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Web Accessibility Training

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About Access Ingenuity

- An independent accessibility and consulting firm since 2002, Access Ingenuity's mission is to:
  - Help clients make their documents and websites accessible to people with disabilities
  - Help end-users access accessible content
  - Services include: training, testing, remediation, implementation support and compliance monitoring

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Agenda (1)

- What Accessibility Means & Why?
- Building Accessibility Into the Process
- Requirements - WCAG 2.1 Level A and AA
- Web Accessibility Process

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Agenda (2)

- Designing Websites for Accessibility
  - Semantic Structure
  - Images
  - Color
  - Multimedia
- Testing Websites for Accessibility
  - Testing Overview
  - Automated Tools
  - Manual Testing
- Q & A

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What Accessibility Means

- Accommodating People with with “Physical” Disabilities
  - Vision
  - Hearing
  - Mobility
- Accommodating People with Learning & Cognitive Disabilities
  - Dyslexia
  - Learning Disabilities
  - ADD & ADHD
  - Other
- Accommodating People with Situational Disabilities
  - A temporary state imposed by a person's current environment that results in an accessibility issue.

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Why (1)

- Federal and State Laws
- ADA (State and Local Governments)
- Revised Section 508 of the U.S. Rehabilitation Act
- Web Content Accessibility Guidelines (WCAG 2.0 and 2.1) - developed by the World Wide Web Consortium (W3C)
- California Government Code (AB 434, etc.)

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Why (2) – Screen Reader Example

- Demonstration by Zhi Huang, Screen Reader expert and Assistive Technology Trainer
- Gavilan College Home Page (http://www.gavilan.edu/)
- Events Page (http://www.gavilan.edu/events/)
- Example PDF: Late/Drop Petition

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Building accessibility into the process

- Implement key accessibility guidelines
  - WCAG 2.1 (Reference: https://www.w3.org/TR/WCAG21/)
  - Checklist: https://webaim.org/standards/wcag/checklist
- Implementing accessibility
  - Incorporate Accessibility Early!
  - Ensure all pages are fully tested to meet WCAG 2.1 Level A and AA standards
  - Use checklists/processes before sites and digital content can go live!

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WCAG 2.1 - Overview

- Developed by the World Wide Web Consortium (W3C). www.w3c.org
- Principles - Perceivable, Operable, Understandable, and Robust (POUR).
- Testable Success Criteria - Three levels of conformance are defined: A (lowest), AA, and AAA (highest). (Note: Most Colleges use WCAG 2.1 Level A and AA)

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WCAG Overview

1. **P**erceivable
   - 1.1 Text Alternative
   - 1.2 Time-base media
   - 1.3 Adaptable
   - 1.4 Distinguishable
2. **O**perable
   - 2.1 Keyboard access
   - 2.2 Time
   - 2.3 Seizures and physical reactions
   - 2.4 Navigable
   - 2.5 Input Modalities (New for 2.1)
3. **U**nderstandable
   - 3.1 Readable
   - 3.2 Predictable
   - 3.3 Input Assistance
4. **R**obust
   - 4.1 Compatible

WCAG 2.1: New A / AA Success Factors

Overview

1. Perceivable	1.3.4 Orientation (AA)
	1.3.5 Identify Input Purpose (AA)
	1.4.10 Reflow (AA)
	1.4.11 Non-text Contrast (AA)
	1.4.12 Text Spacing (AA)
	1.4.13 Content on Hover or Focus (AA)
2. Operable	2.1.4 Character Key Shortcuts (A)
	2.5.1 Pointer Gestures (A)
	2.5.2 Pointer Cancellation (A)
	2.5.3 Label in Name (A)
	2.5.4 Motion Actuation (A)
4. Robust	4.1.3 Status Messages (AA)

WCAG Principle 1:
Perceivable

- Information and user interface components must be presented to users in ways they can perceive. This means that users must be able to perceive the information being presented (it can't be hidden from their assistive technology).

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WCAG Principle 2:
Operable

- User interface components and navigation must be operable. This means that users must be able to operate the interface (the interface cannot require interaction that a user cannot perform)

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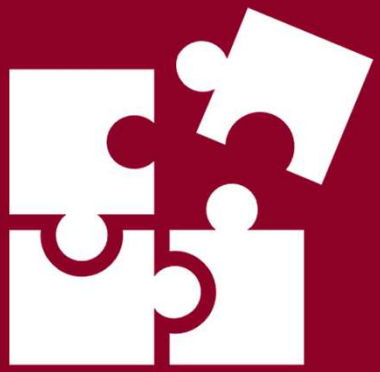
WCAG Principle 3:

Understandable



- Information and the operation of user interface must be understandable. This means that users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding)

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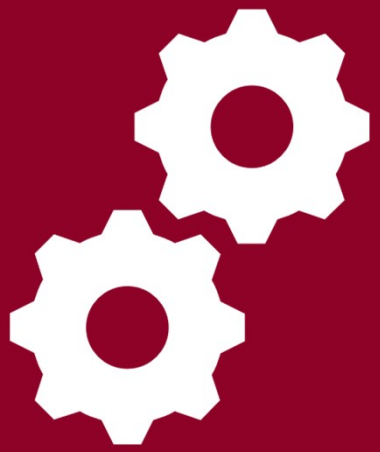
WCAG Principle 4:
Robust



- Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies. This means that users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)

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Web Accessibility Process (1)

- Ensure your team knows the requirements (WCAG 2.1 Level A and AA)!
- Plan for a test, remediate, test cycle as some fixes can break other accessibility properties
- Build up a toolkit of accessible implementations
  - Color standards
  - Standardized Alternate Text for Logos, etc.
  - Techniques to post accessible flyers

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Web Accessibility Process (2)

- Key Risk Factors
  - L.I.S.T. (Links, Images, Structure, Tables)
  - Expandable Content
  - Custom controls, tabs
  - Dialogs and Modals
  - Form elements and error messages
  - Video Accessibility

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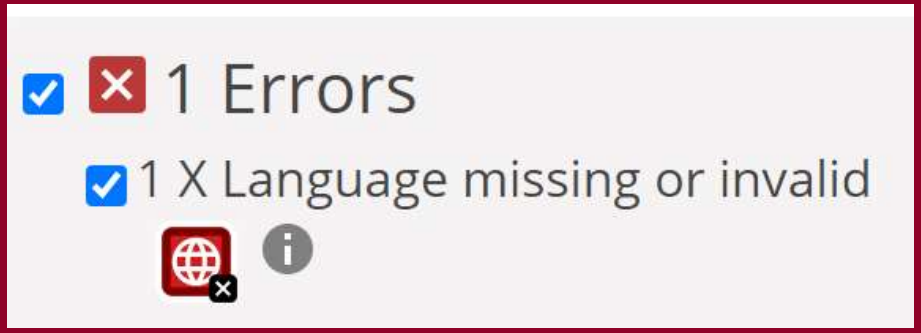
Designing for Accessibility

- Page Title
  - Meaningful Title for Every Page
- Language
  - Primary Language is Defined
  - Language of Parts if needed
  - Example: Gavilan College Home Page



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Designing for Accessibility – Semantics (1)

- Navigation Elements -
  - Skip Navigation
  - Headings (h1, h2, h3, …)
  - Lists
  - Tables

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Designing for Accessibility – Semantics (3)

- Links
  - Link Text Should be Informative (avoid “Read More” links)
  - Links to External Sites, New Windows, Files should be identified
  - Visually Distinguishable from Text (Blue with an Underline!)
  - Visual focus indicator

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Designing for Accessibility – Semantics - Tables

- Tables
  - Tables should be used only for Data!
    - Headers
    - Use Simple vs. Complex Tables if possible (one header row)
    - Resource: https://www.w3.org/WAI/tutorials/tables/
  - Layout tables need role="presentation" (must be manually set in Cascade CMS)

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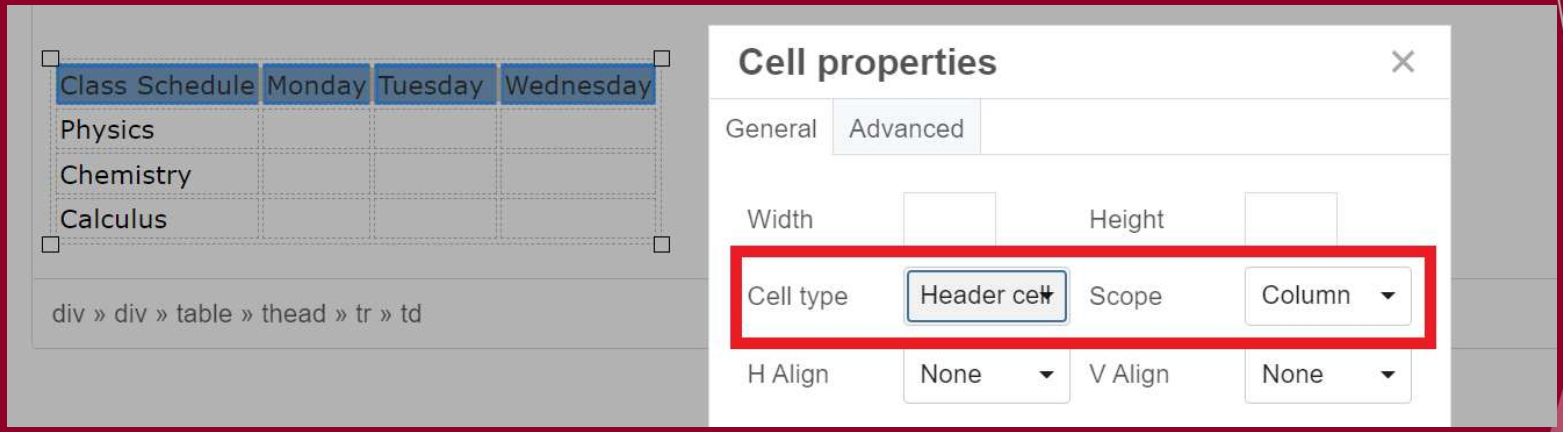
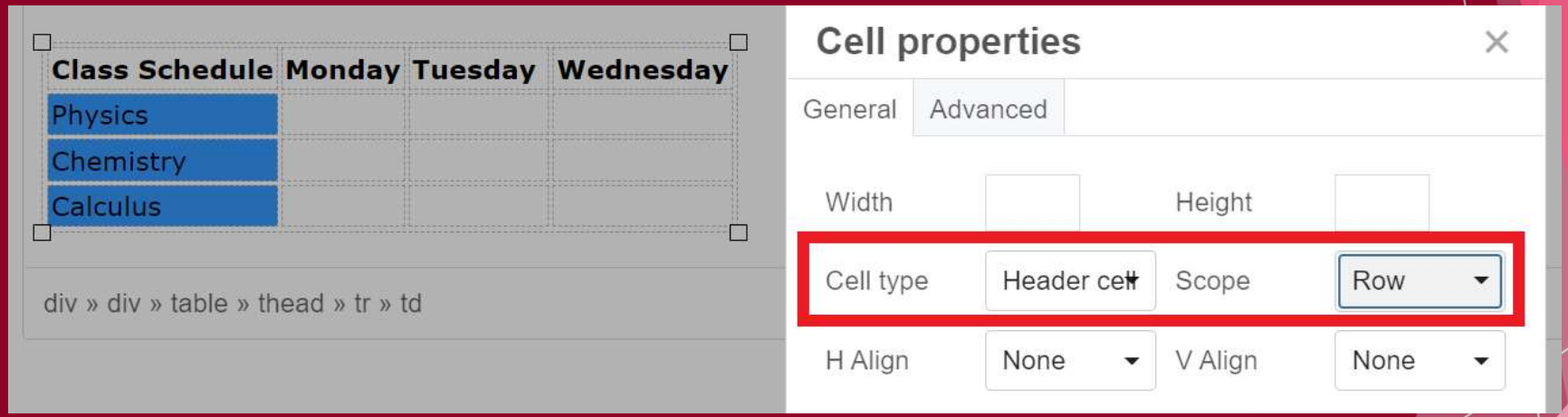
Designing for Accessibility – Semantics – Tables Examples (1)

- Tables
  - Set Cell Properties: Column Headers: Header Cell, Scope Column



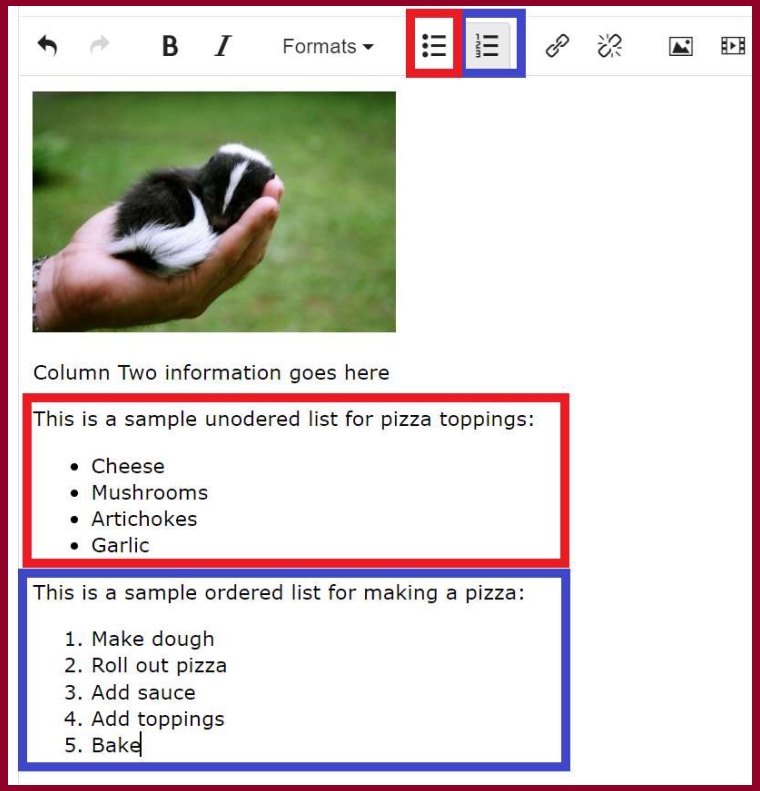
Designing for Accessibility – Semantics – Tables Examples (2)

- Tables
  - Set Cell Properties: Row Headers: Header Cell, Scope Row



Designing for Accessibility – Semantics - Lists

- Lists
  - Ordered list (ol) for number lists and Unordered list (ul) for bullets. Avoid breaking lists.



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Designing for Accessibility – Images (1)

- Image Alternate Text
  - Decorative images can have null alt text (alt="")
  - All meaningful images need descriptive alt text!
    - Informational (full description)
    - Supplemental (brief description)
  - Resources for complex image descriptions:
    - http://diagramcenter.org/table-of-contents-2.html

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Designing for Accessibility – Images (2)

- Example – Uninformative Alternate Text
- Gavilan Home Page
- The El Centro image has the alt text alt="B01EEBFE-3F18-48B8-93AE-000243F0AF1B.gif“ vs. alt=“Apply for Financial Aid”

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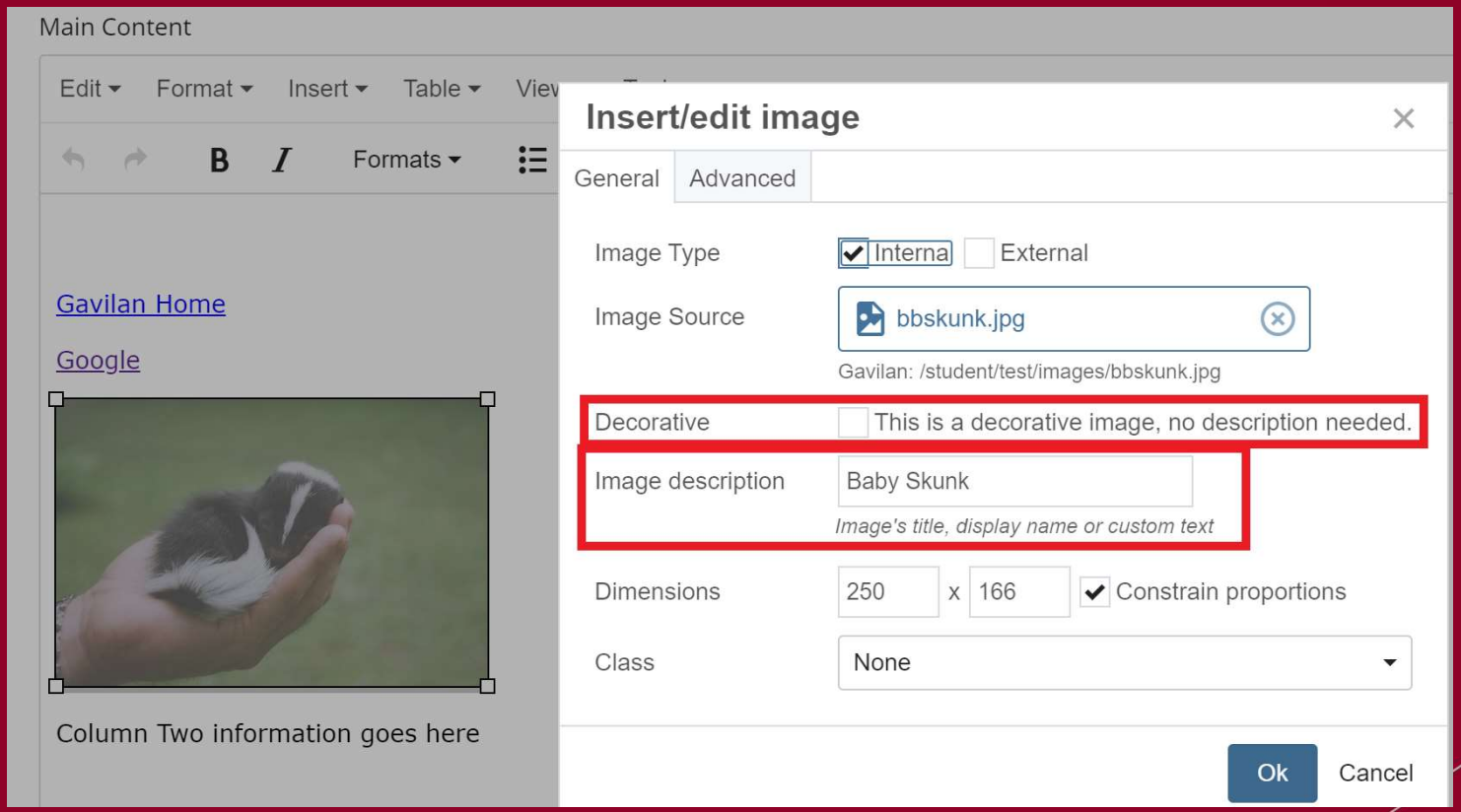
Designing for Accessibility – Images (3)

- Example – Adding Alt Text



Designing for Accessibility – Color (1)

- Use of Color (1.4.1 Level A)
  - Color alone cannot be used to differentiate items
    - Color to Distinguish Links and Controls from Text
    - Color to Distinguish Graphical Components and Legends
- Color Contrast (1.4.3 Level AA)
  - Standard Text: 4.5:1
  - Large Text (3:1) – 14 point bold or 18 point or above
  - Testing for Color Contrast (Colour Contrast Analyser)

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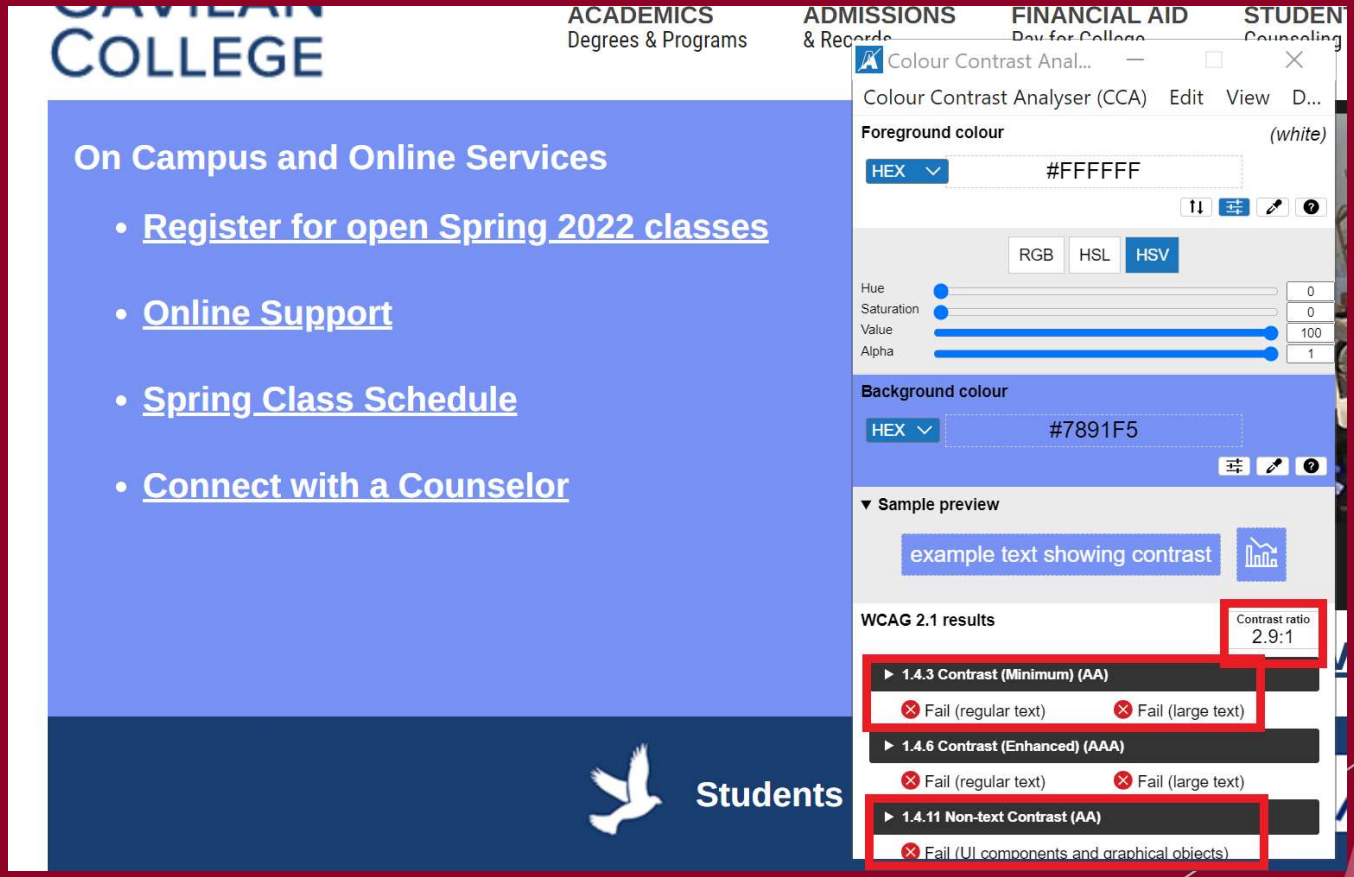
Designing for Accessibility – Color (2)

- Tool: Colour Contrast Analyser https://www.paciellogroup.com/resources/contrastanalyser/



Designing for Accessibility – Color (3)

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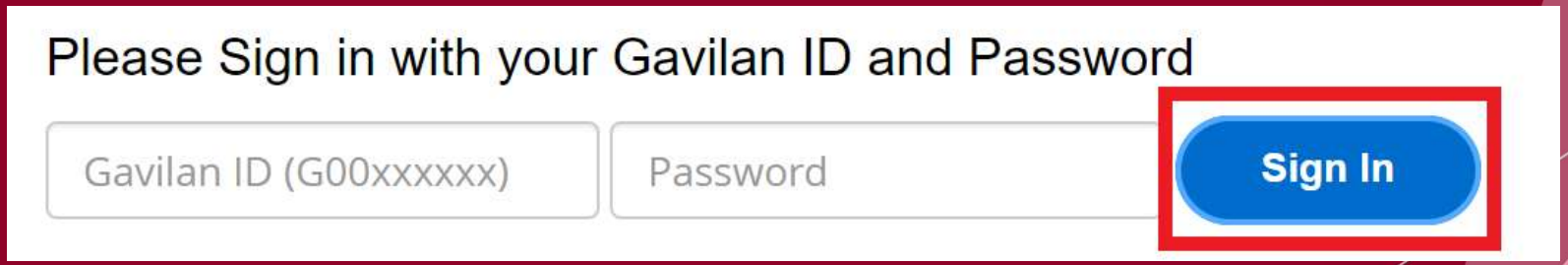
Designing for Accessibility – Color (4)

- Non-Text Color Contrast (1.4.11 Level AA, WCAG 2.1)
  - Contrast ratio of at least 3:1 for differentiating graphical objects (icons, etc.) and author-customized buttons, form controls, and focus indicators/outlines.
  - Also applies to various states (focus, hover, active, etc.)



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Designing for Accessibility – Images of Text

- Images of Text (1.4.5 Level AA)
  - If the same visual presentation can be made using text alone, an image is not used to present that text.

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Designing for Accessibility – Multimedia (1)

- Captions (Prerecorded) (1.2.2 Level A)
  - Synchronized captions are provided for non-live video (YouTube videos, etc.).
- Audio Description or Media Alternative (Prerecorded) (1.2.3 Level A)
  - A descriptive text transcript OR audio description track is provided for non-live video. NOTE: Only required if the video conveys content visually that is not presented via the audio track.

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Designing for Accessibility – Multimedia (2)

- Audio Description (Prerecorded) (1.2.5 Level AA)
  - Audio description track is provided for non-live video. NOTE: Only required if the video conveys content visually that is not presented via the audio track.

Designing for Accessibility – Multimedia (3)

- Non-Text Content (1.1.1 Level A)
  - All Video Controls are labeled for accessibility
- Keyboard (2.1.1 Level A)
  - All Video Controls are keyboard accessible
- Pause, Stop, Hide (2.2.2 Level A)
  - Automatically moving, blinking, or scrolling content (such as carousels, marquees, or animations) that lasts longer than 5 seconds can be paused, stopped, or hidden by the user.

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Designing for Accessibility – Keyboard (1)

- Keyboard
  - Tab Focusability (Interactive Elements)
  - Tab Order is Logical
  - All Interactive Elements have a Visual Focus Indicator
  - All Interactive Elements can be operated with a Keyboard
  - No Keyboard Traps
  - No Unexpected Change of Focus (3.2.1 On Focus/3.2.2 On Input)
  - Keyboard Accessibility Design Patterns – See https://webaim.org/techniques/keyboard/
  - EXAMPLE PAGE: http://www.gavilan.edu/student/index.php

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Designing for Accessibility – Keyboard (2)

- Tutoring & Writing Center (http://www.gavilan.edu/student/learningcommons/index2.php)
  - Tab Controls
  - Expandable Content
  - Skip Links

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Designing for Accessibility – Keyboard (3)

2.4.7 - Focus Visible - Level AA

- Use only your keyboard to navigate the site
- Gavilan College Events Page: http://www.gavilan.edu/events/
  - Hidden Header Elements

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Testing Websites for Accessibility (1)

- Testing should cover the needs of each user group and their assistive technology:
  - Blind (screen readers, braille displays, transcripts)
  - Low vision, (screen magnification, color contrast)
  - Physical disabilities (keyboard access)
  - Deaf or Hard of Hearing (captions)

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Testing Websites for Accessibility (2)

- Automated Testing Tools
  - Note: Automated testing can only address about 35% of the WCAG 2.1 Level A and AA requirements.
  - Gavilan College uses WAVE for single pages (wave.webaim.org) as well as PopeTech for multiple pages (which is powered by WAVE)

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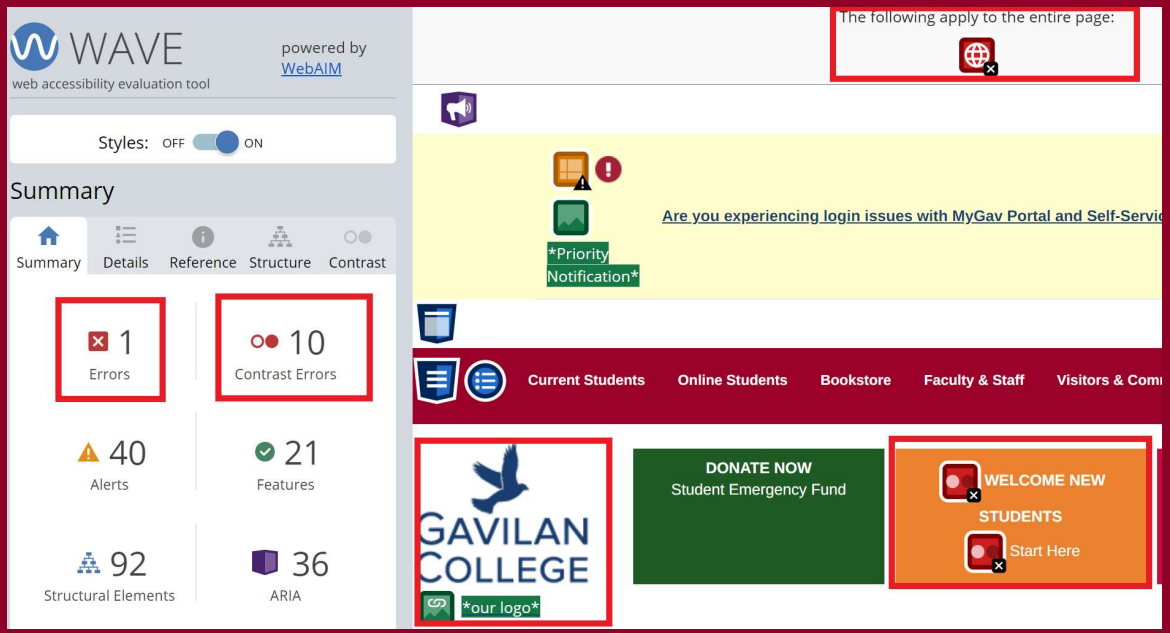
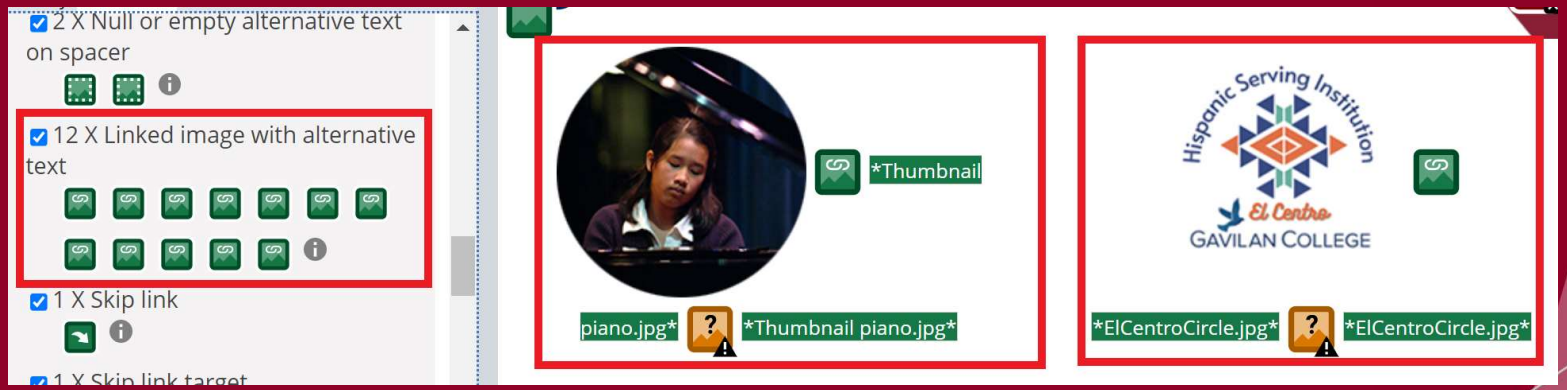
Testing Websites for Accessibility (3)

- WAVE – Web Accessibility Evaluation Tool
  - Chrome plugin to perform accessibility testing.
  - Tests active, hidden and disabled elements



Testing Websites for Accessibility (4)

- WAVE Process
  - Run the tool on your site and look at the findings: Summary, Details, Structure and Color Contrast
  - Address any issues that are flagged as an error or alert.
  - You can also look at the structure and alt text.



Testing Websites for Accessibility (5)

- Manual Testing - Required for the other 65%!
  - Screen Magnification & Color Contrast
    - Check color contrast
      - Tool - Colour Contrast Analyser (https://www.paciellogroup.com/resources/contrastanalyser/)
    - Resize page to 200% - is there any distortion?
    - Look for images of text vs. real-text
    - Text Spacing: https://cdpn.io/stevef/debug/YLMqbo
  - Keyboard Accessibility
    - Use the Tab Key to navigate through the page
    - Ensure controls activate as expected
    - Ensure all controls display a visible focus indicator

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Testing for Accessibility (6)

- Ensure all controls work with standard keyboard commands – see a keyboard testing reference: https://webaim.org/techniques/keyboard/

Interaction	Keystrokes	Notes
Navigate to most elements	• Tab • Shift + Tab - navigate backward	• Keyboard focus indicators must be present. • Navigation order should be logical and intuitive.
Link	Enter	
Button	Enter or Spacebar	Ensure elements with ARIA `role="button"` can be activated with both key commands.
Checkbox	Spacebar - check/uncheck a checkbox	Checkboxes should be used when one or more option can be selected.
Radio buttons	• ↑/↓ or ←/→ - select an option. • Tab - move to the next element.	Radio buttons should be used when only one option from a group can be selected.

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Testing Websites for Accessibility (7)

- Multimedia
  - Captions, Audio Descriptions and Transcripts (if the video is user generated content, the ability to add captions and transcripts must be provided)
- Screen reader testing
  - Windows – JAWS, iOS – VoiceOver

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Document Accessibility Requirements

- All Documents need to meet the same standards (WCAG 2.1 Level AA)
- This applies to …
  - PDFs
  - MS Word
  - MS PowerPoint
  - MS Excel
  - Etc.
- Best Practice: Require Accessibility Attestation Statements before posting any digital content!

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Accessibility Resources

- Canvas Accessibility Self-Paced Course (https://catalog.onlinenetworkofeducators.org/browse/accessibility/courses/canvas)
- PDF Accessibility Self-Paced Course (https://catalog.onlinenetworkofeducators.org/browse/accessibility/courses/pdf-accessibility)
- Video Captioning Self-Paced Course (https://catalog.onlinenetworkofeducators.org/browse/accessibility/courses/video-captioning)
- How Do Student with Screen Readers Navigate your Canvas Course? (https://ccconlineed.instructure.com/courses/3483/pages/how-do-students-with-screen-readers-navigate-your-canvas-course)
- Accessibility Checklist
- Webaim WCAG Checklist

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Congratulations! You survived the training!

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Last call for questions

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