

# ISTA 230



Accessibility

## Accessibility

### Accessibility

The goal of making a universally-accessible website is to ensure that every user is able to access and use your website. Accessibility is:

- Implicit in some of the things we've already covered
- One of the most important aspects of web design
- One of the most neglected aspects of web design

## Accessibility

### Why should I care?

Concern for man and his fate must always form the chief interest of all technical endeavors. Never forget this in the midst of your diagrams and equations. Albert Einstein

I often have students ask why I put so much emphasis on accessibility when a number of larger companies don't. My personal philosophy is that technology should improve people's life, not create additional barriers. To that end, I believe that all websites (including yours) should be designed with **ALL** users in mind, including those who might have physical or mental disabilities. By creating universally-accessible websites, you will provide a better user experience for all of your users, regardless of what device they are using to access your website.

Additionally, providing a fully accessible website will improve your site's search engine optimization and can help you avoid potential legal repercussions for not providing equal access to your product.

## Accessibility

### Why don't people care?

Aside from being lazy, there are often other factors that prevent people from creating accessible websites:

- It's a VERY different experience than we're used to
- Limited understanding of how to do it
- False assumption that it's not worth it

The reality is that, while it is a different experience than the designer might be used to, it does not take much effort to improve your sites accessibility. As [Tesco.com](https://www.tesco.com) found in 2000, creating an accessible website can open up opportunities for profit that were previously untapped.

## Accessibility

### Tesco.com

- Second-largest retailer in the world (profits)
- Developed a fully accessible website in 2000
- \$20 million increase in revenue **from that website alone**

# Accessibility

## Some Accessibility Considerations

Accessibility is aimed at making your website accessible to people with disabilities as well as those without. Disabilities that website accessibility aims to address include:

- Visual Impairment
- Color-Blindness
- Blindness
- Hard-of-hearing
- Deafness
- Deaf-Blind
- Epilepsy
- Motor/Mobility Limitations

# Accessibility

## Some Accessibility Considerations

Users can access your website using a number of non-traditional technologies. These include:

- Screen Readers
- Braille Readers
- Magnifiers (both browser-provided and third-party)
- Keyboard-only
- Eye pointers
- Pointing Sticks / Mouth sticks

While each of these provide a unique experience, our goal is to provide users with equal access to information and functionality.

## Accessibility

### Web Content Accessibility Guidelines (WCAG)

The Web Content Accessibility Guidelines are a set of documents that explain how to make the web more accessible to people with disabilities.

- First published by the W3C in 1999 (version 1.0)
- A good start but not complete
- WCAG 2.0 published in 2008

These guidelines provide multiple checkpoints for validation. There are three priority levels (A, AA, and AAA) which correlate to the level of compliance. For example, a website which meets all AA success criteria would be labelled a Level AA website.



## **Accessibility**

### **Web Content Accessibility Guidelines (WCAG)**

Note: WCAG compliance is not per page. Your entire website/application is scanned for compliance and the page with the lowest level of compliance determines the compliance of your site/application.

## Accessibility

### Section 508

In addition to WCAG, there are also other specifications which outline accessibility requirements. While these usually match up with WCAG, they may include additional requirements.

For example, let's look at Section 508 of the Rehabilitation Act, more commonly referred to as Section 508. Section 508 is:

- US Federal Law, passed in 1998
- Extension of the American Workforce Rehabilitation Act of 1973
- Subset of WCAG (Level A and part of Level AA)
- Required for all federal and some state websites

Non-compliance by government agencies can result in stiff penalties (and may cost a designer his or her job).

## **Accessibility**

### **WCAG - Four Principles**

There are four content principles which drive accessibility criteria within WCAG. Content must be:

- Perceivable
- Operable
- Understandable
- Robust

## **Accessibility**

### **Perceivable Content**

perceivable

Users can access the content through a medium available to them.

## Accessibility

### Perceivable Content

To achieve the goal of perceivable content, we should do the following:

- Provide text alternatives for non-text content
- Provide captions/transcripts for audio/video elements
- Provide adaptable content
- This is achieved by using proper semantic HTML.
  
- Use sufficient contrast

It is worth noting that contrast is calculated by using the following formula:

$$(L1 + 0.05) / (L2 + 0.05)$$

where L1 is the [relative luminance](#) of the lighter color and L2 is the relative luminance of the darker color. For Level AA, the ratio should be 4.55 or higher. For AAA, it should be 6.99 or higher.

## Accessibility

### Perceivable Content - Testing

For testing perceivability, use the following:

- HTML Validation
- [Colour Contrast Check](#)
- Accessibility Developer Tools in Google Chrome
- Manual Testing

## **Accessibility**

### **Operable Content**

operable

Users can interact with the web application or content

## Accessibility

### Operable Content

- Make all functionality keyboard accessible (tabindex)
- Don't use content that can cause seizures
- The three flashes or below threshold is the measure to go by here. If a component flashes more than three times in a second, then it's problematic! To be fair, most flashing content is problematic. If you don't have to make it flash, you're better off not doing it!
- Help users find and navigate content



## Accessibility

### Operable Content

- Semantic HTML - Using HTML to provide meaning and structure
- Assistive technology can use the semantics to provide better access. For example, some screen readers allow users to browse by headings.
- "Skip" links
- Good anchor text

## **Accessibility**

### **Understandable Content**

understandable

Able to be understood

## Accessibility

### Understandable Content

- Text is readable
- [JuicyStudio Readability Test](#)
- Abbreviations are marked up correctly
- Content appears and operates in predictable ways
- Help users avoid (and correct) mistakes

## **Accessibility**

### **Robust Content**

robust

The content is widely available, regardless of platform or system

## **Accessibility**

### **Robust Content**

- Maximize compatibility with current and future technologies

## Accessibility

### Robust Content

The easiest way to ensure that your website will work with both current and future technology is to ensure that your HTML and CSS are valid.

- [W3C HTML Validator](#)
- [W3C CSS Validator](#)

There are additional techniques that we'll discuss later in the semester that touch on this as well.

## Accessibility

Compliance isn't everything!



There is a difference between meeting compliance and maximizing the accessibility of a website!

## Accessibility

### Expectations

- For future assignments:
  - XHTML Strict 1.0 Validation ([W3C HTML Validator](#))
  - CSS 2.1 Validation ([W3C CSS validator](#))
  - Accessibility Developer Tools ([Google Chrome Extension](#))