Accessibility (A11y) & Universal Design
• Understand
  • Principles of universal design
  • Application of universal design to technology and to accessibility
  • CSU Accessible Technology Initiative
  • Accessibility best practices

• Be able to
  • Conduct a four-point accessibility evaluation
"It is the policy of the CSU to make information technology resources and services accessible to all CSU students, faculty, staff and the general public regardless of disability." (E.O. 926)

- Accessible Technology Initiative: www.csun.edu/ati
  - Instructional Materials
  - Procurement
  - Web
- Americans with Disabilities Act (ADA)
- Rehabilitation Act Amendment (Section 508)
  - State of California Government Code Section 11135
Need for Accessibility

- 20% of the U.S. population has at least one disability (U.S. Census Bureau: Disability [2010])
- 11% of college students report a disability (U.S. Department of Education, National Center for Education Statistics. [2016])
- Nearly 1 in 5 people have disability in the U.S. (U.S. Census Bureau Reports [2010])
What is Accessibility and Universal Design?

ACCESSIBILITY
Accessibility ensures everyone can perceive, understand, engage, navigate, and interact with technology regardless of device, software, or product without barriers.

EVERYONE!

UNIVERSAL DESIGN
The design that is simple, useful and accommodates a wide range of individual preferences and abilities.
Accessibility is not about disability; it’s actually about ability. It’s about making it easy for everyone.
Understanding Accessibility...

VISION
Low vision, blind, color blind, etc.
• Screen readers
• Braille display
• High contrast settings
• Magnifiers

HEARING
Deaf, hard of hearing, noisy environment
• Sign language
• Captions/Subtitles
• Transcripts

MOBILITY
Muscular dystrophy, arthritis, injury, etc.
• Keyboard only
• Speech to text

COGNITIVE
Learning disability, dyslexia, ADHD, etc.
• Digital content layout
• Information organization

Universal Design Center

csun.edu/udc
Accessibility
Digital accessibility content may be read by:

- Screen Readers
- Magnification Software
- Speech Recognition
- Other assistive technology
What are screen readers?

A form of Assistive Technology (AT) hardware, software, stand alone devices that increase, maintain or improve the functional capabilities of people with disabilities.
Types of screen readers

**JAWS**
Job Access With Speech

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.

**VoiceOver (Apple)**

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

**TalkBack**

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

**ZoomText**

Screen magnifier for Microsoft Windows that allows you to see and hear everything on the computer.

**Want to learn about Screen Readers?**
UDC and DRES offer Screen Readers training and demo.
Principles for Information and Communication Technology (ICT)

• **Perceivable**: so that individuals with visual impairments can understand the information being conveyed
• **Operable**: navigate to information in multiple methods (not only the mouse)
• **Understandable**: understandable enough so that all different learning styles can engage
• **Robust**: IT products should be compatible with a user’s desired technologies or system preferences
Universal Design Principles

1. **Equitable use.** The design is useful and marketable to people with diverse abilities. For example, a website that is designed to be accessible to everyone, including people who are blind and use screen reader technology, employs this principle.

2. **Flexibility in Use.** The design accommodates a wide range of individual preferences and abilities. An example is a museum that allows visitors to choose to read or listen to the description of the contents of a display case.

3. **Simple and intuitive.** Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Science lab equipment with clear and intuitive control buttons is an example of an application of this principle.

4. **Perceptible information.** The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. An example of this principle is captioned television programming projected in a noisy sports bar.

5. **Tolerance for error.** The design minimizes hazards and the adverse consequences of accidental or unintended actions. An example of a product applying this principle is software applications that provide guidance when the user makes an inappropriate selection.

6. **Low physical effort.** The design can be used efficiently, comfortably, and with a minimum of fatigue. Doors that open automatically for people with a wide variety of physical characteristics demonstrate the application of this principle.

7. **Size and space for approach and use.** Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user’s body size, posture, or mobility. A flexible work area designed for use by employees who are left- or right-handed and have a variety of other physical characteristics and abilities is an example of applying this principle.

*Universal Design: Process, Principles, and Applications (UW)*
Universal Design Example
Mobile Universal Design

• Siri, Genie, etc.
• Dictation
• Predictive text
• Vibrating/flashing alerts
• Safari Reader
• Screen Reader

iOS - VoiceOver

Android - TalkBack
Is Captioning Universal Design?
Multimedia Captioning

• CSUN is committed to ensuring that all content utilized by the campus is accessible to all users. This means that all videos, audio, captured lectures, recorded presentations—instructional media—must have closed captions. (This is a federal law, state law, and CSU policy.)

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

• Visit the Request Services webpage to request media captioning through NCOD: Deaf and Hard of Hearing Services.

[Image: www.csun.edu/captioning]
Universal Design for LEARNING

A research-based set of principles to guide the design of learning environments that are accessible and effective for all.

Expression
providing several ways to demonstrate learning

Representation
presenting the same instruction in multiple ways

give all learners equal opportunities to learn including

Vision
Learning
Mobility
Hearing
Talk

Engagement
extending a variety of opportunities for connection and interaction

Learning Opportunities for All

every LEARNER is unique
POUR
Best Practices

Alternative Text
Images
Shapes

Structure
Headings
Lists, etc.

Navigation/Links
Link requirements

User Interface
Keyboard accessibility

Color
Color contrast
Meaning without color
Organize content with headings, subheadings, images, videos, and footer are important for usability and accessibility.
Screen readers rely on headings structure to navigate a page quickly.

**Microsoft Word**

**Website**

```html
<h1> Main Heading </h1>

<h2> Sub Heading </h2>

<h3> Sub sub heading </h3>

<h2> Sub Heading </h2>

<h3> Sub sub heading </h3>

<h3> Sub sub heading </h3>

**Canvas**

Header 2 -> This is the Title

Header 3 -> This is the sub title

Header 4 -> This is a category

Paragraph -> This is the body of the content
How might this image appear to a person who has a visual challenge?

Normal vision

Low vision

Color blindness

Blind or deaf-blind

Solution?
Alternative or Alt Text

• A written description of images and/or objects that can be read by a blind or low vision using screen reader technology.

• Screen readers and other assistive technologies can’t convert images into words/texts.

• Captions are universal and accessible for everyone.

• “Image of…”, “photo of…” is not needed.

• Be brief and descriptive text within 8 to 80 characters long

Best practices for accessible images.

Tiny turtle eating a ripe strawberry.
Can a screen reader read color contrast?
Meaning without Color

Fill Out the form below to register now

All field in red are required information

Contact Information

First Name:

Last Name:

City:

Submit Query

Can a screen reader read color?
Keyboard Navigation or Touch

• Users should be able to get to content without using a mouse
  • Keyboard
  • Hearing
  • Touch

• Users should be able to access content on different screens (phone, tablet, etc.)
Navigation and links

• Link text should clearly identify the target of each link. Good link text should not be overly general.
  
  • Do not use click here or read more or continue.
  
  • Do not use different link text to refer to the same resource.
  
  • Do not use the same link text to refer to different resources.

• Tab order should read from the upper left to the lower right, and make sense to both sighted and visually impaired users.

• Pages with links to files that require a special reader or plug-in should contain a link to obtain the reader or plug-in.
Microsoft Office Accessibility Checker
Four-point Accessibility Evaluation

**FONT**
Is the font styling easy to read?

**COLOR**
Is the font color easy to read?

**TAB**
Can a user “tab” through the functions?

**ENLARGE**
Can a user make the font bigger? (ctrl +)
You CAN make a big difference

Best education and resources available to EVERYONE

providing ACCESSIBLE

Documents

Website

Make one design that fits everyone

Media with captioning
The POWER of CONNECTION

Accessibility

Universal Design

Barrier-Free
access & student success
Reflection

• Creating accessible digital content can’t happen overnight.
• Accessibility and Universal Design is for everyone.

How can we help you make a big difference.