

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."







Magnification Software



Speech Recognition



Trackball Mouse



Keyboard







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.



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.







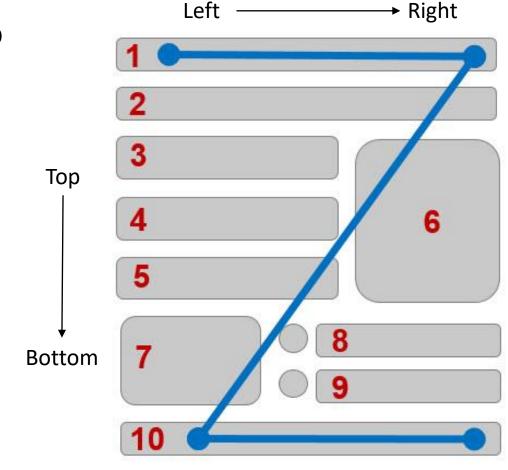
Provides auditory descriptions of each onscreen element using gestures, a keyboard, or a braille display.

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



- 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)
- Avoid <u>underlining</u> text. Underlining is interpreted by screen readers and people with low vision as linked text.
- Avoid Transitions and Animations
- Be cautious with all All-caps text: Using all capitalized text can create accessibility issues, particularly for individuals with dyslexia or visual impairments, as it reduces readability and makes words harder to distinguish by shape. Screen readers may also misinterpret fully capitalized words, reading them letter by letter instead of as whole words. Additionally, all-caps text can slow down reading speed and comprehension for many users, making it less accessible for a broad audience. Credit to Webaim February 2025 Newsletter.

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 any abbreviations or make a reference to your abbreviation when used for the first time.*

For examples:

- 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.
- Final exams May 14 20, 2022, screen reader reads May 1420, 2022.
 Recommend May 14 to 20, 2022.
- Homework assignment pages 200 281 for tonight's reading material. Recommend pages 200 to 281.
- The fiscal year 2015-2016. Recommend The fiscal year from 2015 to 2016.
- Grading scale 95 100%, screen reader reads 95100%. Recommend 95 to 100%.
 - ❖ A + , screen reader reads A+. Recommend A plus.
 - ❖ A , screen reader reads A. Recommend A minus.
 - * Recommend to spell the word plus or minus for consistency purpose.



It's okay to use dash between compound words, i.e., well-known author, well-being, in-service, in-person, runner-up, part-time job, co-author, re-elect, long-term project, state-of-the-art technology, etc.

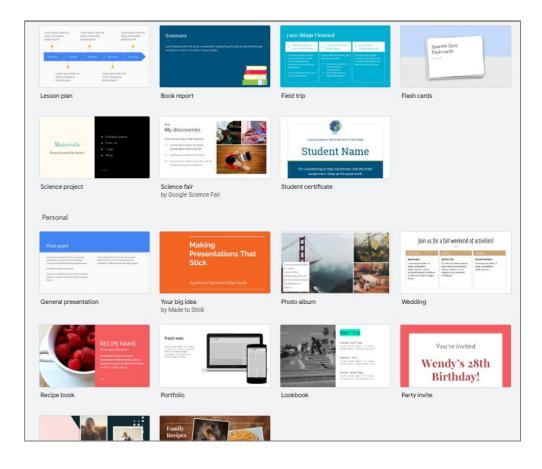
Slide Layouts



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)

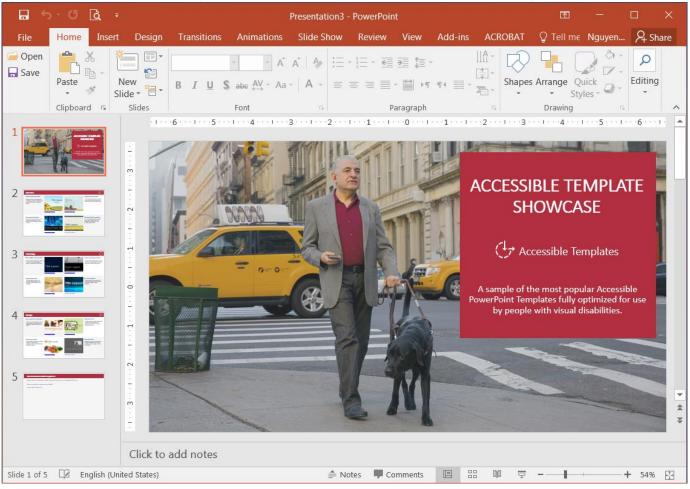
Slide Templates – may *not* be accessible



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

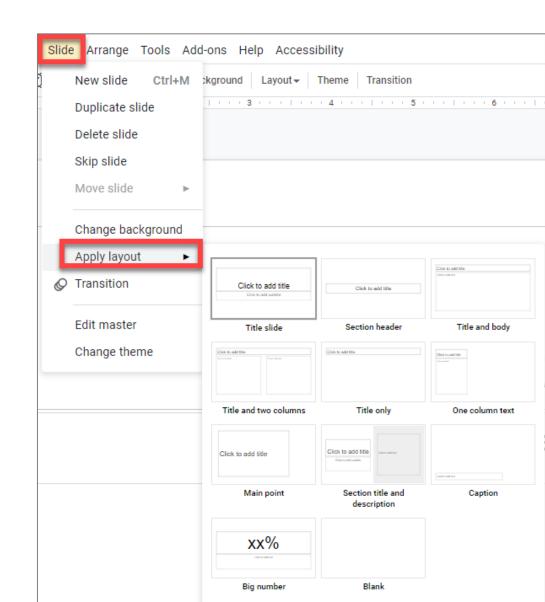
(Check color contrast, etc.)



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

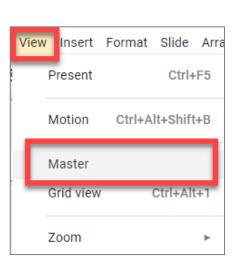
If the same slide title spreads in multiple slides, use this method

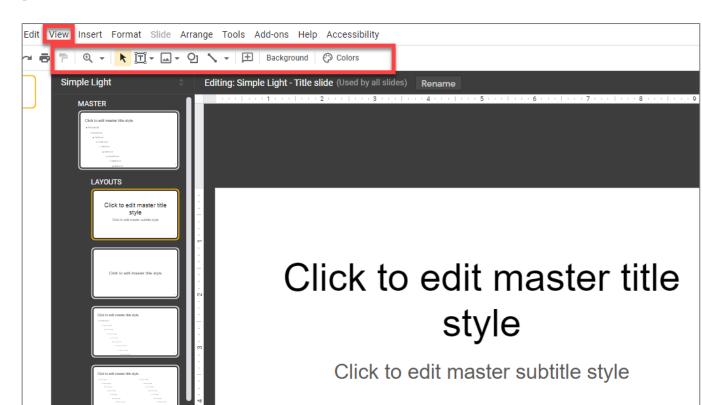
- Title, 1 of 3, Title, 2 of 3, Title, 3 of 3
- Title Part I, Title Part II
- Title 1, Title 2

"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





Slide Reading Order, 1 of 2

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.

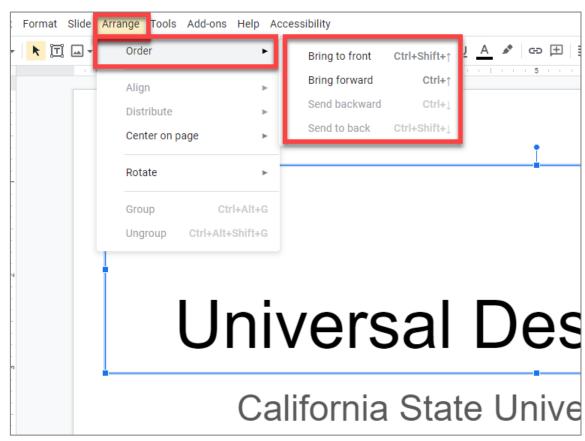
Slide with Incorrect Read Order Slide with Correct Read Order Title Title Content/Image Content/Image Content/Image Content/Image Content Content

Slide Reading Order, 2 of 2

- 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

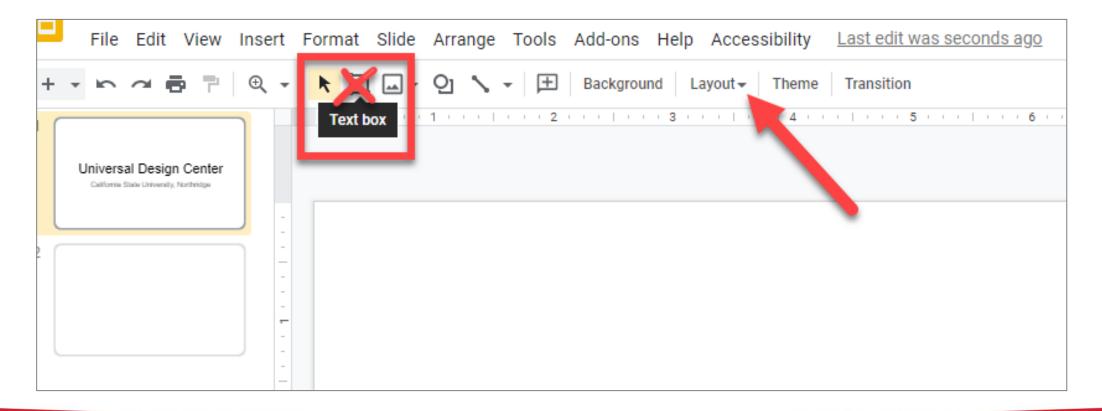
When the screen reader reads this slide, it reads the objects in the reverse order.

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



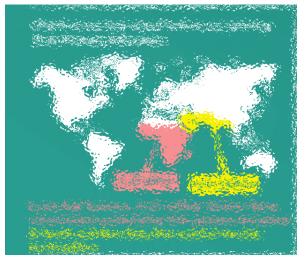
Text boxes inaccessible

- 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









Normal vision

Low vision

Color blindness

Blind or deaf-blind

What's the best way to make images accessible to everyone?

Image Alternative or Alt Text



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:
 - 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.
 - Image with text (for example, the CSUN wordmark) should include the words on the image.
 - "Image of...", "Photo of..." is not needed because screen readers and other AT announce that it's an "image" or "graphic".
 - 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.
 - 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.



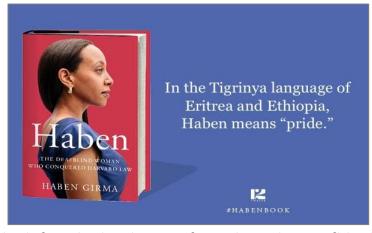
Michelle Obama claps and Barack waves.



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



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



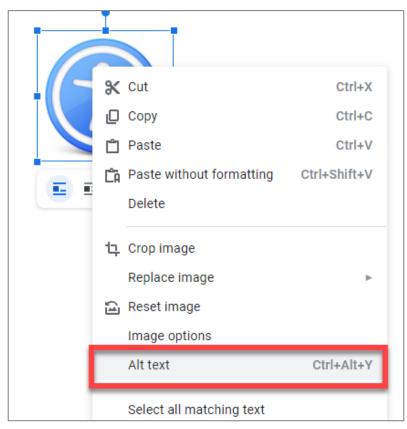
On the left is the book cover for Haben The Deafblind Woman Who Conquered Harvard Law, and on the right is the quote: "In the Tigrinya language of Eritrea and Ethiopia, Haben means 'pride.'"

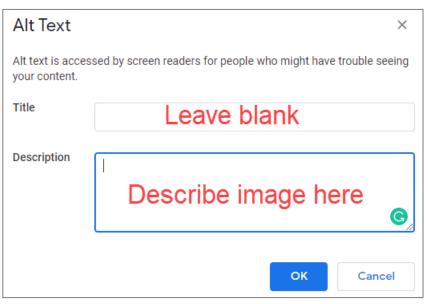
More examples of How to Describe Images

- 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

Google Docs - Adding Alt Text

- 1. Select an image, drawing, or graphic.
- 2. Right click > **Alt Text.**
- 3. Add the alt text in the **Description** field.
- 4. Select **OK**.





Descriptive Link Text, 1 of 2

Not Accessible – vague and redundant

CSUN News

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.

Read more.

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.

Click here

Screen readers read: "Read more, link" "Read more, link" "Click here, link"

Accessible – descriptive and unique

CSUN News

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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

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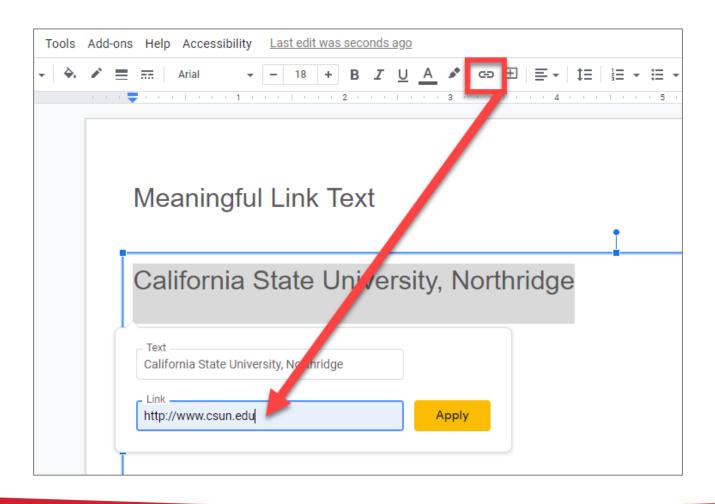
Learn more about the "COVID Slide".

Screen readers read: The content and link text then announce the word "link"

Full URL text https://www.csun.edu/universal-design-center

(raw URL may not make sense to screen reader users or others, so make the link text descriptive i.e. Universal Design Center)

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.

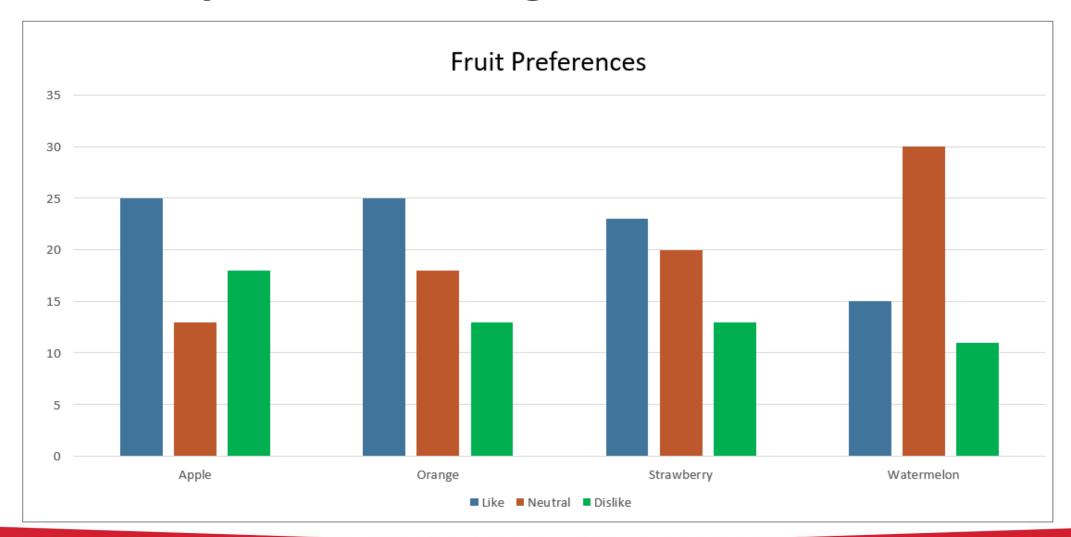


LINKED IMAGES

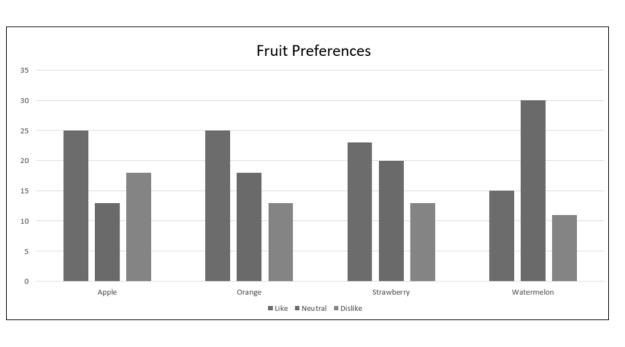
- A linked image is an image (with or without text) that is linked to another resource or webpage.
- Linked images need link descriptions as well as image descriptions (alt text).
- If the link description is different than the alt text, enter the link description in the HTML Title field.
- Visit <u>Linked Images</u> on the Best Practices for Accessible Images page for more information.

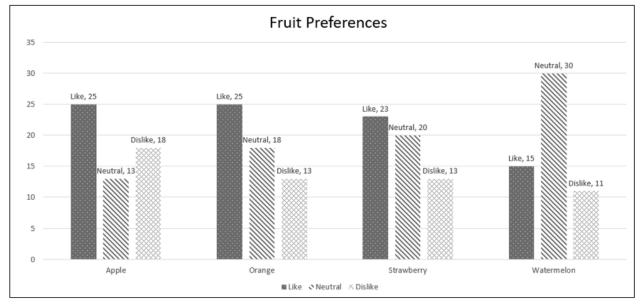


Why Color Coding is Not Accessible?



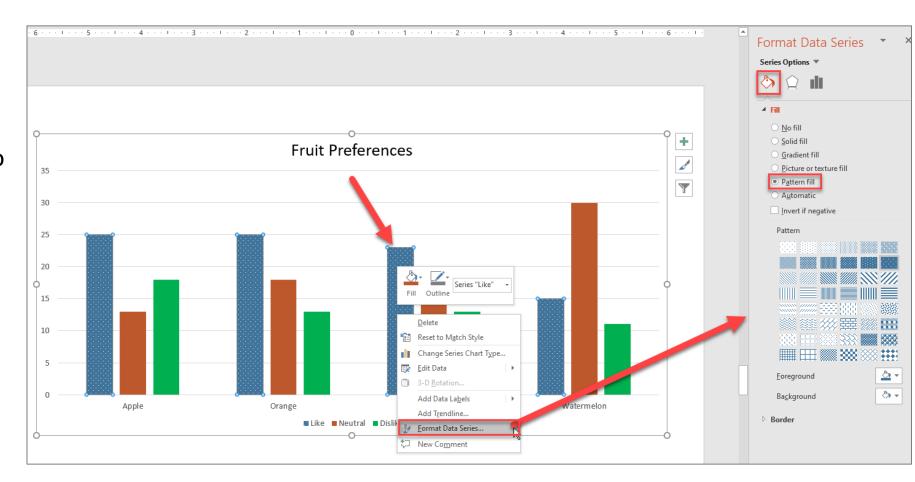
View Presentation in Black & White

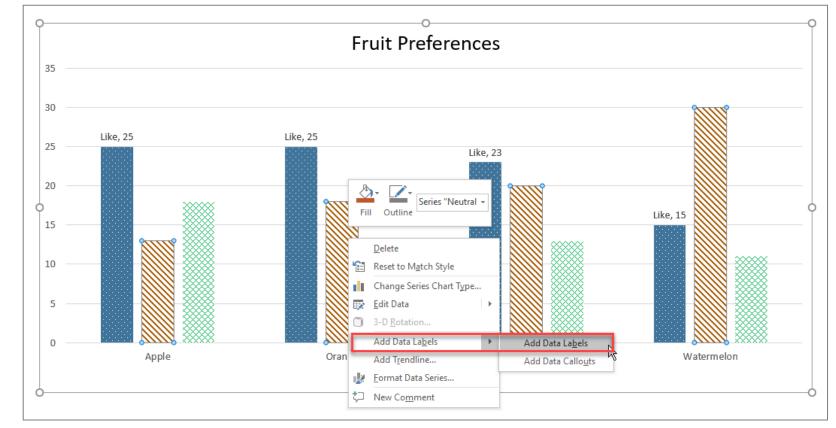




Pattern Fill – Format Data Series, Fill & Line

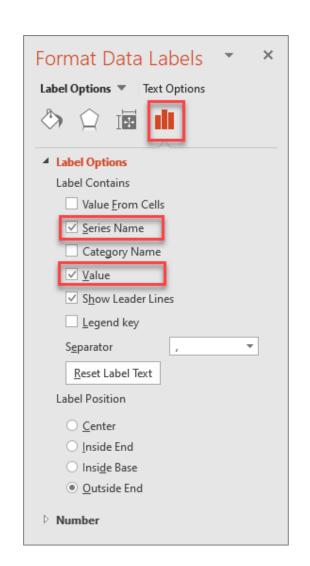
- An example of PowerPoint Charts Format Settings
- Select 1 of 3 bars
- Option 1: Mouse right-click to select Format Data Series
- Option 2: Format tab, select
 Format Selection
- Fill & Line icon
- Pattern Fill & Select Pattern type
- Repeat for each bar with a different pattern type



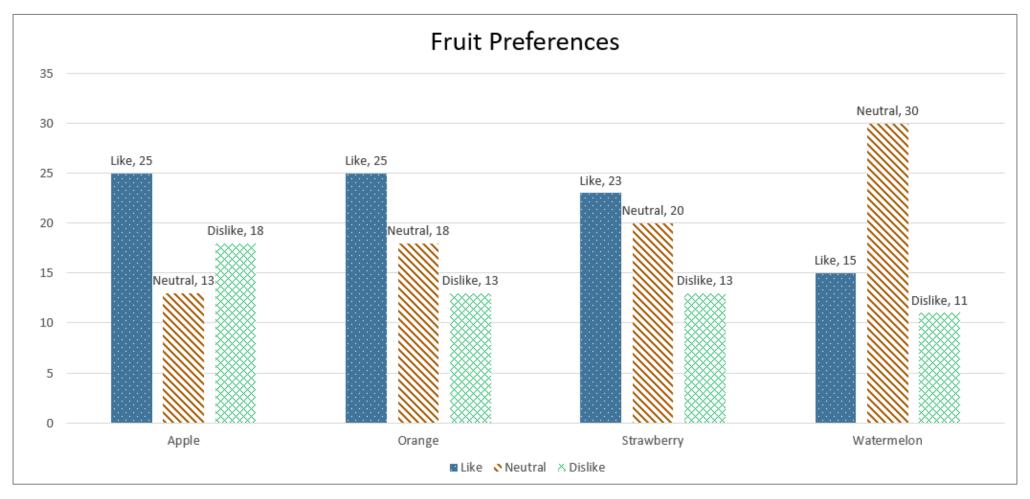


Add Data Labels

- 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

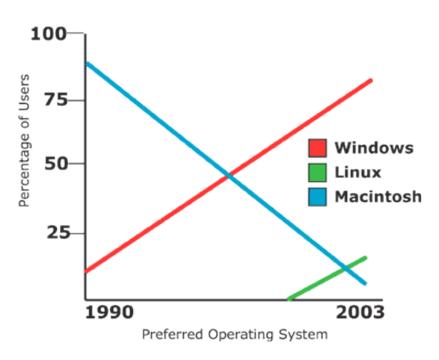


Accessible - Pattern Fill & Data Labels



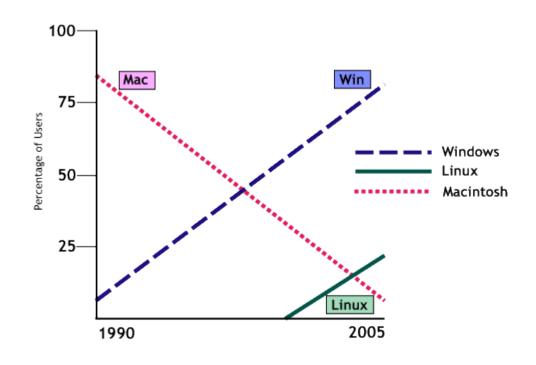
Charts & Accessibility by Penn State

Line Charts



Inaccessible 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.

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)

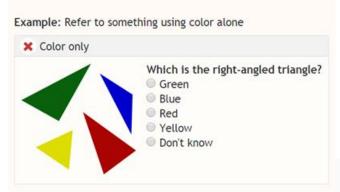
Example 2: Inaccessible table

| Assignments (overdue in red |
|-----------------------------|
| ntroduction |
| Chapter 1 |

Example 2: Accessible table

| Assignments | Overdue |
|--------------|---------|
| Introduction | Yes |
| Chapter 1 | No |

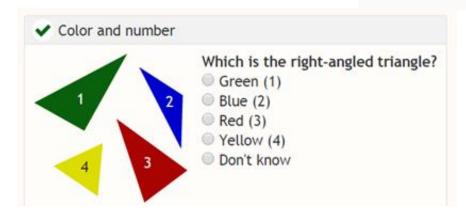
Example 3: Inaccessible color shape

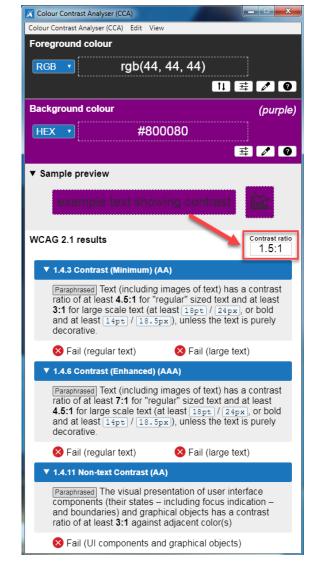


Color identical may not be recognized by colorblind users



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

Check Color Contrast

| Bad Examples | Good Examples |
|-----------------------|-------------------------|
| Red on black is bad | Yellow on black is good |
| Blue on orange is bad | Black on orange is ok |
| Red on green is bad | White on green is good |
| Grey on purple is bad | Aqua on purple is ok |

- Download <u>Colour Contrast Analyser</u> onto your computer (PC/Mac) to ensure accessible contrast or use an online contrast checker from <u>WebAIM</u>.
- 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?

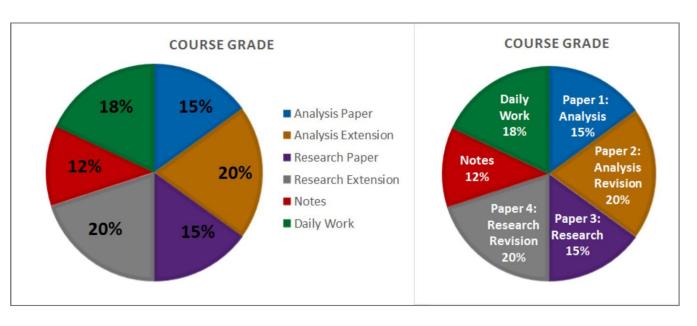
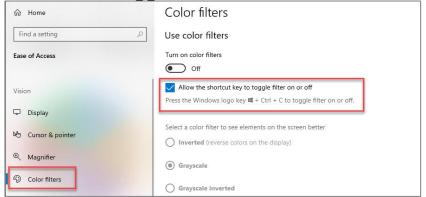


Image courtesy of Accessible Syllabus

- 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

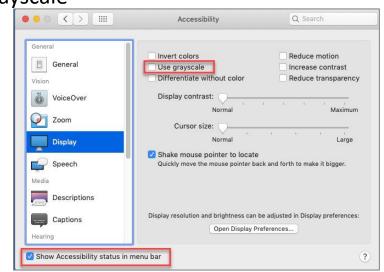
To use color filters on Windows:

- 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"



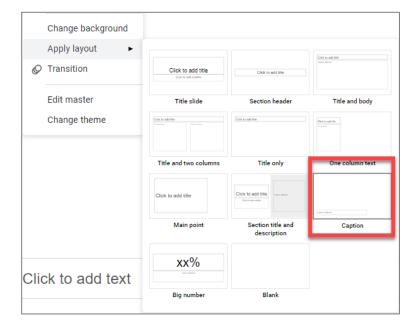
Complex Images/Graphics/Charts

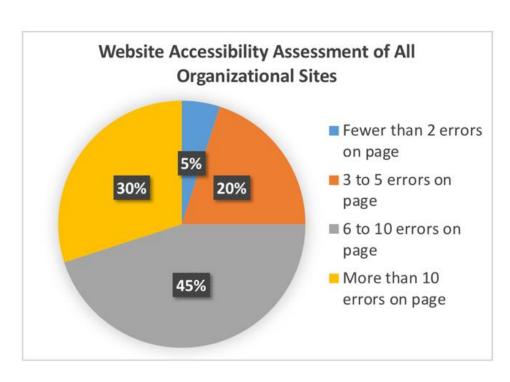
Some images, such as graphs, charts or informative illustrations require fairly lengthy explanations to make them accessible.

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.

Tables

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.

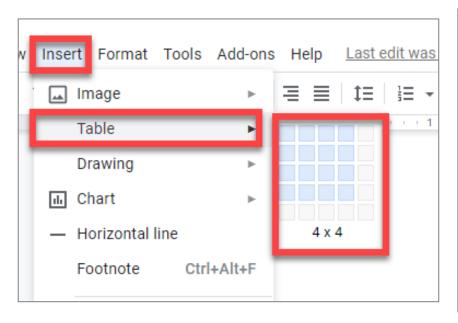
Not Accessible

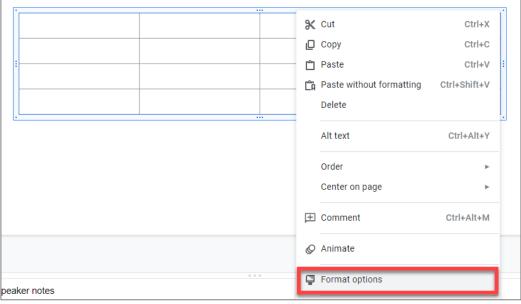
- Do not create table using the Draw Table Tool.
- Never use for layout.
- Avoid merged, split, or blank cells.
- The complex a table (merging cells, nesting multiple headings under one, adding blank lines, etc.) the worse it will be for accessibility.
- Sample of <u>Simple Tables vs. Complex</u> <u>Tables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





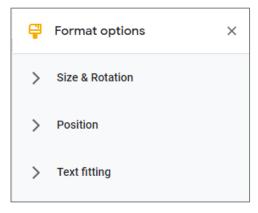


Table Color

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:

| Project | Due Date | Completed |
|-----------|----------------|-----------|
| Project 1 | March 15, 2020 | X |
| Project 2 | April 15, 2020 | X |
| Project 3 | May 15, 2020 | X |

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

| Project | Due Date | Completed |
|-----------|----------------|-----------|
| Project 1 | March 15, 2020 | N or No |
| Project 2 | April 15, 2020 | Y or Yes |
| Project 3 | May 15, 2020 | Y or Yes |

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.



Accessibility Tips



- 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.

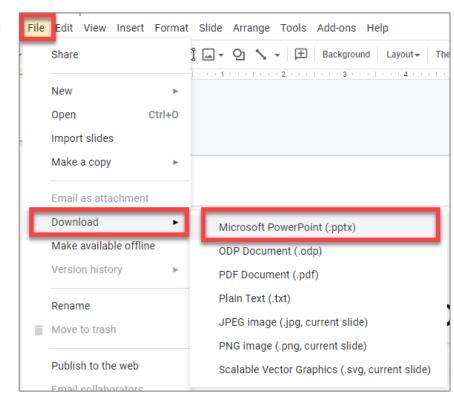
Accessibility Checker for Google Slides

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



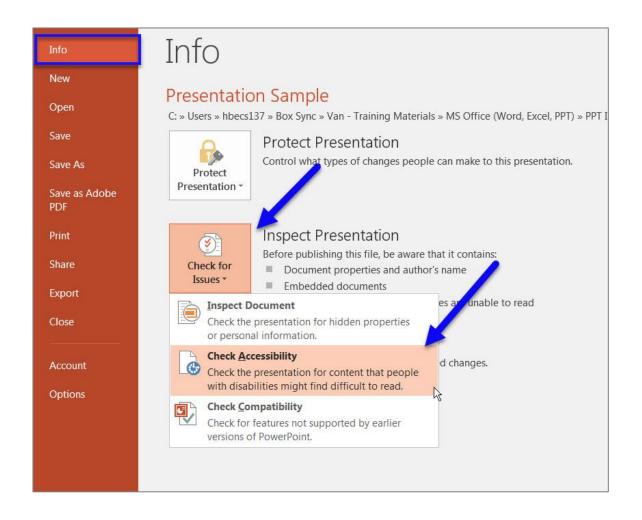
- PowerPoint 365: Select Review tab, select Check Accessibility
- Word 2016: Select File menu, then Check for Issues and select the Check Accessibility from the drop-down menu.

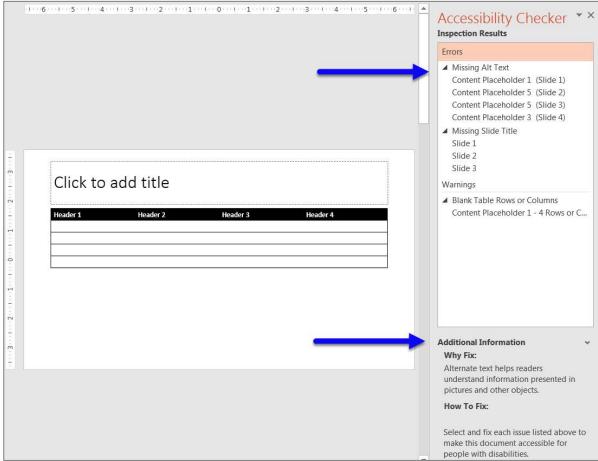
The accessibility checker will identify certain accessibility issues:

- 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

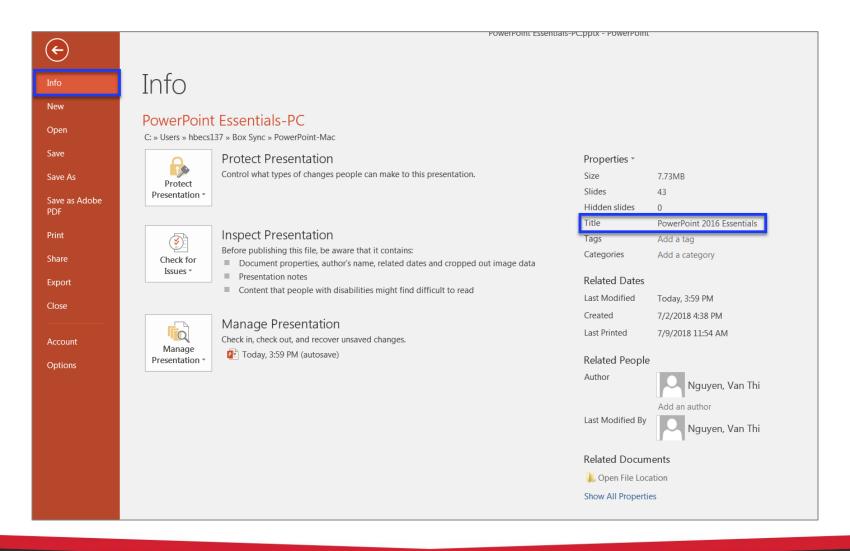
Check for Issues, Check Accessibility

Always use PowerPoint's built-in Accessibility Checker Repair Errors, Warnings and Tips





File - Info - Title

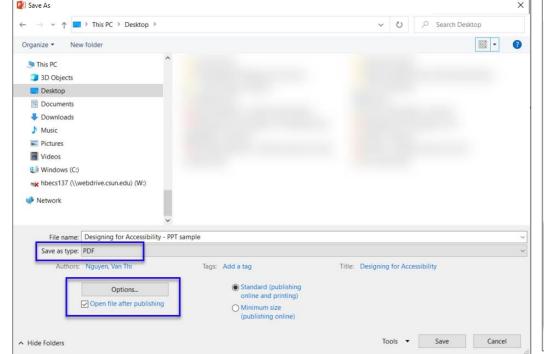


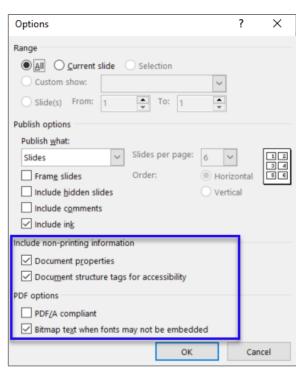
Windows: Converting to PDF

- 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

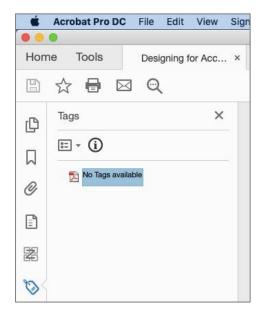


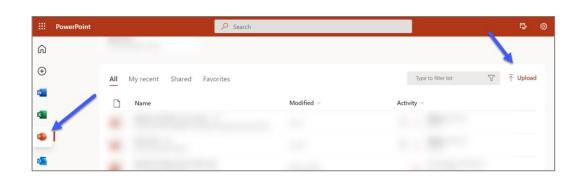




Mac: Converting to PDF

Unfortunately, Mac PowerPoint Desktop application Save as PDF doesn't import PDF tags structure "No Tags available".

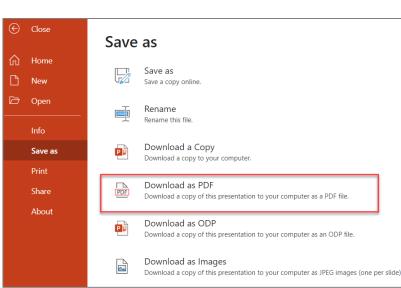




The alternative way to export PDFs with tags is by logging into Microsoft Office 365 online.

- 1. Go to csun.edu/webmail
- 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

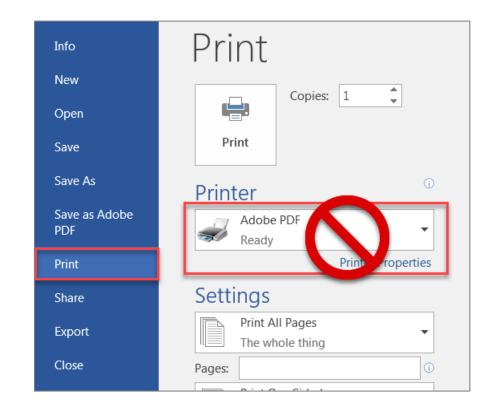
Learn more about PDF Accessibility



Never Choose Print to PDF Option

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 Acrobat DC

- 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 <u>Adobe Creative Cloud for Faculty & Staff</u>
- 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?





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- Online, self-paced training
- Consultations
- Tools and Services



Self-Paced Accessibility Canvas Courses