Google Slides Accessibility (A11y)
Creating Accessible Google Slides Topics

- Readability
- Slide Layouts
- Slide Reading Order
- Alternative Text
- Captioning Videos
- Link Text
- Color
- Tables
- Accessibility Tips
- Accessibility Checker

A11y
What is Assistive Technology?

Assistive Technology (AT) are “products, equipment, and systems that enhance learning, working, and daily living for persons with disabilities.”

- Screen Readers
- Magnification Software
- Speech Recognition
- Trackball Mouse
- Keyboard
- ZoomText
- Braille Computer Keyboard
- Captions/Subtitles
- Captioned Telephone
- Video Relay Services
Captioning Videos

Per federal and state law, and CSU policy, instructional media (e.g., videos, captured lectures, recorded presentations) must have captions. This includes instructional media used in classrooms, posted on websites or shared in Canvas.

• All students who are enrolled in a course must be able to access the content in the course.

• **Faculty**: Funding is available to help faculty generate captions and transcripts for instructional media. Materials should be submitted **at least six weeks** in advance of their use in instruction.

• **Staff**: For CSUN staff who do not provide classroom material, there is a cost through chargeback. For information on the chargeback, email [ncod@csun.edu](mailto:ncod@csun.edu).

[csun.edu/captioning](http://csun.edu/captioning)
What are Screen Readers

**Screen readers** are a form of assistive technology (AT) software that *enables access* to a computer, and all the things a computer does, by attempting to identify and interpret what is being displayed on the computer screen using **text-to-speech**. Screen readers can only access and process **live text** (fully editable or selectable text).

- **Provides access** to someone who is visually impaired, mobility or has a learning disability to access text on the screen.
- **Offers same level of independence** and privacy as anyone else.
Types of screen readers

Screen reader program for Microsoft Windows that allows blind and visually impaired users to read the screen either with a text-to-speech output or by a refreshable Braille display. **NVDA screen reader** can be downloaded free of charge by anyone.

Provides auditory descriptions of each onscreen element using gestures, a keyboard, or a braille display.

Adds spoken, audible, and vibration feedback to your device.

Screen magnifier for Microsoft Windows that allows you to see and hear everything on the computer.
How Do Screen Readers Work?

• Screen readers read line-by-line from left-to-right and top-to-bottom.

• Screen readers start at the top of a document or website and read any text including alternative text for images, graphics or charts.

• Screen readers navigate a document or website using the keyboard without a mouse. **Tab** key: jump from link to link, **Enter**: select a link, **arrow** keys: navigate a document or website.

• Reading order is important for users with visual challenges. The users can become confused if the document (content, tables, images or charts) is poorly organized or out of order.
Click vs Select

Screen readers and physical or mobility limitation users navigate a document or website using the keyboard without a mouse. The word “Click” is not inclusive of people who can’t use the mouse. Use the word “Select” to write step-by-step instructions.

“Click” or “Click on” Example

- Go to YouTube video player
- Click on Settings gear icon
- Click on Subtitles/CC
- Click on Options to Customize
- Click on Caption Style

Use “Select” Example (Recommend)

- Go to YouTube video player
- Select Settings gear icon
- Select Subtitles/CC
- Select Options to Customize
- Select Caption Style
Readability

• Slide Titles are meaningful and unique
• Maximum 6 to 8 lines of text per slide
• Minimum font size 24 points or above
• Tables, Charts and Graphs on own slide
• Sans-Serif fonts are more suited to electronic formats *(Arial, Calibri, Verdana or Franklin Gothic Book)*
• Capitalization for the heading is fine **not** the entire paragraph. Most people have difficult to read it if all text capitalized.
• Avoid **underlining** text. Underlining is interpreted by screen readers and people with low vision as linked text.
• Avoid Transitions and Animations
Mysterious Dash or Hyphen

Screen readers do not know what the – symbol represents (minus, hyphen, en dash or em dash) so screen readers will not read it. *It is always a good practice to spell the word and spell out any abbreviations or make a reference to your abbreviation when used for the first time.*

For example:

- May 8th, 2022 from 3:30 - 5:00pm. The screen reader reads three, thirty five. Recommend May 8th, 2022 from 3:30 to 5:00pm.
- Grading scale 95 - 100%, screen reader reads 95100%. Recommend 95 to 100%.
  - A –, screen reader reads A. Recommend A minus.
  - Recommend to spell the word plus or minus for consistency purpose.
Slide Layouts

Accessibility Tips

- Simple themes, pre-defined slide layout templates
- Slides with unique titles
- Default bulleted and numbered lists
- Avoid themes with drop shadows on design, colors or text
- Avoid text boxes (inaccessible)
The themes come with default background and foreground colors and fonts may be difficult for some viewers to see it. The Accessibility Checker in PowerPoint does not check for color contrast. Use simple and light background with dark text or dark background with white text is the best approach.
Microsoft – Accessible Template Showcase
(Check color contrast, etc.)

Microsoft Accessible Template Website
Built-in slide layouts (unique title)

- Google Slides does not use headings instead using slide title. Every slide should have a unique title. Assistive technology users such as screen readers navigate by slide title.
- Using the default slide layouts is the first step making your presentation accessible.
  1. Go to “Slide” tab
  2. “Apply layout”
  3. Select your preferred layout
Same Slide Titles

If the same slide title spreads in multiple slides, use this method

• Title, 1 of 3, Title, 2 of 3, Title, 3 of 3

• Title – Part I, Title – Part II

• Title – 1, Title – 2

“Every slide should have a unique title so those who cannot view the slide can still easily navigate to information.”
Slide Master Layouts aka Templates

• Master slides control the look of your *entire presentation*, including colors, fonts, backgrounds, effects, and just about everything else.

• You can insert a shape or a logo on a slide master, and it will show up on all your slides automatically.

• Add Alt Text to describe an image or logo.

• Verify **Slide Reading Order**.

• Go to **View** tab

• Select **Master**
The order of slides content determines how the content will be presented to screen reader users, and other users of assistive technology. Verify reading order in the Slide Master layouts.

Slide with Incorrect Read Order

1. Content
2. Title
3. Content/Image
4. Content/Image

Slide with Correct Read Order

1. Title
2. Content/Image
3. Content/Image
4. Content
• Check the reading order by selecting the slide title. A blue outline will appear.

• Press the **TAB key** to move through the document. The tabbing order is the read order.

• To adjust the reading order, right click an object and select **Order > Bring Forward or Send Backward**. Like in PowerPoint, the read order is bottom to top, so sending an object backward raises it in the reading order.

When the screen reader reads this slide, it reads the objects in the reverse order.

**Important:** The **Title** should always be read first as heading title. Assistive technology users such as screen readers navigate by slide title.
Text boxes inaccessible

- Screen readers **may ignore** items like text in text boxes that are added to the pages.
- Best approach is to use built-in slide layouts instead of Text Box.
Visual Challenge

What’s the best way to make images accessible to everyone?
Image Alternative or Alt Text

Accessibility user-friendly document for CSUN student success

Screen readers and other AT announce that it’s an “image” or “graphic”, then read the alt text: “Three plants going through transformation with text quote Accessibility user-friendly document for CSUN student success.”

• The purpose of Alt Text is to allow low vision or blind users who use text-to-speech assistive technologies (AT), such as screen readers, to understand the purpose of graphic images. Sighted users usually don’t see alt text unless they use AT.

• Screen readers and other AT can’t convert images into texts. So, when writing alt text, consider the following for images:
  o Describe the content and the purpose of the image clearly and concisely, in a phrase or a sentence or two. Keep alt text short 200 characters or less.
  o Image with text (for example, the CSUN wordmark) should include the words on the image.
  o “Image of...”, “Photo of...” is not needed because screen readers and other AT announce that it’s an “image” or “graphic”.
  o When completing the alt text, use proper punctuation such as periods to indicate the end of the alt text. Without proper punctuation, some screen readers will run the alt text into the body text that follows and cause confusion to the user.
  o Don’t insert hyperlinks in alt text because they are not clickable and can’t create descriptive link text.
How to Describe Images?

A stair chase leading up to an entryway is painted yellow with bold black text that reads museums are now.

A hand reaches out of a computer screen giving the hand gesture for stop. The screen reads ‘access denied!’

On the left is the book cover for Haben The Deafblind Woman Who Conquered Harvard Law, and on the right is the quote: “In the Tigrinya language of Eritrea and Ethiopia, Haben means ‘pride.’”

Michelle Obama claps and Barack waves.

Student holds a diploma hardcover up in the air during CSUN commencement. Caption text “and together, as Matadors, we will move mountains.”

More examples of How to Describe Images

- **Document Learning Tools: Describing images**
- **How to Describe Images** (Art, Chemistry, Diagrams, Flow Charts, Formatting & Layout, Graphs, Maps, Mathematics, Page Layout, Tables, Text-only images)
- **Periodic Table of the Elements**
- **UDC Best Practices for Describing Images**
1. Select an image, drawing, or graphic.
2. Right click > Alt Text.
3. Add the alt text in the Description field.
4. Select OK.
CSUN Honors Four Exceptional Graduate Students for Thesis and Project Work

CSUN's Division of Academic Affairs has selected four exceptional CSUN graduate students as the winners of the 2020 Distinguished Thesis/Graduate Project Competition, with each receiving a $1,000 award and recognition from the university. Read more.

CSUN Team to Tap into Power of Inouye Telescope to Study Sun's Atmosphere

With the aid of a telescope in Hawaii, a team of professors at California State University, Northridge hope to solve some of the mysteries found in the sun’s atmosphere, information that could help us better understand the impact of solar flares, as well as what is happening with other stars in our solar system. Continue reading about CSUN's Astronomy Team.

Minimizing the COVID Slide During the Summer

In response to the COVID-19 pandemic, schools across the nation transitioned to meeting online. Given the abruptness of the transition and lack of preparation parents had in becoming in-home teachers’ aides, many parents and educators are worried about a “COVID slide” or “COVID slowdown,” where students fail to retain any new information learned before and during the pandemic — as well as over the summer, when students are not in school. Learn more about the "COVID Slide".

Screen readers read: "Read more, link" "Read more, link" "Click here, link"
Descriptive Link Text, 2 of 2
Best Practices for Accessible Links

**DESCRIPTION**
- Link text must always properly describe the purpose of the link and tell a user where the link will take them.
- Do not use text such as “click here” or “read more,” nor web addresses (URLs).

**PRESENTATION**
- Each link on the page should be visually different from regular text on the website.
- Can be differentiated by color, bold, underline, or italics.
- Using color alone does not make it accessible.

**FUNCTIONALITY**
- Link functionality is about ensuring a link functions the way the user expects.
- Links must always enhance the accessibility of a webpage.
- Users must be able to access links using a mouse, keyboard, or speech recognition commands.

**LINKED IMAGES**
- A linked image is an image (with or without text) that is linked to another resource or webpage.
- Linked images need link descriptions as well as image descriptions (alt text).
- If the link description is different than the alt text, enter the link description in the HTML Title field.
- Visit [Linked Images](#) on the Best Practices for Accessible Images page for more information.
Why Color Coding is Not Accessible?

Fruit Preferences

- Apple
- Orange
- Strawberry
- Watermelon

Like | Neutral | Dislike
View Presentation in Black & White
Pattern Fill – Format Data Series, Fill & Line

• An example of PowerPoint Charts Format Settings
• Select 1 of 3 bars
• Option 1: Mouse right-click to select Format Data Series
• Option 2: Format tab, select Format Selection
• Fill & Line icon
• Pattern Fill & Select Pattern type
• Repeat for each bar with a different pattern type
Add Data Labels

- Select 1 of 3 bars
- Option 1: Mouse right-click to select **Add Data Labels**, **Add Data Labels**
  - Right-click again to select **Format Data Labels**
  - On right pane, select **Series Name**
- Option 2: **Design** tab, select **Add Chart Element**, **Data Labels**
  - Under **Data Labels**, select **More Data Label Options**
  - On right pane, select **Series Name**
- Repeat for each bar
Accessible - Pattern Fill & Data Labels

Fruit Preferences

Apple: Like, 25; Neutral, 13; Dislike, 18
Orange: Like, 25; Neutral, 18; Dislike, 13
Strawberry: Like, 23; Neutral, 20; Dislike, 13
Watermelon: Neutral, 30; Dislike, 11

Charts & Accessibility by Penn State

Universal Design Center

[csun.edu/udc]
In accessible Line Chart

This is an inaccessible line chart based on the data in the table comparing percentage of Mac and Windows users in 1990 and 2003. In grayscale, these colors are virtually identical may not be recognized by colorblind users.

Accessible Line Chart

This chart replaces three solid lines with one solid line and two dotted lines, with labels for each. For line charts, changing the style of the graph lines and adding labels increases usability. [Charts & Accessibility by Penn State](http://csun.edu/udc).
Provide descriptions if using color to convey meaning

Example 1: Inaccessible color highlights in red
May 11 to 17, 2019

Example 1: Accessible with a description
May 11 to 17, 2019* (final exams)

Example 2: Inaccessible table

<table>
<thead>
<tr>
<th>Assignments (overdue in red)</th>
<th>Introduction</th>
<th>Chapter 1</th>
</tr>
</thead>
</table>

Example 2: Accessible table

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Yes</td>
</tr>
<tr>
<td>Chapter 1</td>
<td>No</td>
</tr>
</tbody>
</table>

Example 3: Inaccessible color shape

Color identical may not be recognized by colorblind users

Example 3: Accessible color and number
People who have low vision or colorblind could encounter some difficulty distinguishing text color from a background color if the contrast is insufficient contrast ratio 1.5:1.

This example has a great color contrast ratio of 8.7:1. The contrast is sufficient for those who have color deficiencies.

- Download Colour Contrast Analyser onto your computer (PC/Mac) to ensure accessible contrast or use an online contrast checker from WebAIM.
- WCAG Level AA requires a contrast ratio of at least 4.5:1 for regular sized text (12 or 14 pt. font) and 3:1 for large text (18 pt. font).
- Coblis Color Blindness Simulator
How to View Grayscale Document?

- Information and charts should never be conveyed through color alone.
- Color may not be recognized by colorblind users.
- Provide text descriptions for charts and graphics.
- **Charts & Accessibility by Penn State**

To use color filters on **Windows**:  
- Select Start > Settings > Ease of Access > Color filters.
- Switch on the toggle under **Turn on color filters**.

To use color filters on **Mac**:  
- On your Mac, choose **Apple menu > System Preferences**, select **Accessibility**, select **Display**, select “Use grayscale”.

Image courtesy of Accessible Syllabus
Complex Images/Graphics/Charts

Some images, such as graphs, charts or informative illustrations require fairly lengthy explanations to make them accessible.

Provide a brief alt text description of the image and a longer description within the slide. This may be helpful for others as well since some people have difficulty understanding charts and graphs. Credit to Explore Access

Use Caption built-in slide layout to provide a longer description.

Example of Option 1

Chart 1. Website Accessibility Assessment of All Organizational Charts. Findings from the assessment indicate the following: 5% of organizational websites had fewer than 2 errors on the home page; 20% had 3 to 5 errors; 45% had 6 to 10 errors; and 30% had more than 10 errors on the home page.
Use Google Slides’ built-in functionality to create Tables

• Tables are read from left to right, top to bottom.
• Simple Data Tables only.
• Provide Title (i.e. Caption) and Summary before the Table.

Not Accessible

• Do not create table using the Draw Table Tool.
• Never use for layout.
• Avoid merged, split, or blank cells.
• The complex a table (merging cells, nesting multiple headings under one, adding blank lines, etc.) the worse it will be for accessibility.
• Sample of Simple Tables vs. Complex Tables by Penn State.
Use Tables for Data

Use tables for presenting data, not for changing the visual layout of the page. In the table, include a heading row (rather than starting with data in the first row) because screen readers automatically read the first row as a heading row.

- Select **Insert** tab, then select **Table**.
- Select the number of rows and columns by highlighting the boxes on the grid.
- Right-click to select Format Options to adjust color, dimensions, or alignment.
Table Color

Avoid using color as the only means to convey information. For example, in the table below, the complete and incomplete items may appear the same to someone who is color blind:

<table>
<thead>
<tr>
<th>Project</th>
<th>Due Date</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>March 15, 2020</td>
<td>X</td>
</tr>
<tr>
<td>Project 2</td>
<td>April 15, 2020</td>
<td>X</td>
</tr>
<tr>
<td>Project 3</td>
<td>May 15, 2020</td>
<td>X</td>
</tr>
</tbody>
</table>

A better option would be to provide another way of conveying information not just color alone:

<table>
<thead>
<tr>
<th>Project</th>
<th>Due Date</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>March 15, 2020</td>
<td>N or No</td>
</tr>
<tr>
<td>Project 2</td>
<td>April 15, 2020</td>
<td>Y or Yes</td>
</tr>
<tr>
<td>Project 3</td>
<td>May 15, 2020</td>
<td>Y or Yes</td>
</tr>
</tbody>
</table>
Videos embedded in PowerPoint are currently inaccessible; consider adding a link to the video on YouTube™/Vimeo

Apple – Accessibility - Sady
Animations and Transitions

Avoid animation and automatic slide transitions:

• Can be distracting
• Can cause screen readers to re-read slides
• Can read parts of the slide out of order, and/or
• May not give users enough time to read the slide content

It's recommended that any transitions you add to your slides are done using the "on click" option, versus timing the animations and transitions. This allows the user/viewer to control the speed at which they view the content and progress through the slides.
• Use simple language.
• Ensure font size sufficient.
• Provide sufficient contrast between the text and the background.
• Do not use color as the only way to convey meaning or communicating information.
• Avoid automatic slide transitions
• Use simple slide transitions when possible.

• Do not put accessibility information like alternative text in the Notes Pane.
• Ensure video files have captions and audio descriptions.
• Ensure audio files have transcripts.
• Player controls for videos embedded in PowerPoint are currently inaccessible; consider adding a link to the video on YouTube™/Vimeo.
Accessibility Checker for Google Slides

There isn’t a complementary service provided by Google to do an accessibility check. However, there is **Grackle Slides**, which is an Add-ons that extends the accessibility of **Google Slides** by automatically checking all aspects of your slides and advising you how to make things better. Grackle Slides is free for 30 days. Learn more about [Grackle Slides](#).
Alternative to download Google Slides to PowerPoint

• The most reliable method for creating a PDF from a Google Slides is to first export it as an MS PowerPoint, then convert the PowerPoint into a PDF. This will preserve the majority of formatting elements that are present within the PowerPoint.

• File > Download > Microsoft PowerPoint (.pptx)

• **Microsoft Office** is available for free to all CSUN faculty, staff and students. Faculty and staff may also use Office Online or install Office on their personal devices.
PowerPoint Accessibility Checker

The accessibility checker will identify certain accessibility issues:

- Duplicate slide titles
- Headings that are not in logical order
- Images with no alt text
- Tables have the header box checked
- Tables that have merged cells or with empty cells

- PowerPoint 365: Select **Review** tab, select **Check Accessibility**
- Word 2016: Select **File** menu, then **Check for Issues** and select the **Check Accessibility** from the drop-down menu.
Check for Issues, Check Accessibility

Always use PowerPoint’s built-in Accessibility Checker
Repair Errors, Warnings and Tips
File – Info - Title
Windows: Converting to PDF

1. Select File menu
2. Save as, Download as PDF
3. Download button (save on your desktop)
4. Open the PDF file from Adobe Acrobat Pro
5. Run Accessibility Check

Learn more about PDF Accessibility
Mac: Converting to PDF

Unfortunately, Mac PowerPoint Desktop application Save as PDF doesn’t import PDF tags structure “No Tags available”.

The alternative way to export PDFs with tags is by logging into Microsoft Office 365 online.

1. Go to [csun.edu/webmail](http://csun.edu/webmail)
2. Select Microsoft Office 365 for Faculty & Staff
3. Select PowerPoint tab on left side
4. Upload your PowerPoint file
5. Select File menu
6. Save as, Download as PDF button
7. Download button (save on your desktop)
8. Open the PDF file from Adobe Acrobat Pro
9. Run Accessibility Check

Learn more about [PDF Accessibility](http://www.pdfaccessibility.com)
Never choose a "Print" to PDF option in Office, or in any other program. A screen reader user may still be able to access the text of a PDF created in this way, but heading structure, alternative text, a logical reading order, and any other tag structure will be lost.

Use either Save As or Export to PDF.
Adobe Creative Cloud for Faculty & Staff

- Adobe Creative Cloud software is now available for use (at no additional charge) on all faculty and staff university-owned computers, labs and classroom devices, and for all students.

- Please note that this deployment of Adobe software is not available for use on personally-owned faculty and staff devices at this time.

- Learn more about Adobe Creative Cloud for Faculty & Staff

- **Adobe Reader** is for viewing, printing, signing, sharing, and annotating PDFs. Adobe Reader doesn’t have Accessibility checking tool.
Enable Live Automated Captions During Presentations

• This feature is available on Chrome browser. It will not work with Mac Safari browser.

• Here are the steps to turn on Google Slides captions:
  1. Make sure your microphone is on and working.
  2. Open a blank Google Slide presentation.
  3. Select **Present** to go into presentation mode.
  4. Select **CC** for Captions
  5. Position and size of the text can also be changed on the **CC** dropdown menu.

• If you present slides over video conferencing software (such as Zoom), captions show up on the shared screen. To set expectations for your students, it's a good idea to tell them that captions are from Google Slides and that only the speaker's voice is captioned.

• For instructions on the [Present Slides with Captions page](#).
How can we help you make a difference?

Universal Design Center Offers
- Online, self-paced training
- In-person training each semester
- Consultations
- Tools and Services

Universal Design means design for everyone