



# Web Accessibility Manual for Instructors

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TEACHING EXCELLENCE

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# Introduction to Web Accessibility

Since the Web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, and recreation, it is essential that the Web be accessible in order to provide equal access and opportunity to people with diverse abilities. Web accessibility means that websites and web tools are designed in a way so that people with disabilities can perceive, understand, navigate, and interact with the Web.

Equal access to information and communications technologies, including the Web, is defined as a basic human right in the United Nations Convention on the Rights of Persons with Disabilities. This right is protected and supported in the United States by the Americans with Disabilities Act (ADA) and the Rehabilitation Act.

## Web Accessibility Benefits Everyone!

The diversity of people supported by Web accessibility extends far beyond the obvious beneficiaries. When electronic documents, digital media, and websites are designed with accessibility in mind, everyone may benefit including:

- people using mobile phones and other devices with small screens
- people who may be hampered by the effects of aging
- people with temporary impediments such as a broken hand or lost glasses
- people in environments where they must dim their screens or turn off their audio
- people with slow Internet connections or plans that limit their monthly bandwidth.

## Web Accessibility and Universal Design for Learning

Universal Design for Learning (UDL) is an inclusive instructional framework that helps educators meet the challenges of teaching the broadest spectrum of students possible. Designing with Web accessibility in mind supports UDL guidelines for representation by improving students' perception and comprehension of learning materials. For more information about Universal Design for Learning, visit CAST's website at [cast.org](http://cast.org). CAST has been a leader in UDL research since its founding in 1984.

# Accessibility Rights

Accessibility rights begins with a definition for what constitutes a disability. An individual with a disability is defined by the Americans with Disabilities Act (ADA) as:

*“a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment.”*

## Types of Disabilities

The ADA does not provide an exclusive list of conditions to qualify as “disabled”, but most could fall under the four major categories of disability types:

1. **Visual:** Blindness, low vision, color blindness
2. **Hearing:** Deafness and hard-of-hearing
3. **Motor:** inability to use a mouse, slow response time, limited fine motor control
4. **Cognitive:** Learning disabilities, distractibility, inability to remember or focus on large amounts of information.

## Federal Legislation

Two civil rights laws outline the requirements for providing persons with disabilities with equivalent access to online media and digital resources.

- **Americans with Disabilities Act:** Guarantees people with disabilities have the same opportunities as everyone else to participate in the mainstream activities of life – such as using the Internet.
- **Rehabilitation Act, Section 504:** A civil rights law protecting individuals with disabilities to participate without discrimination in any program receiving federal financial assistance – such as higher education.
- **Rehabilitation Act, Section 508:** Describes standards by which websites and web tools are accessible to all Web users.

## Section 508 Enforcement

The U.S. Department of Justice (DOJ), Office of Civil Rights (OCR) enforces Section 508 of the Rehabilitation Act. Members of the public, students, and employees may file complaints through the DOJ OCR. Complaints are on the rise as well. In 2018, the number of accessibility lawsuits filed in federal court rose to 2258 from 814 the previous year.

# Guidelines for Accessibility

Web Content Accessibility Guidelines (WCAG) are published by the Web Accessibility Initiative of the World Wide Web Consortium (W3C).

## WCAG Principles for Accessibility

WCAG guidelines are organized by the four principles of accessibility, or POUR:

Principle	Description	Example
Perceivable	Information and user interface components must be presented to users in ways they can perceive.	Equivalent text descriptions for images enable screen reader technologies to read aloud image descriptions to users with visual impairments.
Operable	User interface components and navigation must be operable.	Heading styles are applied to document titles and document sections to help users navigate documents with assistive technologies like screen readers.
Understandable	Make text content readable and understandable.	Font styles are selected for optimum display and clarity on all sizes of digital screens.
Robust	Maximize compatibility with current and future user agents, including assistive technologies.	File formats such as HTML (web pages) allow content to be optimized at the highest levels of accessibility.

## WCAG Guidelines for Accessibility

The twelve WCAG guidelines supporting POUR are grouped under the four principles and further broken down into specific areas for making online documents, media, and tools accessible. For example, **Guideline 1.2: Time-based media** is broken down into seven distinct techniques with two of the seven listed below:

### Principle 1: Perceivable

#### Guideline 1.2: Time-based Media (1.2.1 and 1.2.2)

##### 1.2.1: Audio-only and Video-only (prerecorded) – Level A

For prerecorded audio-only and prerecorded video-only media, the following are true, except when the audio or video is a media alternative for text and is clearly labeled as such...

##### 1.2.2 Captions (prerecorded) – Level A

Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such...

[How to Meet WCAG \(Quick Reference\)](https://www.w3.org/WAI/WCAG21/quickref): [ <https://www.w3.org/WAI/WCAG21/quickref> ]

# Responsibility for Accessibility

Federal law requires that all content must meet accessibility guidelines **prior** to the start of a class even if no accommodation request is received. The reasoning is that it would be nearly impossible to update the course and provide the appropriate accommodations--- such as closed captioning all video content -- in a timely manner.

Keep in mind that students may request accommodations **at any time** during a semester – sometimes at the most inopportune time for instructors! As an instructor, it is your responsibility to ensure that all components of your course meet accessibility guidelines **before** instruction begins.

## Accommodation Policy versus Accessibility Policy

It is a mistake to confuse an accommodation policy for an accessibility policy since each address a different audience. Georgia Southern University's **Accommodation Policy** is published online and in the Student Handbook. The policy describes how students with disabilities may request accommodations in their classrooms for documented disabilities. The institution's **Accessibility Policy** is published as the **ADA Public Accommodation Policy** online and in the Faculty Handbook. The policy states the institution will comply with all accessibility law.

## Georgia Southern's Accessibility Policy

*...Georgia Southern University is committed to making reasonable modifications in its policies, practices, and procedures to afford equal opportunity to the goods, facilities and services which it offers. Where it is reasonably achievable, architectural and communication barriers will be removed. ...Georgia Southern will take all other actions necessary to ensure equal opportunity for persons with disabilities in accordance with the ADA and all other applicable federal, state, and local laws.*

## Institutional Responsibilities

Presently, Georgia Southern University assumes responsibility for the following:

### The institution will:

- provide accessible technologies to facilitate delivery of online digital media
- provide accessible course development templates
- provide training on meeting accessibility standards for online digital media
- provide web accessibility consultations upon request for course developers.

## Instructor Responsibilities

Presently, content creators assume responsibility for the following:

### Course developers and instructors will:

- publish online course content in accordance with WCAG accessibility standards
- provide a link to the institutions Student Accessibility Resource3 Center (SARC) to facilitate accommodation requests.

# Designing for Assistive Technologies

When we use the Web, we read, we watch, we listen, we point and click with a mouse, and we type on a keyboard – but not everyone can do **all** of these things sufficiently well to benefit from the Web. Fortunately, assistive technologies help learners overcome the impairments by providing them with alternative means to perceive, operate, and understand the Web. When we design for accessibility, in many instances we design for the technologies that support users with disabilities.

## Types of Assistive Technologies

Partial list of assistive technologies used by people with significant disabilities.

Technology type	Description	Support Strategy
Screen readers	Software used to read aloud text-based content, document structure, and navigation menus with a synthesized voice. Supports users with significant visual impairments.	Alternative text for all visual information must be available to be read aloud by screen reader software.
Text readers	Software used to read aloud all document text with a synthesized voice. Does not read image-text equivalents, document structure, or navigation menus. Supports users with cognitive and reading impairments.	Avoid using diagrams and graphs with image text since they cannot be read aloud. Use data tables instead or provide text equivalents on the same page.
Screen magnifiers	Software used to magnify size of text and graphics. Supports users with limited visual abilities.	Avoid using low resolution images with text (such PDF document scans) since image text loses acuity when magnified.
Alternative input devices	Head pointers, motion trackers, sip-and-puff sticks, and other alternative input devices. Supports users who may not be able to grip, point, move, and click a mouse.	Organize content with clear and efficient navigation menus.
Closed Captions and Transcript files.	Text-equivalents for audio files. Supports users with hearing impairments.	Add closed captions to online multimedia or publish a written transcript for users to download and read.

## Everyone Uses Assistive Technology!

Not everyone is limited by a disability, but everyone probably uses some type of technology to improve a major life activity including:

- A flashlight to improve the ability to see in the dark.
- Headphones or ear buds to listen to recorded sound in loud or very quiet environments.
- Escalators and elevators to reduce the physical demands of climbing multiple flights of stairs.

# Caution! Looks Can be Deceiving

We cannot assume that documents that look good are accessible. Both examples below look identical. One is accessible and one is not.

## Word Doc Optimized for Accessibility

  
**Concepts of Mathematics Syllabus**  
Georgia Southern University  
Spring 2016

**Course Description**  
This course introduces the basic concepts, ideas and tools involved in doing mathematics. As such, its main focus is on presenting informal logic, and the methods of mathematical proof. These subjects are closely related to the application of mathematics in many areas, particularly computer science. Topics discussed include a basic introduction to elementary number theory, induction, the algebra of sets, equivalence relations, congruences, recurrence equations and graph theory.

**Course Information**

- Semester: Spring 2018
- Location: Online
- Credit Hours: 4

**Instructor Information**

- Instructor: Professor Robin Coulter
- Office: Anderson Hall
- Email: [r.coulter@institution.edu](mailto:r.coulter@institution.edu)

**Course Goals**  
Upon successful completion of the course, you should be able to:

- Accurately use standard notation and terminology in mathematical writing.
- Identify feasible techniques for proving a proposition based on its logical structure.
- Write correct, clear, and precise mathematical proofs in an appropriate detail of both familiar and unfamiliar results from pure mathematics in the areas covered.
- Evaluate proofs of mathematical statements in terms of features that make them effective or ineffective.

## Word Doc Not Optimized for Accessibility

  
**Concepts of Mathematics Syllabus**  
Georgia Southern University  
Spring 2016

**Course Description**  
This course introduces the basic concepts, ideas and tools involved in doing mathematics. As such, its main focus is on presenting informal logic, and the methods of mathematical proof. These subjects are closely related to the application of mathematics in many areas, particularly computer science. Topics discussed include a basic introduction to elementary number theory, induction, the algebra of sets, equivalence relations, congruences, recurrence equations and graph theory.

**Course Information**

- Semester: Spring 2018
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- Write correct, clear, and precise mathematical proofs in an appropriate detail of both familiar and unfamiliar results from pure mathematics in the areas covered.
- Evaluate proofs of mathematical statements in terms of features that make them effective or ineffective.

## The Difference Between Optimized and Not Optimized

The difference is that the **Optimized** example was formatted using prescribed techniques for accessibility built into Microsoft Word whereas the **Not Optimized** example was not. For the **Not Optimized** example, without the proper formatting, the text would be read aloud by the screen reader in **one continuous stream of spoken words**.

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What would you think if your instructor handed **you** a syllabus formatted like this example?

# **Meeting Accessibility Guidelines for Document Structure**

# Accessible Headings

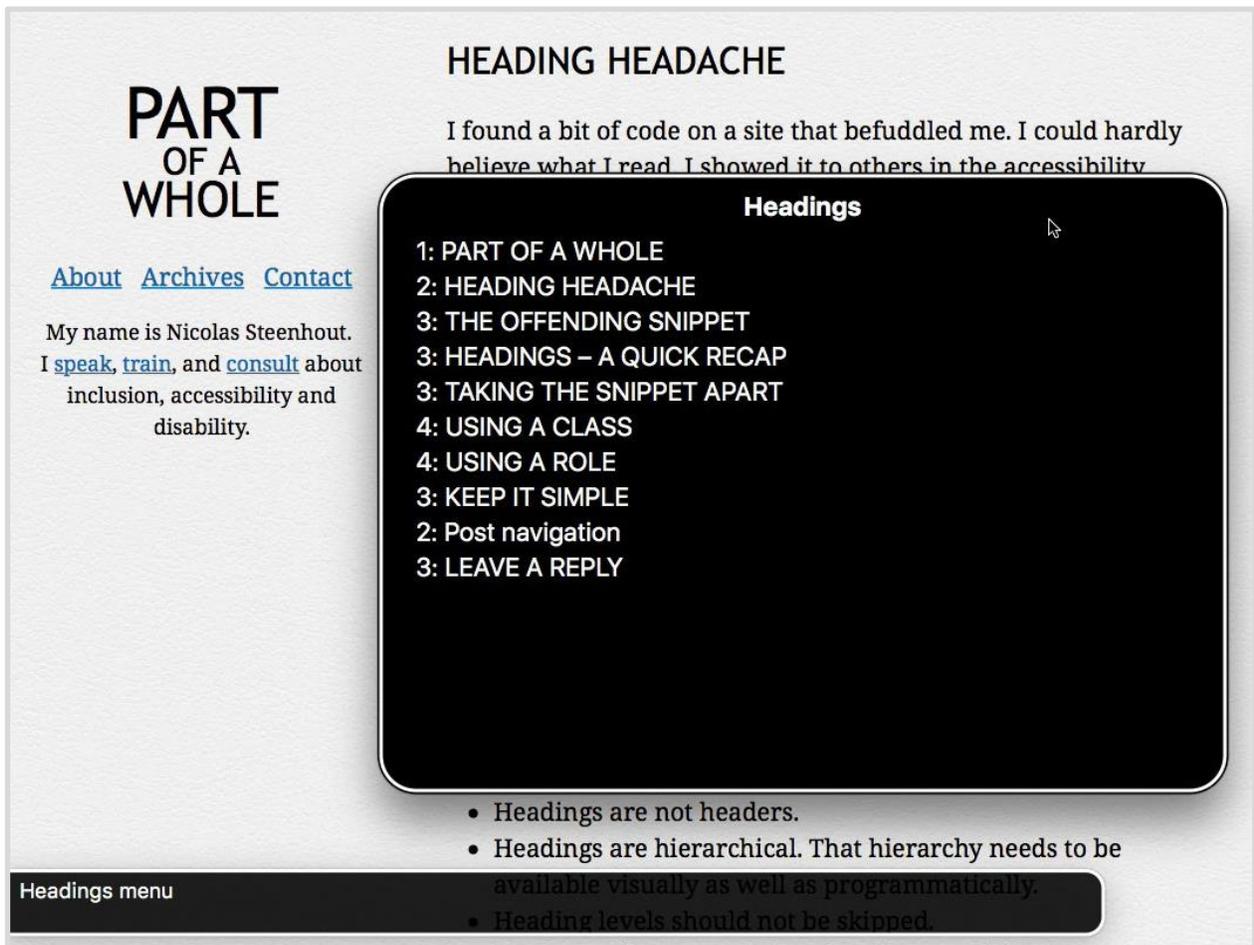
Page titles and section headings are typically distinguished by font size and use of a bold style. While these attributes support visual hierarchy, they do not support the hierarchy schemes used by screen readers since screen readers rely on document attributes semantically encoded into the document using Heading Styles.

**Creating document headings using the text editor's style panel is one of the most impactful methods for supporting screen reader users!**

## Benefits: Why Headings Matter

Properly applied heading styles help screen reader users quickly review document content and provide the means to navigate quickly to a specific section of the document by using keyboard shortcuts. Screen readers also have the ability to organize and list the headers in a new window as a table of contents for the document – *see image*.

Use of visual hierarchy through headings styles supports all users by making the document structure clear and helping all users quickly scan documents for information they seek.



**Figure 1.** Screen reader menu of document headings used for document navigation

# Proper Document Hierarchy

Use a heading or sub-heading each time the content of your document changes. Use only one Heading 1 style for each document. Assign Heading 2 styles to each section and Heading 3 styles to each sub-section.

**Example of proper document hierarchy supporting accessibility guidelines:**

## **Heading 1 style** (document title)

Text...

- **Heading 2 style**

Text...

- **Heading 3 style**

Text...

- **Heading 3 style**

Text...

- **Heading 2 style**

Text...

- **Heading 3 style**

Text...

- **Heading 3 style**

Text...

## Looks Can be Deceiving!

Remember, just because it looks like a heading (big and bold!) does not mean it is a properly formatted heading. The correct tools must be used.

# Accessible Lists

Lists allow complex information or instructions to be grouped and presented as individual statements or a sequence of instructions. Lists can help users to better understand how statements are related to each other or to better follow instructions.

## Benefits: Why Lists Matter

When lists are formatted correctly using prescribed tools in a text editor, the relationships between each statement or instruction are made clear to users by screen readers. Step-by-step instructions often significantly benefit from list formats. For other types of information and bullet-lists, use your best judgement.

### Information in paragraph form

The institution will: provide accessible technologies to facilitate delivery of online digital media provide accessible course development templates, provide training on meeting accessibility standards for online digital media, and provide web accessibility consultations upon request for course developers.

### Information in unordered list form

The institution will:

- provide accessible technologies to facilitate delivery of online digital media
- provide accessible course development templates
- provide training on meeting accessibility standards for online digital media
- provide web accessibility consultations upon request for course developers.

*Figure 2. Information in paragraph form and list form*

## Ordered (numbered) or Unordered (bullet) Lists?

Ordered lists use alphanumeric characters to indicate importance or steps in a process. Using software-supported lists helps screen readers to describe to visually impaired users how the information is grouped and organized.

## Looks Can be Deceiving!

Remember, just because it looks like a list does not mean it is a properly formatted list. The appearance of a list may be created manually. To format a list properly for screen readers, the correct tools should be used.

# Accessible Tables

A table is a grid of cells arranged in columns and rows. Tables are typically used to organize information like:

- numerical data
- schedules or calendars
- grading criteria and rubrics
- employee contact information

## Benefits: Why Tables Matter

Correctly structured tables provide screen reader users with the ability to select how information is read aloud to them: from top to bottom and left to right, or by column, or by row. Data tables are also a great way to present information embedded in some types of image graphs and diagrams as text so that may be read aloud to users with visual impairments.

## Table Structures

Tables are typically filled with information grouped by columns or rows, or sometimes both. For this table of baseball statistics, the data is organized by column and row. The top row contains headers for each column. The first column identifies each player.

Player	Home Runs	Batting Average
Daryl	15	.280
Jayden	6	.320

*Figure 3. Baseball statistics by player and by category.*

## How Screen Readers Read Tables

By default, screen readers read data tables in linear order, left to right and top to bottom.

For example, the information in this table would be read aloud by a screen reader as: “*Player, Home Runs, Batting Average, Daryl, 15, .280, Jayden, 6, .320.*” It would be difficult for users with screen readers to understand how data is organized and related to each other.

## Column and Row Headers

Creating and identifying “headers” for each column and/or row helps users with screen readers change the reading order of data cells. When headers for each column are created, the data can be read aloud column by column. When headers for each row are created, the data can be read aloud row by row.

<b>Player</b>	<b>Home Runs</b>	<b>Batting Average</b>
<b>Daryl</b>	15	.280
<b>Jayden</b>	6	.320

*Figure 4. Table with column headers and row headers.*

For example, the information in the second row for Daryl would be read aloud as: *“Row 2 Player Daryl, Homeruns 15, Batting Average .280.”* Note how the screen reader incorporates the column headers into a description of the data for row 2, Daryl.

## Looks Can be Deceiving!

Remember, just because a table looks like it has headers, does not mean it is properly formatted. For example, while manually adding a bold style and a background color to a header column or row supports users with sight, changing the appearance alone does not support screen readers. The prescribed tools must be used.

## Alternative Text for Tables

Microsoft Word and PowerPoint suggest creating alternative text for tables, but alternative text is really only necessary if the table structure is quite complex – in which case you may want to see if you can simplify the table structure first.

## Captions for Tables

Some accessibility checkers for Web (HTML) pages will recommend table captions. If the table is preceded by a heading or description that describes type and purpose of the data, no caption is necessary.

# **Meeting Accessibility Guidelines for Document Content**

# Readability

For our purpose, “readability” describes how easily information published to a document can be read. It does not refer to the document’s reading level – though writing at appropriate reading levels is certainly something to think about as well.

## Benefits: Why Readability Matters

Good digital typography relaxes readers and helps to improve retention. The key is to make it the text as easy to read as possible by:

- selecting an easy-to-read font
- selecting a font size that is comfortable to read
- using appropriate white space. Think of white space as all the space around and in-between the text including page margins, spaces between paragraphs, spaces between lines of text, spaces between words, and spaces between letters. When text is crowded and cramped it becomes visually “tense”. When text “breathes” on a page it relaxes the reader and helps to improve retention.

## Fonts: Sanserif or Serif

The most legible fonts for digital displays are typically sans-serif because they are typically composed of the simplest geometric shapes. Serif fonts often have contrasting thick and thin strokes as well as tiny “serifs” or hooks which can be hard to see on low resolution computer screens and cell phone displays.



*Figure 5. Differences between sans-serif and serif fonts.*

## Common Sans-Serif Fonts

For Word, PowerPoint and other documents meant to be read on screen, use one of the following common sans-serif fonts:

- **Verdana:** The easiest to read on screen with large lower-case letters.
- **Arial:** Similar to Verdana, but a little more compressed.
- **Calibri:** Similar to Verdana.
- **Trebuchet:** Has a little more design flair than Verdana or Arial. A bit smaller than Verdana or Arial. Use a slightly larger size.

# Common Serif Fonts

There is no rule that says you cannot use a serif font, but some are easier to read on screen than others. One of the most legible digital serif fonts is **Georgia**, which was designed specifically for display on computer screens.

# Font Sizes for Microsoft Documents

For Word, PowerPoint, and PDF documents meant to be read on screen, **ten-point type** is considered the appropriate starting point for your *smallest* font size. Use the largest font size for the highest heading level and the smallest for the lowest heading level to make the hierarchy obvious to all students.

These are good starting points for sizing your heading styles 1 – 3 as well as your body text:

- **Heading 1:** 24 points
- **Heading 2:** 18 points
- **Heading 3:** 14 points
- **Text:** 10 to 12 points

# Font Sizes for Web (HTML) Pages

For Web (HTML) content in Folio, it is best to use the default sizes set by the LMS administrators for text and heading levels.

# Bold and Italic Font Styles

Use **bold** or *italic* font styles selectively. Too much of either creates a very noisy look that becomes difficult for everyone to read. Most importantly, be consistent in how you apply these styles.

## Appropriate application of bold or italic styles:

- Use bold to emphasize key **concepts** or vocabulary terms.
- Use bold for very low-level headers such as statements that precede and describe lists.
- Use italic for academic convention such as book and movie titles, (e.g. *Ferris Bueller's Day Off*)
- Use italic for foreign words in an English text (e.g. The Spanish word for cat is *el gato*).

# Using White Space to Enhance Readability

## Text with less white space

A solvent is a substance that dissolves a solute, resulting in a solution. A solvent is usually a liquid but can also be a solid, a gas, or a supercritical fluid. The quantity of solute that can dissolve in a specific volume of solvent varies with temperature. Common uses for organic solvents are in dry cleaning (e.g. tetrachloroethylene), as paint thinners (e.g. toluene, turpentine), as nail polish removers and glue solvents (acetone, methyl acetate, ethyl acetate), in spot

## Text with appropriate white space

A solvent is a substance that dissolves a solute, resulting in a solution. A solvent is usually a liquid but can also be a solid, a gas, or a supercritical fluid. The quantity of solute that can dissolve in a

removers (e.g. hexane, petrol ether), in detergents (citrus terpenes) and in perfumes (ethanol). Water is a solvent for polar molecules and the most common solvent used by living things; all the ions and proteins in a cell are dissolved in water within a cell. Solvents find various applications in chemical, pharmaceutical, oil, and gas industries, including in chemical syntheses and purification processes. When one substance is dissolved into another, a solution is formed.[1] This is opposed to the situation when the compounds are insoluble like sand in water. In a solution, all of the ingredients are uniformly distributed at a molecular level and no residue remains. A solvent-solute mixture consists of a single phase with all solute molecules occurring as solvates (solvent-solute complexes), as opposed to separate continuous phases as in suspensions, emulsions and other types of non-solution mixtures. The ability of one compound to be dissolved in another is known as solubility; if this occurs in all proportions, it is called miscible.

specific volume of solvent varies with temperature.

Common uses for organic solvents are in dry cleaning (e.g. tetrachloroethylene), as paint thinners (e.g. toluene, turpentine), as nail polish removers and glue solvents (acetone, methyl acetate, ethyl acetate), in spot removers (e.g. hexane, petrol ether), in detergents (citrus terpenes) and in perfumes (ethanol). Water is a solvent for polar molecules and the most common solvent used by living things; all the ions and proteins in a cell are dissolved in water within a cell.

Solvents find various applications in chemical, pharmaceutical, oil, and gas industries, including in chemical syntheses and purification processes.

**Figure 6.** Comparing effects of white space on readability.

# Images and Alternative Text

When images are placed in documents, an “alternative text” description of the image can be embedded in the document and read aloud to users with screen readers. **Only screen readers can perceive the Alternative text.**

## Benefits: Why Alternative Text Matters

Alternative text – or **Alt text** -- provides users with screen readers information they need to know about an image, illustration, or graphic. Effective Alt text does not describe superfluous visual information.

## Writing Alt Text

Alt text is best used for simple images requiring descriptions no longer than one sentence. yourself, what specific information illustrated by the image do students need to know?

## Example of Alt Text

Context can help you determine what information should be used for Alt Text. When images are placed in the context of a description, use the minimum information needed to support what students need to know about the image. For this example, students with screen readers only need to know the image is of Tim Berners-Lee.

**Tim Berners-Lee, World Wide Web Consortium Director**



The screenshot shows a Microsoft Word document with a photo of Tim Berners-Lee sitting at a desk with a computer monitor. The monitor displays the World Wide Web Consortium (W3C) website. To the right of the photo is the 'Format Picture' task pane. Under the 'Alt Text' section, the 'Title' field is empty, and the 'Description' field contains the text 'Tim Berners-Lee'.

Sir Tim Berners-Lee invented the World Wide Web in 1989. He is the Director of the World Wide Web Consortium (W3C), a Web standards organization founded in 1994 which develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential.

*Figure 7. Adding alternative text to an image in a Word document.*

# Tips for Writing Effective Alt Text

Effective alternative text should:

- Uses as few words as possible to describe relevant information – no more than 125 characters, total.
- Does not repeat or duplicate text published in close proximity to the image.
- Avoids using “image of...” or “graphic of...” since screen reader software already announces the presence of an image to the user.

## Captions and Alt Text

Captions could be used as alternative text for images, but the caption must be created using prescribed tools for captions. Captions might include additional information helpful to **all users**. For example, copyright information such as a hyperlink to the original resource and copyright holder.

## Alt Text for Decorative Images

Images used for decoration do not require Alt text since they have no meaning. Images without alternative text are skipped over by screen readers. In general, avoid cluttering documents with images that serve no meaningful purpose.



*Figure 8. Decorative image without relevant meaning.*

# Long Descriptions for Complex Images

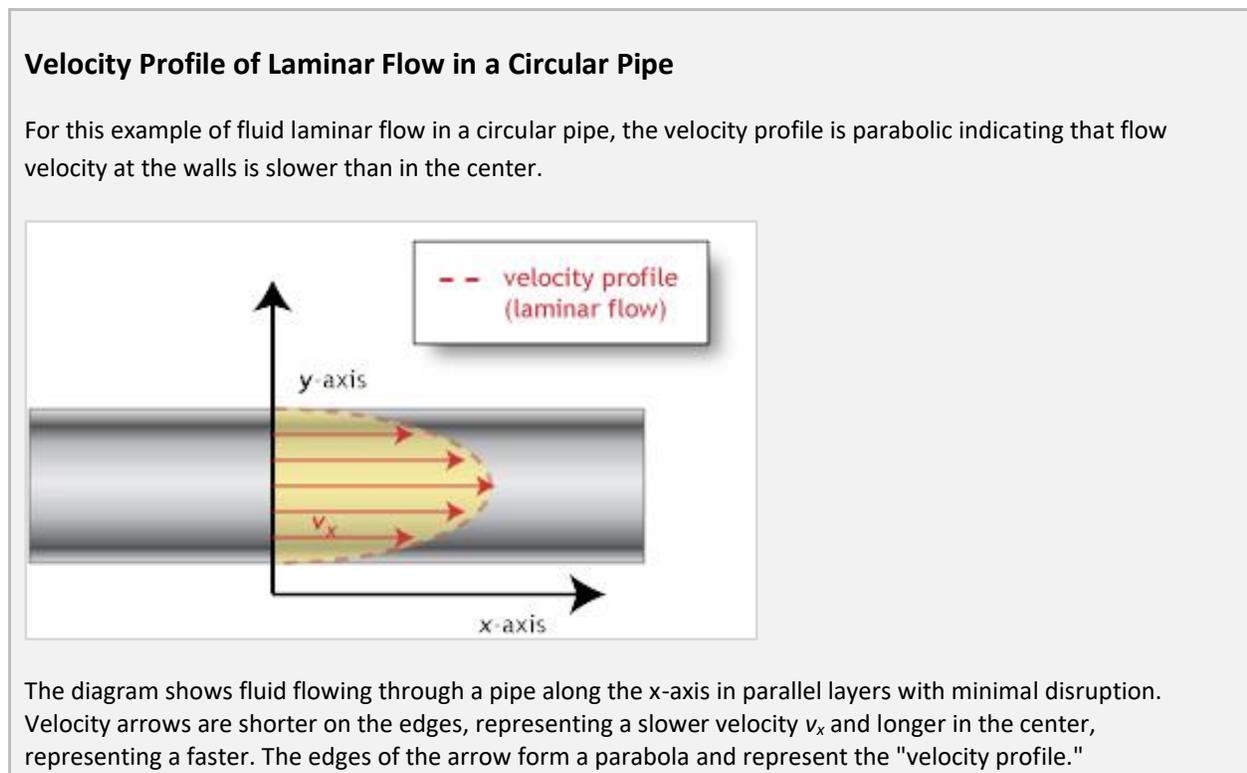
Some types of images like charts, graphs, and maps, may require much longer descriptions of more than the recommended maximum of 125 characters because of the complexity of information they convey visually.

## Benefits: Why Long Descriptions Matter

Long Descriptions are typically published to the same document and in appropriate proximity to the image. Long descriptions support everyone by helping them to better understand and focus on information critical to their understanding of complex topics.

## Example

Consider the challenge of writing a text equivalent for this diagram so that the pertinent information may be understood by users without vision using screen readers.



*Figure 9. Supporting a complex image with a long description published to the same document as the image. Source: [Accessibility and Usability at Penn State](#).*

## Don't Forget the Alt Text!

Images supported by long descriptions still need to be identified by screen readers and described with Alt text. For this example, Alt text of "Velocity Profile of Laminar Flow in a Circular Pipe" is sufficient.

# Web Links

Web links – or hyperlinks - can be added to most every type of electronic document. Web links can be used to send users to other web pages and web tools or to download additional electronic documents – like an assignment Word template or grading rubric.

## Benefits: Why Web Links Matter

Accessible web links are short and concise, but sufficiently describe destination and/or purpose so that all users understand their purpose.

## Web Link Formats

Web links consist of two parts:

1. the linked text
2. the destination or Web address also known as the Uniform Resource Locator (URL).

## Accessible Link Formats

Example	Notes
<a href="#">Review a guide to disability rights.</a>	Describes destination and purpose.
<a href="#">Review a guide to disability rights:</a> (www.ada.gov/cguide.htm)	Describes destination and purpose. Provides written URL if the document is printed.

*Figure 10. Examples of web links that meet accessibility guidelines.*

## Inaccessible Link Formats

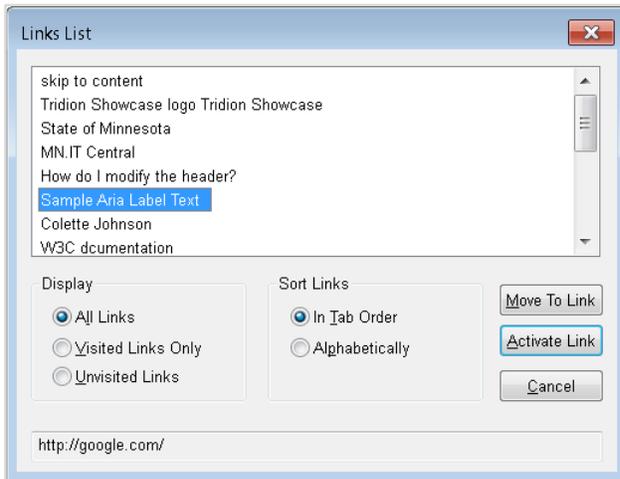
Example	Notes
<a href="http://www.ada.gov/cguide.htm">http://www.ada.gov/cguide.htm</a> .	Pure gibberish to all users. No explanation of purpose or destination
<a href="#">Click here to read more.</a>	Does not describe purpose or destination. Phrases like “Click Here” patronize users.
<a href="https://www.section508.gov/sites/default/files/PDF%20Printable%20Checklist.docx">https://www.section508.gov/sites/default/files/PDF%20Printable%20Checklist.docx</a>	Does not describe purpose or destination. Shorten long URLs with <a href="#">Short URL</a> (http://www.shorturl.at)

*Figure 11. Examples of web links that do not meet accessibility guidelines.*

# Screen Reader Link Lists

Accessible web links support screen readers since the links can be grouped in a single window allowing users to quickly determine what navigation options are available in the document.

## Accessible Screen Reader Links List



*Figure 12. Links list with accessible links.*

## Inaccessible Screen Reader Links List



*Figure 13. Each link needs to describe destination and/or purpose.*

# Accessible Color

Color is often used for emphasis, to attract attention, or enhance the visual representation of shapes, such as states and countries on a map. However, learners with color blindness or low vision may not be able to recognize or sufficiently distinguish colors from each other.

## Benefits: Why Color Matters

Using color selectively can be used to emphasize important points, but use color in conjunction with other techniques – such as applying a **bold style** to colored text – to support everyone.

## Low Vision and Contrast

Learners with low vision may have trouble distinguishing text from background colors without sufficient contrast between the text and the background. Stick to higher color contrast combinations such as black on white or dark blue on yellow to promote better readability.

### Excellent Contrast

Common uses for organic solvents are in dry cleaning (e.g. tetrachloroethylene), as paint thinners (e.g. toluene, turpentine), as nail polish removers and glue solvents (acetone, methyl acetate, ethyl acetate), in spot removers (e.g. hexane, petrol ether), in detergents (citrus terpenes) and in perfumes (ethanol).

### Poor Contrast

Common uses for organic solvents are in dry cleaning (e.g. tetrachloroethylene), as paint thinners (e.g. toluene, turpentine), as nail polish removers and glue solvents (acetone, methyl acetate, ethyl acetate), in spot removers (e.g. hexane, petrol ether), in detergents (citrus terpenes) and in perfumes (ethanol).

Figure 14. Comparison of excellent and poor contrasts.

## Color Blindness

Color blindness is the inability to perceive certain colors. Deuteranopia (green blindness) and Protanopia (red blindness) are the two most common types of color blindness. Blue is the safest color for emphasis.

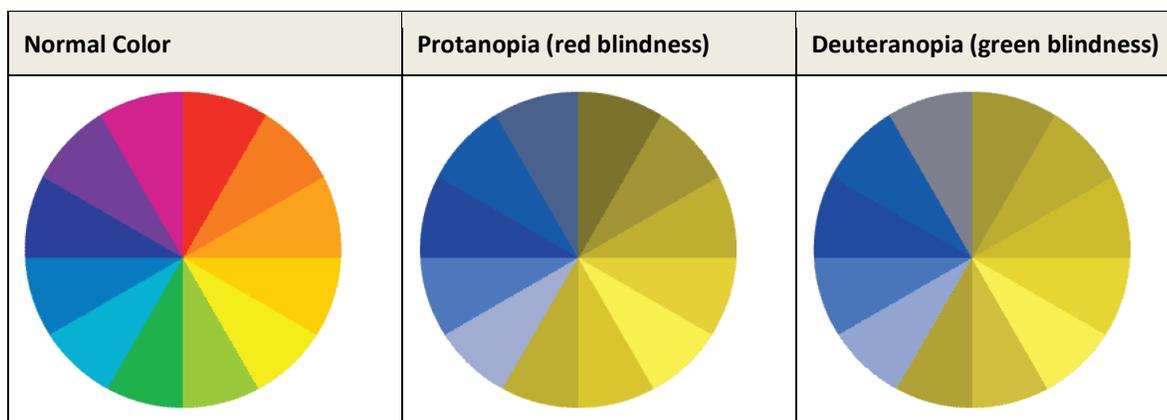
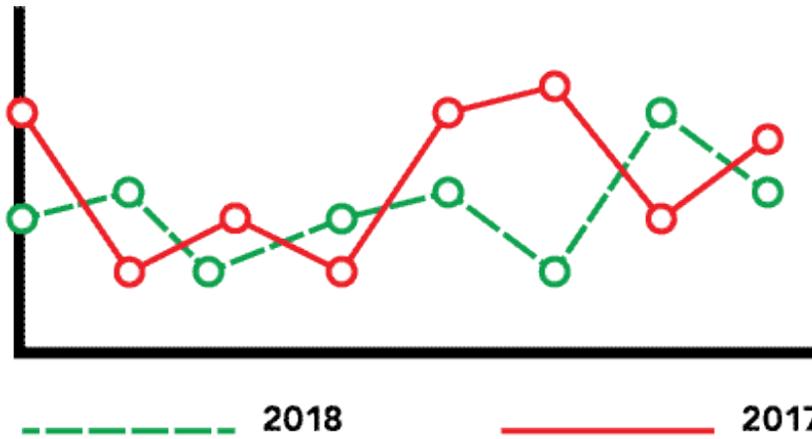


Figure 15. Blue is the safest color since Tritanopia -- which includes blue blindness -- is extremely rare.

# Designing for Color Blindness

For charts and graphs that rely on color, provide labels or use a second graphic device to explain the data visually.



*Figure 16.* Users with red-green blindness can refer to the line types to help them understand the graph.

# Audio/Video Presentations

Multimedia presentations can present some types of content more effectively than electronic documents -- for example, pronunciations for a list of vocabulary terms in a new language or software tutorials on a computer screen. Research shows that short multimedia presentations (up to 7 minutes in length) are an effective strategy to engage students, but they also present significant obstructions for students with visual or hearing impairments.

## Benefits: Why Multimedia Matters

Meeting accessibility guidelines for multimedia with closed captions and/or transcripts not only supports users with hearing or visual impairments, but everyone by allowing users to select the format that works best for them.

## Closed Captions

Closed captions are especially important when the audience benefits from being able to review both visual and audible information at the same time – such as a cooking demonstration. Closed captions are not subtitles. Subtitles convert the spoken word of one language into the written word of another language.



*Figure 17. YouTube video with captions.*

### Closed captions support:

- users with hearing impairments.
- users whose first language is not the same as the speaker(s).
- users in environments where sound may disturb other people.

## Creating Closed Caption Tips

- Use auto-captioning to get you started – you will need to edit for accuracy afterwards.
- Captions should account for all meaningful sounds, spoken and nonverbal. You do not need to account for nonessential sounds and words such as, “um” or “uh”.
- Present relevant non-verbal audio in brackets. For example, [birds chirping].
- Check and correct captions for spelling and grammatical errors.
- Use correct punctuation.
- Timing of the captions should synchronize with the video and allow for sufficient time to be read.

## Transcripts

Transcripts are text-based versions of all spoken words and relevant non-verbal sounds. Transcripts may also contain illustrations and images (with Alt text) to help illustrate key moments in a video.

### Transcripts support:

- Users with visual impairments who rely on screen readers.
- Users whose first language is not the same as the native speaker.
- Users who are without a high bandwidth Internet connection and unable to watch a video.
- Users searching quickly for specific information in a video.

## Creating Transcripts Tips

- Transcripts may be created using any text-editor software like Microsoft Word.
- If you are recording a “talking head” video of yourself, write out what you plan to say and use it as a transcript to accompany your multimedia presentation.
- Add images that support the narration or dialog. Be sure to add alternative text to the images.
- Follow the rules for good spelling, grammar, and punctuation. You can clean up and correct any speaking errors you made.
- Upload the file as a PDF to your course and provide a link for students to download the transcription document.

# Accessibility Checkers

**Warning!** Automated accessibility checkers are very helpful for a first assessment of your files, but they do not guarantee documents will meet federal guidelines. For example, an accessibility checker may flag a heading level that is out of order, but it will not identify missed opportunities to use headings to support document hierarchy and keyboard navigation.

**Best Practice:** Best practice for reviewing documents for accessibility is to know the guidelines and techniques for Web accessibility sufficiently well in order to check them yourself -- manually.

## Microsoft Accessibility Checkers

Microsoft products like Word and PowerPoint have built-in accessibility checkers. Be certain you have updated your Microsoft software to the latest available versions from [MyGeorgiaSouthern](#) > Technology Services > Download Software.

- Windows: [Use the Accessibility Checker on your Windows desktop find accessibility issues](#)
- Macintosh: [Use the Accessibility Checker on your Mac to find and resolve accessibility issues](#)

## Desire2Learn (Folio) HTML Accessibility Checker

Desire2Learn provides an accessibility checker through its Web page editor. The checker provides feedback on potential accessibility errors as well as the ability to repair or ignore the warning.

- Watch a demonstration of [D2L's Accessibility Checker](#).

## Google Docs Accessibility Checker

A third-party add-on from [Grackle Docs](#) is available to help you check the accessibility of your Google docs, sheets, and slides. After installation, the accessibility checkers are available directly from within your files.

- Grackle Docs: [Installation and tutorial](#).

# Tutorials for Accessibility

Tutorials published to [CTE Guide for Teaching](https://georgiasouthern.desire2learn.com/d2l/home/285719) [georgiasouthern.desire2learn.com/d2l/home/285719] in Folio.

- [Making Word Documents Accessible](#)
- [Making PowerPoint Files Accessible](#)
- [YouTube Video – Closed Captions](#)
- [Kaltura Video – Closed Captions](#)
- [Zoom Recorded Meetings – Transcripts](#)
- [Folio – Accessible Web Pages](#)
- [Folio – Accessible Tables](#)
- [Folio – Accessible Color](#)

If you are unable to access the CTE Guide, please contact the CTE at [CTE@georgiasouthern.edu](mailto:CTE@georgiasouthern.edu).