60 MINUTES
30
WEB ACCESSIBILITY TIPS
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http://uw.edu/accesscomputing/tips
1. Add proper alt text to images

• People who can’t see images depend on alternate text versions of image content

• Almost every document authoring tool supports alt text. Right click on the image to access Image Properties or equivalent, then enter a brief description.

• Keep alt text short and sweet.
Adding alt text in Dreamweaver
Adding alt text in HTML

<img src="doit.gif" alt="DO-IT logo">
Adding alt text in Word

AltText

Title:

Description:

Titles and descriptions provide alternative, text-based representations of the information contained in tables, diagrams, images, and other objects. This information is useful for people with vision or cognitive impairments who may not be able to see or understand the object.

A title can be read to a person with a disability and is used to determine whether they wish to hear the description of the content.
Adding alt text in Adobe Acrobat
A Couple of Great Alt Text Resources

• W3C Techniques for providing useful text alternatives
  http://www.w3.org/TR/html-alt-techniques/

• NCAM Effective practices for describing science content
  http://ncam.wgbh.org/experience_learn/educational_media/stemdx
2. Use headings properly

• Headings communicate document structure.
• They help screen reader users, search engines, and more.
• Headings should form an outline of the page (H1 = the main page heading, H2 = secondary headings, etc.)
• Nearly all document authoring tools supporting headings at various levels
Adding headings in CK Editor
Adding headings in HTML

<h1>This is the main heading</h1>
<h2>This is a secondary heading</h2>
<h2>This is another secondary heading</h2>
Adding headings in Word

Access Computing  Minigrant Proposal

Objective(s) and Outcome(s)
How will your activity promote the interest, participation, and/or success of individuals with disabilities in computing careers?

Description
How will your activity achieve these objectives? (If an event, include draft agenda and expected number of participants.)

Budget
Adding headings in Adobe Acrobat
3. Create accessible PDFs

• Not all PDFs are equal:
  – Image PDFs
  – PDFs with text, but no structure
  – Tagged PDF (the only accessible type)

• Can create an accessible PDF from scratch
  – Using a tool that supports tagged PDF (e.g., Word)
  – Save as tagged PDF

• Can fix an inaccessible PDF using Adobe Acrobat Pro
Fixing a PDF in Acrobat Pro

1. Convert to text (if needed)
2. Add tags to document (if needed)
3. Touch up reading order,
   add alt text to images
4. Check/correct headings and other tags
5. Create links from URLs (if needed)
6. Define document language
7. Run an accessibility check
More on PDF Accessibility

- [http://uw.edu/accessibility/pdf.html](http://uw.edu/accessibility/pdf.html).
- Includes workflows for:
  - Making a PDF accessible from scratch
  - Exporting from Word to tagged PDF
  - Repairing an inaccessible PDF using Acrobat Pro
  - Repairing inaccessible PDF forms using Acrobat Pro
  - Creating accessible PDF forms using Acrobat Pro
  - Creating accessible PDF forms using LiveCycle Designer
- Also includes *additional* resources.
4. Know when to use PDF

PDF is great for documents where:

• Appearance is critical. Document must be the same across all platforms.
• Security is critical. Document requires encryption, digital signatures, watermarks, etc.

For many documents, HTML or Word may be a better choice.
5. Use ARIA, especially landmarks

- ARIA = Accessible Rich Internet Applications
- Draft W3C spec
  http://w3.org/TR/wai-aria
- WebAIM slides on ARIA and HTML5
  http://weba.im/ahg2011
- MDN ARIA site
  https://developer.mozilla.org/en/aria
- HTML5 Accessibility
  http://html5accessibility.com
Landmark Roles

Already well supported by screen readers
http://www.html5accessibility.com/tests/landmarks.html

• role=“banner”
• role=“navigation”
• role=“main”
• role=“search”
• role=“form”
• role=“complementary” (e.g., sidebar)
• role=“contentinfo” (e.g., footer)
• role=“application” (use with discretion)
6. Add labels to form fields

Explicitly associate labels/prompts with the fields they represent

First Name: [Input Field]
Adding labels in Dreamweaver

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**Input Tag Accessibility Attributes**

- **ID:** FirstName
- **Label:** First Name:
  - Attach label tag using 'for' attribute
- **Style:**
  - Wrap with label tag
  - No label tag
- **Position:**
  - Before form item
  - After form item
- **Access key:**
- **Tab Index:**

If you don't want to enter this information when inserting objects, [change the Accessibility preferences](#).
Adding labels in HTML

<label for="firstname">First Name:</label>
<input type="text" name="fname" id="firstname">
In PDF, use **tooltips** for labels

First Name:
7. Group related form fields together

When form fields are logically grouped together (especially radio buttons and checkboxes) non-visual users need access to both prompts

Select a major:

○ Computer Science
○ Engineering
○ Economics
○ Physics
○ Psychology
In HTML, use fieldset and legend

```html
<fieldset>
  <legend>Select a major:</legend>
  <input type="radio" name="major" id="maj1">
  <label for="maj1">Computer Science</label>
  <!-- etc. -->
</fieldset>
```
In PDF, use tooltip like `<legend>`

Select a major:
- Computer Science
- Engineering
- Economics
- Physics
- Psychology
And “Radio Button Choice” like `<label>`

Select a major:

- Computer Science
- Engineering
- Economics
- Physics
- Psychology

To create a set of mutually exclusive radio buttons (i.e., where only one can be selected at a time), give the fields the same name but different button choices.
8. Markup tables appropriately

• Include markup that clearly communicates the relationship between table headers and the cells within their scope
### Class Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course Introduction</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Inertia, equilibrium, kinematics</td>
<td>Chapters 2-3</td>
</tr>
<tr>
<td>3</td>
<td>Newton's laws, vectors, momentum, energy</td>
<td>Chapters 4-7</td>
</tr>
<tr>
<td>4</td>
<td>Matter, elasticity, scaling</td>
<td>Chapters 8-10</td>
</tr>
<tr>
<td>5</td>
<td>Wave kinematics, sound, electricity, magnetism, induction</td>
<td>Chapters 11-15</td>
</tr>
<tr>
<td>6</td>
<td>Light, reflection and refraction, emission</td>
<td>Chapters 15-18</td>
</tr>
<tr>
<td>7</td>
<td>Review, final exam</td>
<td></td>
</tr>
</tbody>
</table>
Example Simple Table in HTML

<table>
<thead>
<tr>
<th scope="col">Week</th>
<th scope="col">Topic</th>
<th scope="col">Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<th scope="row">1</th>
<td>Course Introduction</td>
<td>Chapter 1</td>
</tr>
</tbody>
</table>
### AU Enrollment Trends

<table>
<thead>
<tr>
<th></th>
<th>2007-08</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>2008-09</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CS</td>
<td>Eng</td>
<td>Eco</td>
<td>Phy</td>
<td>Psy</td>
<td>Spa</td>
<td>CS</td>
<td>Eng</td>
<td>Eco</td>
<td>Phy</td>
<td>Psy</td>
<td>Spa</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>126</td>
<td>43</td>
<td>32</td>
<td>112</td>
<td>59</td>
<td>82</td>
<td>140</td>
<td>45</td>
<td>34</td>
<td>101</td>
<td>64</td>
</tr>
<tr>
<td>% Male</td>
<td>89</td>
<td>84</td>
<td>73</td>
<td>69</td>
<td>20</td>
<td>47</td>
<td>87</td>
<td>80</td>
<td>69</td>
<td>69</td>
<td>22</td>
<td>48</td>
</tr>
<tr>
<td>% Female</td>
<td>11</td>
<td>16</td>
<td>27</td>
<td>31</td>
<td>80</td>
<td>53</td>
<td>13</td>
<td>20</td>
<td>31</td>
<td>31</td>
<td>78</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Eco</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Female</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Accessible PDF tables in Acrobat

<table>
<thead>
<tr>
<th></th>
<th>2007-08</th>
<th></th>
<th>2008-09</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>TH</td>
<td>TH</td>
<td>TH</td>
<td>TH</td>
</tr>
<tr>
<td>Male</td>
<td>TD</td>
<td>TH</td>
<td>TH</td>
<td>TH</td>
</tr>
<tr>
<td>Female</td>
<td>TH</td>
<td>TH</td>
<td>TH</td>
<td>TH</td>
</tr>
</tbody>
</table>

**Table Cell Properties**

- **Type**
  - Header Cell
  - Data Cell

- **Attributes**
  - Row Span: 1
  - Column Span: 1

- **Add Table Header ID**
  - Header ID: female
  - Associated Header Cell IDs:
    - eco
    - ay0708
9. Identify language of text

• Identify default language of document
  <html lang="en">

• Identify changes in language
  <p lang="fr">Après la pluie le beau temps.</p>
Identifying language in PDF (using Adobe Acrobat Pro)
More on Language

• Experiments with Language and Accessibility
  http://terrillthompson.com/blog/30
10. Use a color contrast checker

• WCAG 2.0 Level AA:
  – Contrast ratio of 4.5:1 for normal text
  – or 3:1 for large text (18 pt or 14 pt bold)

• WCAG 2.0 Level AAA:
  – Contrast ratio of 7:1 for normal text
  – Or 4.5:1 for large text
Example Contrast Checker

http://www.paciellogroup.com/resources/contrast-analyser.html

Events

'Terra Nova': Nov. 9 to 13
REEL Rock Film Tour: 7 p.m. Nov. 15
Financial illiteracy: 5:15 p.m. Nov. 16
Take Back the Night: 7 p.m. Nov. 17
Harry Potter Trivia Night: 6:30 p.m. Nov. 21
11. Avoid using tiny fonts

Paragraph with font-size:8px

Paragraph with font-size:1em

= my default size as defined in my browser preferences
12. Respect white space

- Space between lines
- Space between paragraphs
- Can help users who have difficulty tracking text horizontally.
- Contributes to a cleaner, more aesthetically pleasing interface for everyone.
Sample CSS with white space

p, li, blockquote {
  line-height: 1.5em;
  margin-bottom: 1.5em;
}

Clean and simple is good.
13. Provide visible indication of focus

a {
    color: black;
    background-color: white;
}

a:hover {
    color: white;
    background-color: black;
}
Focus is especially important for keyboard users

a {
    color: black;
    background-color: white;
}

a:hover, a:focus {
    color: white;
    background-color: black;
}
14. Use text, not pictures of text

- Pictures become blurry when enlarged
- Pictures take longer to download
- Pictures are more difficult for you (the website author) to edit.
- You can attain very good visual effects using text and CSS.
15. Think twice about the words you choose

- Word length and sentence complexity have an effect on the ability of certain individuals to decode the words on a page.

- Juicy Studio Readability Test: http://juicystudio.com/services/readability.php

- Struggling with Understandability: http://terrillthompson.com/blog/10
Example choices to make text easier to read

- Understandable → “easier to read”
- Manipulated → Changed
- Subsequently → Later
- “Testimonials from individuals with disabilities...” →
  “People with disabilities talk about...”
16. Caption video

• Captioned video is accessible to people who can’t hear it

• Captions make video full-text searchable (YouTube)

• Captions can be automatically translated to other languages during playback (YouTube)

• Captions can be used to generate an interactive transcript (YouTube)
and suddenly the burst crust cracks open and out pours red hot lava.
Free Tools For Captioning

• MAGpie
  http://ncam.wgbh.org/invent_build/web_multimedia/tools-guidelines/magpie

• Universal Subtitles
  http://universalsubtitles.org

• dotSUB
  http://dotsub.com

• Review of various tools on my blog:
  http://terrillthompson.com/blog/45
A Few Commercial Tools & Services for Captioning

• DocSoft
  http://www.docsoft.com/

• CaptionSync
  http://www.automaticsync.com/captionsync/

• 3PlayMedia
  http://www.3playmedia.com/
17. Describe video

• Describe content that is otherwise only accessible to people who can see it. Examples:
  – Words on the screen
  – Critical actions
  – Other critical details about the setting, etc.

• Script it first. Then record the narration. Then sync it with the video.
Description in MAGPie

- Write script using the caption interface
- Record audio description segments
- Save as Real or Quicktime.
- Output is a SMIL file that synchronizes the wav files with the video
- Play the SMIL file in Real Player or Quicktime
Description using JW Player

- JW Player supports a single MP3 audio description track
- Includes ducking so it automatically lowers the program audio when audio description starts (experimental solution)
Example Described Video in JW Player

Your website's visitors aren't a faceless mass
Example Described Video in JW Player at uw.edu/doit/video

A key to making all this happen is standards and guidelines.
Outsourcing Audio Description

• Many examples of vendors’ work at: http://listeningislearning.org/background_what-is-description.html
Text description in HTML5

<video controls tabindex="0">
  <source src="myvideo.mp4" type="video/mp4">
  <source src="myvideo.ogv" type="video/ogg">
  <track kind="captions" src="mycaptions.vtt">
  <track kind="descriptions" src="mydesc.vtt">
  <!-- fallback content goes here -->
</video>
Text Description Proof of Concept

18. Provide a transcript

- Benefits individuals who are deaf-blind (easier to read than captions with a Braille device)
- Benefits individuals with low Internet bandwidth (who can’t play the media)
- Benefits all users by allowing them to access content quickly
19. Choose media players that support accessibility

• Does this player support closed captions?
• Does it support description?
• Can it be operated without a mouse?
• Are buttons and controls accessible to screen reader users?
A Few Media Players To Check Out

• JW Player
  http://www.longtailvideo.com/players

• Ohio State JW Player Controls
  http://wac.osu.edu/examples/jwpc/

• NCAM ccPlayer
  http://ncam.wgbh.org/invent_build/web_multimedia/tools-guidelines/ccplayer

• See also my blog on HTML5 video and JW Player
  http://terrillthompson.com/blog/40
20. Choose a menu system that works for all users
How a Modern Menu Should Work

Source: Dynamic HTML Style Guide
http://dev.aol.com/dhtml_style_guide

• Tab enters and exits the menu
• Navigate with left/right arrow keys
• Open sub-menu with enter, space bar, or up/down arrows
• Navigate sub-menus with arrow keys
• Exit sub-menu with escape
• And much more!
A Few Menu Systems to Check Out

• YUI3 MenuNav Node Plugin
  http://developer.yahoo.com/yui/3/node-menunav/

• UDM4
  http://udm4.com/

• HTML5 with ARIA: OpenAjax Alliance Menubar Example
  http://oaa-accessibility.org/example/25/
21. Choose JavaScript widgets that support accessibility
Accessibility in Javascript Libraries

• jQuery
  – jQuery Accessibility Google Group
    https://groups.google.com/group/jquery-a11y
  – Accessible jQuery-UI Components
    http://hanshillen.github.com/jqtest/

• Dojo Toolkit (Dijit)

• Yahoo! User Interface (YUI3)
22. Test JavaScript widgets – don’t *assume* they work for everyone

- ARIA is a work in progress
- ARIA is not *fully* supported by AT
- ARIA requires relatively new AT
- Test! Test! Test! (see tips 24-27)
- Ask users with disabilities to help with testing
- Practice progressive enhancement
- If you *must*, practice graceful degradation
23. Chose LMS and CMS that support accessibility

• Learning management systems (e.g., Blackboard, Desire2Learn, Moodle, Sakai) will have a huge impact on students’ educational experience.
• Content management systems (e.g., Drupal, Plone, Joomla, WordPress) will have a huge impact on a institution’s Web.
• Accessible LMS or CMS = Accessible everywhere
• Inaccessible LMS or CMS = Inaccessible everywhere
Questions to ask

• Can it be used effectively without a mouse?
• Is it accessible to AT users?
• Are third party plug-ins accessible?
  – Example: “The Drupal Accessibility Pledge”
  http://groups.drupal.org/node/66383
• Can content authors use the tool to create inaccessible content? (Answer: Yes)
• Does the tool prompt authors to include accessibility, and provide relevant help?
24. Test with a keyboard

- Use the tab key (and other keys where doing so makes sense)
- Don’t touch the mouse!
- Can you access all features?
- Can you operate all controls?
25. Test with high contrast color schemes

Is all important content still visible?
Google Docs Example #1: Default Contrast
Google Docs Example #2: High Contrast in Windows
26. Test pages with screen readers

- JAWS
- Window-Eyes
  http://www.gwmicro.com/Window-Eyes/
- NVDA (Free!)
  http://www.nvda-project.org
- VoiceOver (built in to Mac OS X and iOS)
  http://www.apple.com/accessibility/voiceover/
27. Test pages on mobile devices

• 66.7% of screen reader users now use a screen reader on a mobile device
• Test on various mobile devices with and without a screen reader
• W3C mobileOK Checker http://validator.w3.org/mobile/
• W3C Web Content Accessibility & Mobile Web http://www.w3.org/WAI/mobile/
28. Ask vendors specific questions about accessibility of their products

- Is your product accessible?
- Do you have a Voluntary Product Accessibility Template (VPAT)?
- Can you demonstrate how to operate your product without a mouse?
- What sort of testing have you done with users with disabilities? (probe for details)
- Fact check their answers with other users
29. Demand accessibility!

• Not accessible? Don’t buy it. Don’t use it. Don’t support it.

• If no comparable product is accessible, buy it only with the understanding that the vendor must address its accessibility shortcomings.

• Work to implement policies on your campus that require IT purchases to be accessible.
Hold vendors accountable

- Representations and Warranties. Vendor represents and warrants that [the product] is fully accessible to persons with disabilities in accordance with Title II of the Americans with Disabilities Act [or Title III for private institutions] and Section 504 of the Rehabilitation Act [or delete the “and” and add your state statute after the Rehab Act] and further hereby indemnifies University from all claims, liability and damages for any violation of those statutes traceable to Vendor’s [product].
30. Get involved!

- **EDUCAUSE IT Accessibility Constituent Group**
  - Working to get accessibility on the radar of EDUCAUSE, CIO’s, and other IT Leaders
  - [http://educause.edu/groups/itaccess](http://educause.edu/groups/itaccess)

- **Access Technology Higher Education Network (ATHEN)**
  - Activities include active collaborations with vendors
  - Home page: [http://athenpro.org](http://athenpro.org)
  - Collaboration site: [http://collaborate.athen.org](http://collaborate.athen.org)