the information being conveyed by the image, even if they cannot see it.

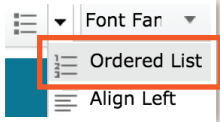





Web Accessibility Guidelines

Component	Guideline	Why Is This Important?
 Navigation	Design clear and consistent navigation.	Clear and consistent navigation in your course will allow students to focus on your content rather than on how to find it.
 Blinking	Eliminate or limit blinking / flashing content to 3 seconds.	Blinking content is distracting, and it can cause seizures to occur in people with a photosensitive disorder.
 Forms	<ul style="list-style-type: none"> • Ensure a proper logical reading order in a form. • Label form fields and buttons clearly. 	<ul style="list-style-type: none"> ▪ Why the Reading Order of a Form is Important Using the tab key, your cursor should follow through the form in the same order it is intended to be completed. This benefits users who cannot use a mouse. ▪ Why Labeling Buttons and Form Fields is Important A screen reader will identify the button or form field by reading the label. The label should adequately describe the button's action, and the form field label should indicate what information should be filled in to the form field.
 Video	Video content needs to have captions and audio content needs to be transcribed. Captions and transcripts need to 99% accurate.	Video captions benefit many viewers. Captions are essential for those who are deaf and hard of hearing, but they also aid in comprehension for non-native English speakers, those who are unfamiliar with vocabulary, and viewers with some learning disabilities or in a noisy environment.
 Audio	Media Services can help provide captions for media, if you have the copyright holder's permission.	Audio transcripts benefit many students. They are essential for those who are deaf or hard of hearing, but they also assist anyone who would like to read or search the transcript.
 Software	Require only accessible software & applications.	Inaccessible software and applications will shut students with disabilities out. Request accessibility documentation from vendors and publishers for any student used materials.
 Math & Science	Write math and science equations accessibly.	For web pages, use an equation editor in eLearn. For MS Word and PPT documents, use the MathType plugin. Math needs to be created in MathML format.


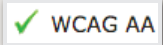


Component	Accessibility Guideline	How to Make it Accessible
Page Template	<ul style="list-style-type: none"> Use the eLearn page templates. 	<ul style="list-style-type: none"> The built in templates will help keep your material looking uniform, attractive and accessible.
Headings	<ul style="list-style-type: none"> Properly format headings. Use headings in the correct order. 	<ul style="list-style-type: none"> Highlight the text and select the Heading # from the Format drop-down menu on the tool bar. There should be only one Heading 1 (h1) per page. But there can be multiple h2, h3, h4, h5, h6. DO NOT skip heading levels.
Images	<ul style="list-style-type: none"> Add alternative (Alt) text to images. 	<ol style="list-style-type: none"> Place the cursor where you want to insert an image, and click the Insert image icon from the toolbar. The Add a File window will open. Browse to the image location and select the image file. Click Add button. The Provide Alternative Text window will open. Describe the purpose of the image in the Alternative Text field, or check the box if the image is just decorative. Click OK.
Lists	<ul style="list-style-type: none"> Format a list as a list using Ordered or Unordered lists. 	<ol style="list-style-type: none"> Select the content you want to make into a list. From the toolbar, click the Unordered/Bulleted list icon if the order doesn't matter. Select Ordered List from the drop-down menu (next to the bulleted list icon) if the order does matter. 
Links	<ul style="list-style-type: none"> Write meaningful link text that indicates the link's destination. 	<ol style="list-style-type: none"> Highlight meaningful text for the link (ex. Volunteer State Community College). From the toolbar, click on the Insert Quicklink icon. Select URL in the Insert Quicklink window. <ul style="list-style-type: none"> Type or paste in the URL (http://www.volstate.edu). Select Whole Window in the Target section. Click the Insert button. 



B

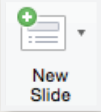

How to Make Accessible eLearn Pages

Component	Best Practices	How to Make it Accessible
Tables	<ul style="list-style-type: none"> Indicate column (or row) headers in data tables. 	<ol style="list-style-type: none"> Select the cells to be marked up as a row or column header. Click on the drop-down menu next to the Table icon in the toolbar. Choose Cell Properties. The Table cell properties window will open. In the Cell type field, click on the drop-down list and select Row Header or Column Header. Click Update button.
	<ul style="list-style-type: none"> Add table caption. 	<ol style="list-style-type: none"> Select the table and click on the drop down menu next to the Table icon. Select Table Properties, and check Include Caption. Click Update when done.
	<ul style="list-style-type: none"> Check the reading order. 	<ul style="list-style-type: none"> A screen reader reads tables from left to right, and top to bottom, never repeating a cell. Merged, nested, and split cells may alter the reading order of a table. Make sure you construct your tables in a way that accommodates a good reading order.
Color	<ul style="list-style-type: none"> Use sufficient color contrast. 	<ol style="list-style-type: none"> Select the text that you want to change to another color. Click drop-down menu next to the Apply Color icon in the toolbar.  Select the color and click Save. <p>Note: When picking a color for your text in eLearn, make sure you choose a color that registers with a green checkmark for WCAG AA in the Select a Color palette. </p>
	<ul style="list-style-type: none"> Don't use color alone to convey meaning. 	<p>Don't use color alone to make a distinction, a comparison or to set something apart from the rest of the web page. If you categorize something by color alone, those who are color blind or blind will not benefit from the color distinction.</p>
Math & Science	<ul style="list-style-type: none"> Write math and science equations using MathML. 	<p>Use the eLearn equation editor. For more information, go to the Math & Science page in this handbook.</p>
Multimedia	<ul style="list-style-type: none"> Eliminate or limit blinking/flashing content to 3 seconds. Make sure all mouse actions can also be completed with a keyboard alone (without a mouse). Use an accessible media player like YouTube or the Kaltura/My Media player. 	





How to Make Accessible PowerPoints & Google Slides

Component	PowerPoint (2011, 2013, 2016)	Google Slides
<p>Outline View</p> <ul style="list-style-type: none"> Check the outline view. 	<ol style="list-style-type: none"> Click on View tab (Mac: View > Outline View icon - PPT 2016). In the Presentation Views group, click on Outline View. In the Outline panel, make sure all text from the slides appears in the Outline View. 	<p>There is no Outline View in Google Slides.</p>
<p>Slide Layout</p> <p>Use the provided slide layouts to help your slide's reading order remain intact.</p>	<ul style="list-style-type: none"> From Home tab, choose the New Slide drop down menu and select a slide template. Don't use the Blank slide template. 	<ol style="list-style-type: none"> Create a new slide (Slide > New Slide). Go to Slide menu, click on Apply Layout and choose one of slide template (not the Blank one).
<p>Reading Order</p> <ul style="list-style-type: none"> Ensure the tab order = the reading order. 	<ol style="list-style-type: none"> On the Home tab, click on Arrange and choose Selection Pane (Reorder Objects for Mac - PPT 2011 & 2016). To see the reading order of the slide, tab through the slide and the corresponding element will highlight. To re-arrange the reading order, click arrow up/down button on the Selection Pane (Mac: drag layers). The highest number is read first. Test reading order with the Tab key again. 	<ol style="list-style-type: none"> Tab through the slide and the corresponding element will highlight. In the slide area, click on the element that you want to change. To change the reading order, click on Arrange menu > Order Send backward will raise the element to a higher reading order. Bring forward will make the element lower in the reading order. Test reading order with the Tab key again.
<p>Images</p> <ul style="list-style-type: none"> Add alternative (Alt) text to images and shapes. 	<ol style="list-style-type: none"> Right click on the image and select Format Picture. Click the  icon to open Alt Text field. Enter appropriate alt text in the Description field (not the Title field). 	<ol style="list-style-type: none"> To insert an image, choose Image from the Insert menu and follow the instructions. To add Alt text, click on the image. Then in the format menu, select Alt text (at the very bottom of the menu). Enter alt text in the Description field (not the Title field).
<p>Lists</p> <ul style="list-style-type: none"> Format a list as a list. 	<ol style="list-style-type: none"> Select the text to make into a list and click on the Home tab. In the Paragraph group, select the Numbering or Bullets icon. <ul style="list-style-type: none"> Use Numbering lists if a sequential order is important to the list. Use Bullets lists if all items are of equal value. 	<p>Go to Format menu > Lists and select one of list styles.</p> <ul style="list-style-type: none"> Use Numbered lists if a sequential order is important to the list. Use Bulleted lists if all items are of equal value.







How to Make Accessible PowerPoints & Google Slides

Component	PowerPoint (2011, 2013, 2016)	Google Slides
<p>Links</p> <ul style="list-style-type: none"> ■ Create a meaningful link that describes its destination. 	<ol style="list-style-type: none"> 1. Type out text that describes the destination of the link (i.e. VolState Homepage). 2. Select the text, right click and choose Hyperlink... from the menu. 3. The Insert Hyperlink window will open. Enter a URL address in the Address field (i.e. http://www.volstate.edu) (Mac - PPT 2011: Link to field). 4. Click the OK button to save the link. 	<ol style="list-style-type: none"> 1. Type out text that describes the destination of the link. 2. Select the text, right click and choose Link from the menu. 3. Paste or type in a hyperlink. 4. Click Apply button to save the link.
<p>Tables</p> <ul style="list-style-type: none"> ■ Check the reading order. 	<ul style="list-style-type: none"> ■ A screen reader reads a table from left to right, & top to bottom (never repeating a cell). ■ Merged, nested, and split cells may change the reading order of a table. ■ Construct your table in a way that accommodates a good reading order. 	
<ul style="list-style-type: none"> ■ Indicate column headers for data tables. <p>Note: A table in Slide Show view is not accessible. Use Alt text!</p>	<ol style="list-style-type: none"> 1. Place the cursor in the top row of your data table. 2. Click the Design tab under Table Tools (Mac - PPT 2011/2016: Tables tab). 3. In the Table Style Options group (Mac - PPT 2011 - Table Options > Options / Mac - PPT 2016 - Table Design tab), select the Header Row check box. 4. The cells in the top row of your table make up the column headers. 	<p>You cannot create table column/row headers in Google Slides.</p>
<p>Color</p> <ul style="list-style-type: none"> ■ Use sufficient color contrast. 	<ul style="list-style-type: none"> ■ Use enough color contrast between the text (i.e. black color) and the background color (i.e. white color). ■ Without sufficient color contrast, people who are low-vision and color blind will not benefit from the information. ■ Use the Color Contrast Analyser tool (contact IT to install on your computer). 	
<ul style="list-style-type: none"> ■ Don't use color alone to convey meaning. 	<p>Don't use color alone to make a distinction. If you categorize something by color alone, those who are color blind or blind won't benefit from the information.</p>	
<p>Math & Science</p> <ul style="list-style-type: none"> ■ Use MathType to write Math equations. 	<p>Use the MathType plugin for MS Word to create math and science equations, formulas and notations. Contact IT to install MathType on your computer. DO NOT use MS equation editor.</p>	<p>Math and science equations and formulas cannot be written to be accessible in Google Slides.</p>
<p>Video & Audio</p>	<p>Don't only embed the video, also link out to videos.</p>	





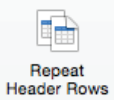
How to Make Accessible Word Documents & Google Docs

Check	Word Document (2011, 2013, 2016)	Google Docs
<p>Headings</p> <ul style="list-style-type: none"> Properly format headings. Use headings in the correct order. 	<ol style="list-style-type: none"> Select the text that you want to make into a heading. Go to the Home tab. Choose the appropriate heading level from the Styles group. <ul style="list-style-type: none"> Heading 1 should only be used ONCE per page. Heading 2, 3, etc. can be used multiple times. DO NOT skip heading levels! 	<ol style="list-style-type: none"> Select the text that you want to make into a heading. Go to the Styles menu (or "Normal text") and choose the appropriate heading level from the Normal text drop down list.
<p>Images</p> <ul style="list-style-type: none"> Add alternative (Alt) text to images. 	<ol style="list-style-type: none"> Right click on the image, and select Format Picture... The Format Picture window will open. Select the  icon and click on the ALT TEXT to open Alt text field. Enter image description in the Description field (Not the Title field). 	<ol style="list-style-type: none"> Select the image. From the Format menu choose Alt text. Type in description text in the Description field (Not the Title field). Click the OK button when done.
<p>Lists</p> <ul style="list-style-type: none"> Format a list as a list. 	<ol style="list-style-type: none"> Select the text that you want to make into a list. On the Home tab, in the Paragraph group, select the Bullets or Numbering list.  	<ol style="list-style-type: none"> Select the text that you want to make into a list, and do one of these: <ol style="list-style-type: none"> On the Format menu, choose Lists & select Numbered or Bulleted list. Go to the icon toolbar, and choose the Numbered or Bulleted list icon.
<p>Links</p> <ul style="list-style-type: none"> Create a link that describes its destination. 	<ol style="list-style-type: none"> Type out text that describes the destination of the link. (i.e. VolState). Select the text, right click and choose Hyperlink... from the menu. The Insert Hyperlink window will open. Enter a URL address in the Address field (<i>Mac - Word 2011: Link to</i> field). Click the OK button to save the link. 	<ol style="list-style-type: none"> Type out text that describes the destination of the link (i.e. Vol State). Select the Insert link icon (Ctrl/Cmd + K). The Link window will open. Type the URL of the webpage in the Link field (i.e. http://www.volstate.edu). Then click the Apply button to save the link.
<p>Math & Science</p>	<ul style="list-style-type: none"> Use the MathType plugin for MS Word to create math and science equations, formulas and notations. Contact IT to install MathType on your computer. Do Not use Microsoft's equation editor. Note: MathType objects do Not need alt text. 	<ul style="list-style-type: none"> Math and science equations and formulas cannot be written accessibly in Google Docs.





How to Make Accessible Word Documents & Google Docs

Component	Word Document (2011, 2013, 2016)	Google Docs
<p>Tables</p> <ul style="list-style-type: none"> Indicate column headers for data tables. 	<p>Add table to document:</p> <ol style="list-style-type: none"> Click on the Insert tab on the ribbon. Click on the Table button and select Insert Table. Select the number of Columns and Rows you want to start with and click OK. <p>Indicate column headers:</p> <ol style="list-style-type: none"> Place the cursor in the top row of your data table. Click on the Layout tab under Table Tools (Mac: Table tab) In the Data group, click the Repeat Header Row button. 	<p>Google Docs doesn't allow you to designate column or row headers, so keep your tables small so they are understandable without headers.</p>
<ul style="list-style-type: none"> Check the reading order. 	<ul style="list-style-type: none"> Screen reader reads a table from left to right/top to bottom (never repeating a cell). Merged, nested, and split cells may change the reading order of a table. Construct your table in a way that accommodates a good reading order. To test the reading order, place your cursor in the first cell of the table. On the keyboard, press the Tab key repeatedly to navigate through the table. This will be the reading order that assistive technologies will use. 	
<p>Color</p> <ul style="list-style-type: none"> Use sufficient color contrast. Don't use color alone to convey meaning. 	<ul style="list-style-type: none"> Use enough color contrast between the font and its background colors. Without sufficient color contrast, people who have low-vision or are color blind will not benefit from the information. Use the Color Contrast Analyser tool (contact IT to install on your computer). Don't use color alone to make a distinction. If you categorize something by color alone, those who are color blind or blind will not be able to benefit from the information. 	
<p>Forms</p> <ul style="list-style-type: none"> Label form fields and buttons. 	<ul style="list-style-type: none"> Use a form template to create a form. Use real text labels for form fields and alternative text for buttons. 	<p>Use Google Forms, NOT Google Docs.</p>
<ul style="list-style-type: none"> Check the reading order of forms. 	<ul style="list-style-type: none"> Press the tab key repeatedly to check the order a screen reader would navigate through the form. If it doesn't land on the form fields in the correct order, you will need to edit the form. The tab order (or reading order) is important to those who are blind or physically disabled and rely on keyboard access. 	





How to Make Accessible PDFs

Method	Software / Hardware	How to Make it Accessible
Convert MS Office to an Accessible PDF document	<ul style="list-style-type: none"> Microsoft Office 2010, 2013 Pro, Office 2016 	<ol style="list-style-type: none"> Start with a well-structured Word document or presentation. Click the File tab and select Save as. In the Save as type field, select PDF (*.pdf). Enter a file name in the File name field. Click on the Options button and make sure the Document structure tags for accessibility and Create bookmarks using Headings checkboxes are checked. Click OK and Save. This will tag all of the text formatting, so page headings and lists are correctly interpreted by a screen reader.
Save your original files (PPT, Word)	<ul style="list-style-type: none"> MS Office 2011 (for Mac) 	<ul style="list-style-type: none"> Microsoft Word & PowerPoint 2011 for the Mac cannot produce a fully accessible PDF.
Run Optical Character Recognition (OCR) on scanned document	<ul style="list-style-type: none"> Adobe Acrobat Professional (Acrobat DC) 	<ol style="list-style-type: none"> Open the scanned PDF file. Open the Tools panel (click Tools in top right) and click Enhance Scans. On the Enhance Scans tool bar select Recognize Text> In This File. Below the Recognize Text button, set the language to English. Open the settings, set output to Editable Text and Images and Downsample To 600 dpi. Click OK, then click the Recognize Text button.
Run Adobe Acrobat Built-in Accessibility Checker	<ul style="list-style-type: none"> Adobe Acrobat Professional (Acrobat DC) <p>All versions. No matter what you are converting to PDF, it's important to save your original files in case a student needs an alternate format.</p>	<ol style="list-style-type: none"> Click the Tools tab to open the Accessibility panel on the right hand side. <ul style="list-style-type: none"> If you don't see it, click the View menu and select Tools > Accessibility. Under Accessibility, select the Full Check button. The Accessibility Checker window will open. <ul style="list-style-type: none"> Under the Report Options, check on the Create Accessibility Report. Under the Checking Options section: <ul style="list-style-type: none"> Category: Document and check all the items. Click the Start Checking button. The Accessibility Checker Report will display on the left pane.


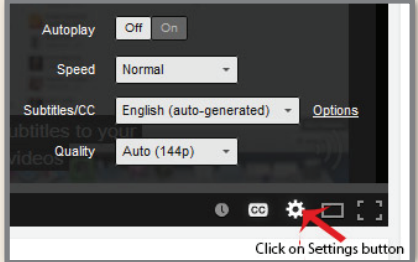
6

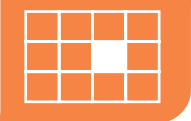
Save your original files. You may need them if you have a student who needs alternative formats.





How to Make Accessible Video & Audio

Component	Best Practices	How to Make it Accessible
<p>Media Player</p> <p>The buttons need to be properly labeled so a screen reader user can operate the player.</p>	<p>Keyboard Navigation</p> <p>It is important to accessibility that students can access and operate a media player with the keyboard alone (not using a mouse).</p>	<ul style="list-style-type: none"> To test for keyboard accessibility, press the Tab key to navigate to the player, and use the Tab, Arrow keys, Enter, and Spacebar to interact with the media player buttons. <p>If your player is not accessible, contact Media Services for assistance.</p>
<p>Captioned Media</p> <p>We recommend you first search for captioned media. If you have media that needs captions AND you have the copyright holder's permission contact Media Services for assistance.</p>	<p>Search for captioned media</p> <p>The Library has a wide selection of captioned media. Check the video databases or ask a Librarian for assistance.</p> <p>Make sure the YouTube video you use does not have auto-generated captions.</p>	<p>How do I find human transcribed captioned videos on YouTube? (Search from YouTube site)</p> <ol style="list-style-type: none"> Enter your search keyword in the YouTube Search field. Add a: , CC (a comma, CC). Press Enter or click the magnifying glass icon.  <p>How do I find human transcribed captioned videos from Google?</p> <ol style="list-style-type: none"> Fill out the Advanced Video Search fields (http://www.google.com/advanced_video_search) that you need. Choose the "Subtitles: Closed captioned only" option. Press Enter or click the Advanced Video search button. <p>How do I know?</p> <ul style="list-style-type: none"> Click the Settings button and check the Subtitles field. Avoid auto-generated subtitles and the Translate feature which are not usually accurate.  <p>Click on Settings button</p>





How to Make Accessible Complex Images

Complex Images include graphs, charts, diagrams, maps, and illustrations. Below are 3 ways to provide alternative (alt) text-based description for complex images, when a simple alt text attribute is insufficient. Choose the best alt text method for your image types.

A Use a Caption

For Web Pages: Your caption must be associated with the image, so make sure to properly add a caption using the 'figcaption' html tag (requires HTML editing). Note: For MS Word and PowerPoint: Right click on the image and select **Add Caption**.

Example Code:

```
<figure> 
<figcaption> <em> Caption goes here, Fig.9-Graph.. </em> </figcaption> </figure>
```

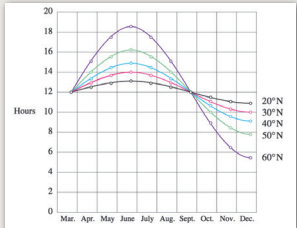


Fig.9 - Graph of the length of daylight from March through December at various latitudes. For example, at 40 degree latitude there are 12 hours of daylight in March. In October, there are 10.8 hours of daylight at 40 degree.

B Describe in Surrounding text

If the image is adequately described in surrounding text (including text-based data tables), so that the image is just reinforcing the text, no further description is needed.

Example:

Modeling amount of daylight as a function of time of year, Figure 9 and the table beside it, show the number of hours of daylight as functions of the time of the year at several latitudes, from March through December.

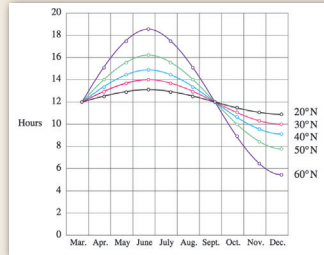


Fig.9

		Hours in varied latitudes				
Month	20°	30°	40°	50°	60°	
Mar.	12	12	12	12	12	
Apr.	12.3	13.2	13.5	14	17.5	
May	12.9	13.7	14.3	15.5	17.7	
Jun.	13	14	14.9	16.1	18.2	
Jul.	12.8	13.8	14.2	15.7	17.8	
Aug.	12.5	12.8	13.2	14	15	
Sep.	12	12	12	12	12	
Oct.	11.6	11.2	10.8	10	9	
Nov.	11	10.2	9.7	8.3	6.5	
Dec.	10.9	10	9.1	7.9	5.7	

Example of Data Table for Figure 9

C Link out to a web page with a longer description

If the image cannot be described using methods A or B, create a webpage that contains a long description of the image. In the document, add the link to the long description.

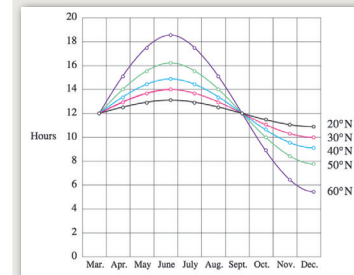


Fig. 9

Modeling amount of daylight as a function of time of year. Figure 9 shows graphs of the number of hours of daylight...

Provide a link to a webpage that contains the long description.





How to Make Accessible Complex Images

Resources for Image Description

- **Guidelines for Describing STEM (Science Technology Engineering and Math) images**
<http://goo.gl/TBT01Z>
- **How Do We Access Meaning in Art? (Describing art images in alt text)**
<http://goo.gl/dAXZOx>
- **Diagram Center's Accessible Image Sample Book**
<http://goo.gl/N0arvW>

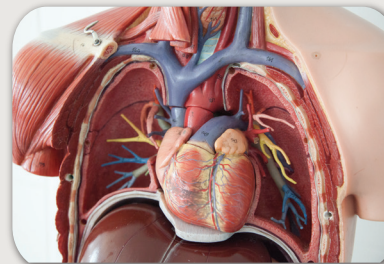
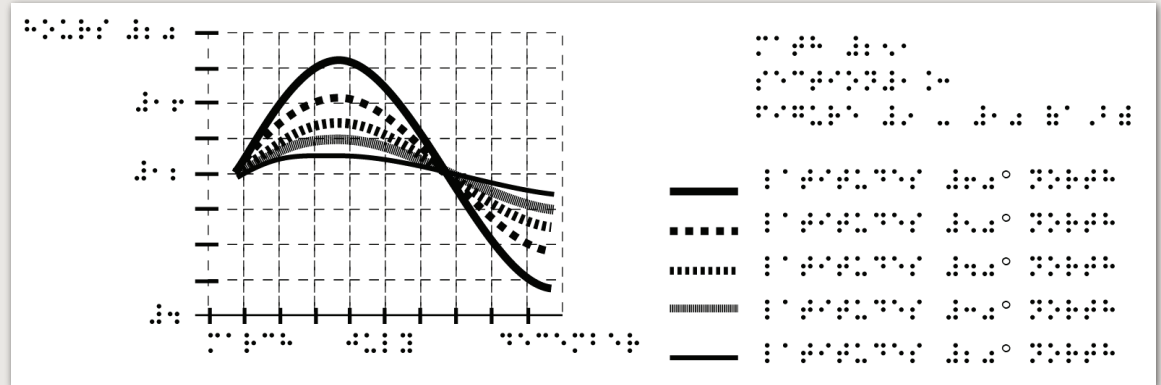
Tactile Representations

Sometimes touching a model or a tactile graphic is the best way to describe something.

Tactile graphics

Tactile graphics have different sized raised dots to show variation in graphs, charts and maps. Disability Services may have access to tactile graphics for your courses.

Example:



A 3D model of chest anatomy

Indicate if a model is available

If you know where a 3D model of the image is available, indicate that in your image caption or on the same page as the image.





How to Make Accessible Math & Science

Component	Math Tools	Best Practices
Math & Science equations, formulas and notation	<ul style="list-style-type: none"> ▪ MathML 	MathML stands for 'Math Markup Language' which is the web standard for accessible online math and science notation/equations/formulas. Typically, a user does not create MathML, but instead uses a conversion process to output MathML.
	<ul style="list-style-type: none"> ▪ eLearn 	We recommend that as much of the online class as possible be conducted within eLearn. All output from eLearn's equation editor is stored as MathML, which is screen reader-accessible.
	<ul style="list-style-type: none"> ▪ Word documents 	MathType is an equation editor created by Design Science that is compatible with MS Word for Windows and Mac. Together, MS Word with MathType can be exported as MathML or it can be converted to braille. Save your original files. DO NOT use Microsoft's equation editor.
	<ul style="list-style-type: none"> ▪ PDFs 	Math IS NOT accessible in PDF. Save the original file with the original MathType or LaTeX equations. You will need to provide your original files to any student that needs it in an accessible format.
	<ul style="list-style-type: none"> ▪ PowerPoints 	For MS PowerPoint 2013, use the MathType 6.9 plugin or later to create math and science equations, formulas and notations. DO NOT use Microsoft's equation editor. If you convert to a PDF or export to a webpage, save your original files. You will need to provide your original files to any student that needs it in an accessible format.
	<ul style="list-style-type: none"> ▪ Graphs 	To make graphs accessible, do your best to describe them using alternative text, long descriptions, or captions. Disability Services may be able to help supply you with tactile graphics.
	<ul style="list-style-type: none"> ▪ LaTeX 	LaTeX is a mark-up language. Converting LaTeX documents into an accessible format is usually straightforward. Keep original LaTeX files if you convert to other formats.
	<ul style="list-style-type: none"> ▪ WeBWork 	WeBWork is an accessible and free online homework platform for math and sciences courses.
	<ul style="list-style-type: none"> ▪ LibreOffice 	LibreOffice (with its native equation editor) easily exports MathML to webpages.





Linking to

3rd Party Online Materials

Ask about

Questions and Considerations

How accessible are their digital materials?

- **Are the videos captioned and audio recordings transcribed?**
There should be transcripts for audio recordings and captions or subtitles for video. If they aren't available, ask the publishing representative when they plan to have them. If they have no plans, ask them to give VSCC written permission to transcribe or caption the media. Contact Media Services about captioning once permission is obtained.
- **Are images described in alternative text?**
PowerPoint slides from publishers often have images missing quality alt text. Ask your publishers if their images have adequate alt text.
- **Can all of the text that is displayed on the screen be read aloud by text-to-speech software?**
Screen readers (assistive technology used by people who are blind) read real text. They cannot read images of text, text boxes or text embedded in Flash animations/movies/simulations.
- **How accessible are the E-books?**
Are the images described? Are embedded objects like videos keyboard accessible and captioned? Is the E-reader keyboard and screen reader accessible? Ask your publisher these questions if you don't know the answers.
- **Can all interactivity (media players, quizzes, flashcards, etc.) function using only the keyboard (no mouse)?**
People who are blind or have upper mobility disabilities cannot use a mouse. They use the keyboard to navigate and interact on the Web. It is required that any interactive elements on a publisher's website (or on a DVD included with the book) be operable by keyboard alone if they are used in your course.
- **Is there any documentation available (VPAT or White Paper for example) that confirms accessibility or usability testing results?**
A VPAT (Voluntary Product Accessibility Template) is used by many organizations to report the level of accessibility of software products.
- **Is your multimedia (Adobe) Flash or (Oracle) Java-based? Can your materials be watched on mobile devices?**
Content created in Flash or Java can be inaccessible and may not run on mobile devices and tablets, which are becoming more prevalent.
- **What are the computer requirements for using their materials? Will the materials work on mobile devices?**
Distributed Education informs online students about the computer requirements for taking an online course. If your course requirements are different, make them known in the course syllabus.

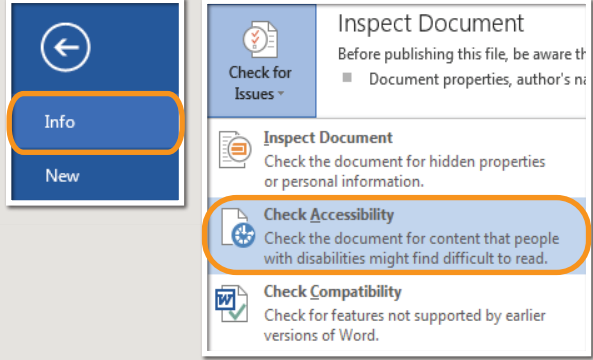
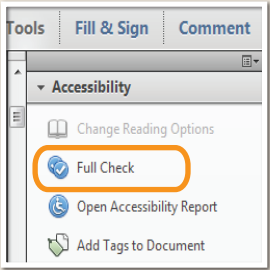

Open Educational Resources (OER)

- **OERs** have the same accessibility requirements as all other digital materials. However, if they are not accessible, we can usually retrofit them to be accessible unless the materials reside on a publisher's server. Plus OER's are usually free to students!





Automated Accessibility Checkers

Software	Tools	How to Check
<p>MS Offices 2010 & 2013 Windows, 2016 Mac (Word, PowerPoint)</p>	<ul style="list-style-type: none"> A built-in accessibility checker <p>The accessibility checker provides you with a list of errors, warnings & tips. When you click on an error, instructions on how to fix it appear below in “Additional Information”.</p>	<p>Word and PowerPoint for PC:</p> <ol style="list-style-type: none"> Go to the File tab. Select Info from the sidebar menu. Click on the Check for Issues button. Select Check Accessibility from the drop-down list.  <p>Word and PowerPoint for Mac:</p> <ol style="list-style-type: none"> Go to Review. Click Check Accessibility.
<p>PDF (Adobe Acrobat XI Professional)</p>	<ul style="list-style-type: none"> A built-in accessibility checker <p>(View > Tools > Accessibility)</p>	<ol style="list-style-type: none"> Click the Tools tab to open the Accessibility Tool panel on the right. If you don't see it, click the View menu and select Tools > Accessibility. Select the Full Check button & the Accessibility Checker Options will open. <ul style="list-style-type: none"> On the Report Options section, check on Create Accessibility Report. On the Checking Options section: select Document under Category field, and check all items. Click on the Start Checking button and the Accessibility Report will display. 
<p>eLearn & Web Pages</p>	<ul style="list-style-type: none"> A browser-based checker, WebAIM WAVE accessibility add-on to the Chrome browser 	 <ol style="list-style-type: none"> Download & Install the WAVE toolbar (http://wave.webaim.org/toolbar/). In eLearn open any HTML page. Download the page to your computer. Open the downloaded page (in Chrome). Click the Wave button in the upper right corner. The Wave report will open on the left side of the page. Error icons in green, red, yellow and blue will appear on the page. If you click on an error icon, more information on the error will appear. Return to the original eLearn page, and open the editor to repair the problems you found.



Who's Responsible for Accessibility of Course Materials?

Instructors, Distributed Education and Disability Services

- ▶ **Test** the accessibility of software and web apps used in courses.
- ▶ **Develop** Accessibility Plans proactively when barriers are found.
- ▶ **Work** together to identify and implement appropriate accommodations when barriers are encountered.

Instructors

RESPONSIBILITIES



As the subject matter expert and the course developer, an instructor:

Designs clear and consistent navigation.

Writes alternative text descriptions for images.

Creates documents and materials using accessibility guidelines.

Retains original files (Word, PowerPoint, etc.).

Uses media that is captioned at 99% accuracy.

Writes math and science with MathML.

Requests accessibility documentation from publishers and vendors.

Supplies Distributed Education and Disability Services with course materials upon request for an accommodation.

Prepares an alternate access plan for any inaccessible content.

Distributed Education

RESPONSIBILITIES



As the online course development facilitator and faculty resource, Distributed Education:

Provides tools and resources to assist with captioning instructor created resources.

Assists Disability Services with retrofitting course materials for accommodation.

Offers training sessions (face to face and online) and over-the-shoulder assistance.

Develops training materials.

Reviews online courses for accessibility and provides feedback and support to instructors.

Supports accessibility plans to proactively address course barriers.

Disability Services

RESPONSIBILITIES



As a student and faculty resource, with expertise in alt formats and assistive technologies, Disability Services:

Increases awareness of the disability experience and works with staff and faculty to proactively reduce barriers.

Reviews documentation of disability and determines student eligibility for accommodation.

Notifies faculty when an accommodation is required.

Supplies students with an accessible format of the textbook.

Administers other reasonable auxiliary aids and services.



VSCC ACCESSIBILITY **Guide**

Training

Face to Face Training

Go to <http://www.volstate.edu/Distance/training-development.php> to sign up for trainings.

Online Training

Enroll in the eLearn Accessibility Course. Log-in to <https://elearn.volstate.edu>. Click on Help > Group/Training Sign-up. Select the Creating Accessible Documents course.

Testing Tools

- **Chrome: WAVE Toolbar**
<http://wave.webaim.org/toolbar/>
- **MS Word: Built-in 2010, 2013, 2016 (PC)**
Built-in 2016 (Mac)
- **MS PPT: Built-in 2010, 2013, 2016 (PC)**
Built-in 2016 (Mac)
- **PDF: Built-in Adobe Acrobat Pro**
- **Colour Contrast Analyser**
<http://www.paciellogroup.com/resources/contrastAnalyser>

Questions About Accessibility

Contact Distributed Education
email: elearn@volstate.edu
phone: 615-230-3665



Designer: Supada Amornchat / Editor: Karen Sorensen

For more resources visit the guidebook creators at: pcc.edu/access

