

WEB PAGE DESIGN AND ORGANIZATION CONSIDERATIONS

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Having a web site is a great way in which to provide 24/7 access to information, forms, and documents for colleges/universities, departments, and organizations. Web sites are a great resource for students since instructors can post a variety of information and study aids including contact, schedule, and office hour information, additional explanation for course material, interactive files/pages to help students to explore course concepts further, and problem solutions as well as course documents and assignments.

As you begin the design considerations for your web site, it is helpful to explore the Internet and to visit a variety of web sites both commercial and academic. Take note of features that you like and those that you do not like, considering how information is presented on web pages, the readability of text, background, and color combinations, the use of graphics and hyperlinks, methods of navigation, and page length, among other things. While appearance is important, readability, usability, and accessibility are more important.

When creating a web site, it is important to consider the audience, the use of the site, the information to be posted, the frequency of use and the frequency of update for the web pages, the web browsers that may be used by those visiting the site, and the manner in which information is organized and presented within the web site and on the pages contained within the site.

- **Audience:** It is important *not* to assume that those visiting the site have a great deal of experience in using computers and the World Wide Web in general. For example, while many students have some experience in using computers, these experiences may be limited to playing computer games, sending and reading email, and shopping. Most students have limited experience in setting the Internet preferences for their web browsers, changing the security level for files containing macros, or even for selecting the home page for their web browser. Interest level and experience will determine the extent to which students actually use and benefit from any web pages that you create. Many students have limited or no experience in downloading and printing pages from the WWW. Surprisingly, some do not seem to understand that they use the same process to download a MS Excel or Maple file for class that they do to download a movie or an MP3. Some have limited experience using and detecting the presence of hyperlinks on web pages: some may not know that hyperlinks can be attached to images, and unless there is some text to indicate the presence of the hyperlink, they will not test images by moving the cursor over the

image to watch for the cursor to change from an arrow to a pointed finger. In addition, many may prefer to print pages rather than reading them on the screen. Since for some pages, especially those for which you may want to include a variety of exercises and mathematical notation, you may find it easier to use PDF files. This presents an additional complication since there may be those who do not have Adobe Acrobat Reader; including information about downloading Adobe Acrobat Reader as well as a hyperlink to the download site essentially eliminates this problem.

- **Frequency of Use and Frequency of Update:** When you publish your web site to the World Wide Web, it is important to consider how frequently the site will be accessed as well as the dependability of the server on which you post the web site. If the server that you use is frequently down then you cannot expect visitors to be able to access the materials that you post; students will use this as an excuse for getting extensions on due dates. The availability of the server will also affect your ability to update the web site. For example, I post my web site on two servers, one that is easily accessible from my office computer (I have mapped a drive from my office computer to the server so that I can simply copy and paste files into my server space) and the other to which I can ftp files that I want to post. Since the former is easy to access and to update and the latter is more of a problem since ftp sessions are frequently interrupted or timed out, I use the former as my main web site and, reluctantly, the latter as a back up. Another consideration for frequency of update for a web site is the external hyperlinks that you may use. Since you have no control over hyperlinks to external web sites, you should frequently check these web sites for changes and to see if these web sites still exist on the WWW. The author for the web page may eliminate the page to which you have created a hyperlink or (s)he may reorganize the web site so that accessing the page requires a different URL. In addition to frequently checking external hyperlinks, you should consider contacting the author of the web page to let him/her know that you have posted a hyperlink to his/her page: the author will appreciate the hearing that someone is benefiting from his/her work and (s)he may contact you in the event that (s)he changes the web page or reorganizes the web site.

Frequently, web page designers do not fully consider the affects of page titles, font types and colors, background colors and patterns, and images and sound as well as specialized web page features and the web browser being used to display the page or the readability and accessibility of information displayed on the page.

- **Page Titles:** Page titles are displayed at the top of the web browser window and are partially displayed in the Windows taskbar displayed at the bottom of the screen. Page titles identify the web page to the user. In addition, Netscape uses the page title as the name for bookmarks that you create; Microsoft Internet Explorer uses the page title as the initial name for favorites that you set although you have the option to change the name when you create a favorite.
- **Font Type:** While specialized fonts like Bauhaus 93, Beesknees ITC, Blackadder JTC, Brushscript MT, and Commercial Script BT may look interesting and seem “fun”, they are difficult to read. Imagine having to read such text on the screen and you will probably reconsider using such fonts; asking your friends and students about

the readability of these fonts may completely change your mind about ever using these fonts since the number of people who will be willing to read your web pages will be limited. In addition, you cannot guarantee that the specialized fonts that you may choose to use will be available on the computers on which your web pages will be displayed. The most readable and most commonly available fonts are Times New Roman and Arial. In general, Arial is a larger font than Times New Roman, and when you compare these fonts using boldface type, for example, you will notice that letters in Arial have equal thickness in comparison to Times New Roman. If you choose not to specify the font for the page or for a section of a page then web browser's default font set by the user will be displayed in the browser window; for Netscape, the default font is set using the Preference dialog box accessed using the Preference entry on the Edit menu, and for MS Internet Explorer, the default font can be set using the Fonts... button on the General tab of the Internet Options dialog box that is accessed using the Internet Options entry on the Tools menu.

- **Font size:** While the text size can be adjusted using the View menu for both Netscape and MS Internet Explorer, it is helpful to those visiting your web pages if you set an appropriate font size. In general, the best font sizes are 10 point, 12 point, and 14 point. For some, 10 point type can be too small and 14 point type can be too large. An additional consideration is the font that you are using. Since Arial is larger than Times New Roman, 10 point Arial may be sufficient for your needs while 12 point Arial may be too large. Similarly, 10 point Times New Roman, by comparison, may be too small overall while 12 point Times New Roman may be more appropriate. For most, 14 point Times New Roman and 14 point Arial may be too large for your needs. One may say that erring on the side of larger text is not a problem but it can be irritating to the reader and it does make pages require more paper for those who chose to print web pages rather than read them on the screen. Whether you use Arial or Times New Roman, be careful of using font sizes smaller than 10 point and larger than 14 point: 8 point Arial or 10 point Times New Roman type can be useful for page locations given at the top of pages or navigation bars at the top, bottom, or side of pages, and fonts larger than 14 point can be irritating to read on the screen or on paper.
- **Background:** Using background files, textures, patterns, and colors is a great way in which to make artistic and appealing web pages. However, some background files and patterns as well as the background and font type and color combination may make text difficult to read on the page. If you choose a dark background with light text, for example, a black background with yellow text, or a light background with dark text, for example, a yellow background with blue text, these may be difficult or harsh to view on the screen especially when the user's eyes are tired. In addition, for black and white or grayscale printing, the yellow text for the black background with yellow text combination may be virtually impossible to read; for color printing, this combination will produce difficult to read yellow text since the background is not printed. In addition, you should consider the visually impaired and those who experience color deficiencies. Lighthouse International, <http://www.lighthouse.org>, leading resource worldwide on vision impairment and vision rehabilitation, provides information about effective use of color and color contrast on its page titled

“Effective Color Contrast: Designing for People with Partial Sight and Color Deficiencies”, http://www.lighthouse.org/color_contrast.htm. Using bright colors may seem cheery but, in the long run, they will only irritate the eyes of those who view the page for an extended period of time. In addition, if you pick font colors and background colors with similar brightness and saturation then you can create a page that is virtually invisible to some color-blind users, for example red on green or green on purple – they may only be able to view these colors as a gray block. Check out the example color combinations given on the *Building Really Annoying Web Sites* page titled “Make Text and Background Colors Clash” at <http://www.molehillgroup.com/annoying/trick023.htm> for effective illustrations of difficult if not impossible to read text and background color combinations.

- **Page Length:** While not always avoidable, long web pages can make it difficult for users to access information. While creating one long web page on which you can post all information can be easier to maintain and to update, multiple web pages on which related information is grouped is more helpful and less frustrating for users. Pages on which related information is grouped allows users to quickly access information. If you must use long web pages then use bookmarks/anchors to allow users to navigate to desired information quickly.
- **Images and Sound:** Using images and sound files may seem like a nice way in which to dress up a web page but the presence of images and sound files increase the download time for pages to display in web browsers. Sound files that play automatically when the page is displayed in the browser window can be annoying to users and may seem immature rather than professional to those visiting the page. If you must include a sound file, consider giving the user the option *to turn on* the sound rather than having to turn off or mute the speakers every time (s)he visits your web site. Those using text-only web browsers, screen readers, or those who have selected not to display images, will have no information about the purpose, decorative or hyperlink, of images on your web pages unless you include alternate text; one can select not to display images using the Advanced tab in the Internet Options dialog box that can be accessed using the Internet Options entry on the Tool menu of MS Internet Explorer or using Internet Options on the Control Panel. Alternate text, displayed when the user moves the cursor over an image or when the image cannot be displayed, can be used to inform users of the presence of hyperlinks and to describe the image to those who cannot see the image. When alternate text is not available, no text explanation is given, and the image cannot be seen, there is no way for the user to determine the importance of the missing image; it is unrealistic and unfair to assume that the user will left-click (or the equivalent) on all images that you include on your web pages in order to determine if there are hyperlinks attached to these images. In addition, those visiting your pages may be unfamiliar with the use of hyperlinks on images unless you provide information how to access these hyperlinks; both text directions as well as alternate text makes the hyperlink accessible to all users.
- **Special Features:** If you choose to add special features like hover buttons or a scrolling marquee to your web pages, it is important to know how these will work, if at all, in various web browsers. For example, hover buttons are “activated” when the user moves the cursor over the button, and hover buttons provide no information

about the presence of hyperlinks for inexperienced users. In addition, the color combinations that you choose and the flash activity that you select for the rollover effect may not be perceptible for all users: the color combination may cause the button to be virtually invisible to those who are color-blind or the color change may be imperceptible to those with vision impairments. If you choose to use hover buttons, it is important to provide information about their presence and their use as well as to choose appropriate color combinations. The basic scrolling marquee only works with MS Internet Explorer; the text for the scrolling marquee will be displayed on the page using your chosen formatting when the page is displayed using Netscape. You can write JavaScript code that will display a scrolling marquee in the Netscape browser window.

There are many points to consider in designing web pages that are truly accessible to all users. First, you may find it helpful to visit the World Wide Web Consortium web site, <http://www.w3c.org>, and to read about the Web Accessibility Initiative (WAI), <http://www.w3.org/WAI/>, to read about alternate web browsers, <http://www.w3.org/WAI/References/Browsing>, and to consider how web pages that you are creating, pages that you have created, or web pages that you frequently use are viewed in a text-only format using the Lynx Viewer that can be accessed at <http://www.delorie.com/web/lynxview.html>. In addition, you will find it helpful to read the Web Content Accessibility Guidelines, <http://www.w3.org/TR/WAI-WEBCONTENT/wai-pageauth.html>, and the List of Checkpoints for Web Content Accessibility Guidelines, <http://www.w3.org/TR/WAI-WEBCONTENT/checkpoint-list.html>. In these documents, you will find helpful information about web page design features that may make accessing and using web pages difficult for those who use alternate web browsers, information that will help you to effectively use tables to organize information on web pages, and guidance on using images and effective navigation. In general, these resources will give you a great deal to consider in regard to web page design, the problems than many experience in using documents posted on the web, and guidance on how to increase the accessibility and usefulness of pages that you design.

You have many options regarding software that you can use to design web pages, MS FrontPage and Macromedia Dreamweaver if you want to be able to edit the HTML code as well as use the program features, text editing software with which you may be familiar such as MS Word and Corel WordPerfect, or you could learn basic HTML. Whatever you choose to use, carefully consider the features that you include on your web pages. Before you begin designing your web page, try creating a page that contains a variety of font sizes and font types using the background colors or files as well as the font colors that you may have chosen. This will help you to test the readability of the your font, color, and background selection before you invest time creating the actual web pages; ask friends and students for feedback on the readability of the test page(s). Overall, remember to consider the audience for your web site and how the features that you include can enhance and limit the accessibility of the web pages that you create. Have fun and be creative but most important of all, think of those who will use your web site.