Developing Courses: Web Publishing

Instructor

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Overview and Agenda

Workshop Overview

Would you like to take advantage of the world wide web's interactive and enticing nature in your courses? Imagine this scenario:

It's the first day of class. You have your syllabus prepared, printed, and copied. Just as you're about to hand it to your students, you glance down and realize that your office hours are incorrect... or the course reader has been omitted from the list of books... or the first topic of discussion has a typo. Has this ever happened to you? Now imagine having one master copy of your syllabus. Whenever you changed it, your students' copies would change too. Sounds like a dream? When you post your course materials on the world wide web, a master copy like this is easy to maintain and update.

Chances are your students already surf the web -- all you need to do is put your course web pages up and make them efficient and attractive. Your students will be able to visit your course pages anytime, to find out the next reading assignment, view the current week's set of course-related images, or even ask you and/or fellow students for help on a sticky topic. Perhaps you'd like to use the web to help your students get in touch with you or keep up with changing course assignments and deadlines. This workshop will help you get started.

Workshop Objectives

After completing this workshop, you will be able to:
1. Create a web page from your course materials using HTML and/or Claris Home Page;
2. Convert your own course materials to web pages;
3. Locate existing resources on the web, including graphics and links;
4. Distinguish between graphic file formats and determine which are appropriate; and
5. Include appropriate graphics and links in your own pages.

Please see the following web page for links related to the workshop:

http://www.sonoma.edu/people/smithr/uwt.html

Workshop Agenda

9:00-9:30	Introduction & Examples
9:15-10:30	Create a Web Page Using HTML
10:30-10:45	BREAK
10:45-12:00	Create a Web Page Using Claris Home Page
12-1	LUNCH
1-2:30	Convert Course Materials to Web Pages
2:30-2:45	BREAK
2:45-3:30	Graphics Overview; Select & Add Graphics
3:30-4:00	Catch-up & Wrap-up

Speaking of the Internet...

Web browser? Web page? Web site? What do all these terms mean? This guide will help you understand the terminology and recognize the differences between the various applications (software programs) that you may use to interact with the World Wide Web and the Internet.

An Extremely Brief, Non-Technical History of the Internet

Origins

The internet began in the late 1960's as a project by the Defense Advanced Research Project Agency (DARPA). It was originally known as ARPNet. DARPA's goal was to develop a highly decentralized network of computers which could survive a nuclear war precisely because it was so decentralized. The resulting network was first used for sharing information between research labs and researchers at educational institutions. Eventually more and more students began to use the network; soon companies joined in as well, complete with advertising, and the internet was born.

Popular Uses

One of the earliest uses of the internet was for electronic mail. Researchers sent queries, papers, and suggestions back and forth. Soon listservers became popular: instead of sending email individually to fifty of your colleagues, you could send one message to a server, and the server would duplicate the message and send it to everyone on the list. Long before the World Wide Web and search engines, the net was used for Archie searches and FTPing (finding and downloading files and programs). Another early use was Usenet (newsgroups), which were developed in part to deal with the problematic volume of email generated by listservers. The original hypertext transfer protocol (http) was developed at CERN, the European particle accelerator, as a way to share research papers, and the first "web pages" were created. The Web is between three and four years old.

The World Wide Web

The Web, which is only part of the internet, houses many kinds of pages: personal home pages, commercial pages, advertising pages, government agency pages, country information pages. If you're looking for information on just about anything, chances are you can find it on the Web. The implications for research are clear.

Definitions

Definitions of commonly used internet-related terminology appear below. The definitions are not in alphabetical order, but in conceptual order.

World Wide Web (WWW, the web) Technically speaking, it is a global hypertext system that uses the Internet as its transport mechanism. In a hypertext system, you navigate by clicking hyperlinks, which display another document which also contains hyperlinks. What makes the web a useful medium is that the next document you see could be housed on a computer next door or half-way around the world. The web makes the Internet easy to use. Created in 1989 at a research institute in Switzerland, the web relies upon the hypertext transport protocol (HTTP), an Internet standard that

specifies how an application can locate and acquire resources stored on another computer on the Internet. Most web documents are created using hypertext markup language (html), a coding system for WWW documents.

Webpage (web page) A hypertext document which may contain text, images, sounds, or other multimedia, and which is sent to the web browser by a web server.

Website (web site) A related collection of webpages that reside on a server machine that remains constantly connected to the internet.

Browser (Web Browser) "Browser" is the generic term for any piece of software that lets you view Web pages. You may use the Netscape Navigator browser, or perhaps you use Microsoft's Internet Explorer. The very first Web browsers, such as Lynx, only allowed users to see the text of Web pages. The Mosaic browser was the first to allow viewing of graphics.

Client/Server Setup The client/server setup is analogous to a restaurant with waiters and customers, in which customers are the clients, and waiters are the servers.

> **Client** The user end of a client/server setup. When you log on to a server, the word *client* may refer to you, to your computer, or to the software running on your computer. For example, to download something from an web site, you use web client software (a web browser)

> **Server** The host end of a client/server setup. A server is usually a computer that provides information in the form of files, Web pages, and other services to the client that logs on to it. The word *server* is also used to describe the software and operating system designed to run on server hardware.

FTP (File Transfer Protocol) This Internet protocol is used to copy files between computers--usually a client and an archive site. It's old-fashioned, it's a bit on the slow side, it doesn't support compression, and it uses cryptic Unix command parameters. But the good news is that you can download shareware or freeware apps that shield you from the complexities of Unix, and you can connect to FTP sites using a Web browser or special FTP software (such as Fetch for the Mac).

Anonymous FTP Anonymous FTP uses the FTP protocol to allow many users access to a set of files. Users can log in to an anonymous FTP site using the login name "anonymous." With regular FTP, the user needs a system name and password to access the site. Anonymous FTP sites usually contain public domain software or data, free for the taking.

Internet Address   An address is the unique identifier you need to either a) access the services of an Internet site or b) send e-mail. Another word for Internet site addresses is URL, which stands for Uniform Resource Locator. Chances are you're already familiar with e-mail addresses. They're in the form of username@server.com and provide a unique identifier for your in-box so your mail can find you.

Types of Internet-Related Software

Web Browsers

A web browser (sometimes called a "user agent" or "web client") works by using a special protocol called HTTP to request a specially encoded text document from a web server. The text document contains special instructions (written in HTML) that tell the browser how to display the document on the user's screen. The instructions may include references (hyper-links) to other web pages, text color and position, locations for various images contained in the document and where to position them.

Popular Web Browsers

Netscape Navigator and Microsoft Internet Explorer are the two most prevalent web browsers for the Mac, PC, and other computer platforms. Netscape Navigator and Microsoft Internet Explorer are currently battling in a features and market share war. As a result of competition both products are currently free of charge. Both products feature HTML 3.2, Java, JavaScript, various extensions that may or may not work with other browsers, and a suite of additional applications for conferencing, reading newsgroups, receiving and sending email and so on. At this time, there are no other browsers for the Mac/PC that have quite as many features as these two market leaders.

Email Software

Electronic mail, or e-mail, was one of the original uses of the Internet, and is still probably its most popular. E-mail was probably the first thing you set up when you went online. Along with text, one may also send files along with an e-mail, to send graphics or word processor documents just like sending text based e-mail. With popular e-mail software (e-mail clients), this is as simple as choosing "attach file" and navigating your hard drive to find the file to send.

Popular Email Clients

A number of e-mail programs are available as freeware or shareware over the Web. Eudora Light is one of the best, and is available for both Macintosh and Windows. Netscape comes with a limited email client and Internet Explorer comes with Outlook Express, both of which have built-in e-mail capabilities, but specialized email programs such as Eudora can do things the Web browser email packages cannot, such as advanced filtering and sorting of incoming messages, as well as saving e-mail to different folders based on its sender or subject.

Creating a Web Page with HTML

This guide includes step-by-step instructions for making a basic web page that includes a course description, links to other pages, an email link to your email address, and a bullet list, among other things.

Vocabulary

Anchor: A reference in an HTML document to another HTML document.

Browser: A software application which can "look at" web pages and display them on your screen.

Client: The local machine, your computer or the one you're using. Web pages on a client are available only to the user of that client.

Data transfer rate: The speed at which a page loads, for example.

Download: To retrieve files from a server.

Editor: A software application used for writing or editing HTML documents.

GIF: A file format which is good for simpler, drawn images.

HyperText Markup Language (HTML): This "language" is really a system of codes, called tags, that explains to a browser how you would like your document formatted.

Hypertext: A traditional document tells you, "see page 18," or "refer to Blotz's paper on..." A hypertext document, by contrast, gives you a link that you can click on or otherwise activate with a minimum of action, and voila! -- you're on page 18 or looking at Blotz's paper.

JPEG: A file format which is good for photographic images.

Link: Clickable or selectable text in a web page that leads to another web page.

Server: The remote machine, which you must connect to in some way. Web pages on a server are available to anyone with access to the server.

Tags: The codes used in HTML.

Uniform Resource Locator (URL): The "address" of a web page.

Upload: To put files onto a server.

Web site: A file or set of files available on the World Wide Web, usually a group of related web pages.

World Wide Web: The "web" is made up of a collection of documents (web pages) which are viewable by browsers. The web is only a part of the Internet.

Resources/Materials

Equipment/Applications
A simple text editor (or a special HTML editor)
Netscape or other Browser
Connection to a web server via AppleShare, Fetch, FTP, Telnet, etc. (optional)
Prepared Graphics

Copyright Restrictions

Be aware of information about copyrights! In general, copyrighted material may be used if:

- It is being used in an academic class, and nowhere else;
- Only parts of a work, and not the whole work, are used (for instance, only one picture from a book);
- The source is always cited, even if the work is only used in a presentation;
- The item is used spontaneously (as in a class assignment) and not continuously (as in courseware: request permission for this).

Remember that simply modifying a work does not protect you from infringing on copyright!

Creating a Web Page

One way to write a web page is to create a document in HyperText Markup Language (HTML). You'll write a regular text file, add special formatting tags (that's the HTML), and save your new file. Then a browser can read your document and interpret it. Your page will be displayed using the default settings and preferences for that copy of the browser.

It's true that HTML tags will specify the placement and formatting of items on the page to the browser. However, you have limited control over how your document will look, for a number of reasons. First, different browsers interpret HTML in slightly different ways. There are some browsers, like Netscape, which are very "robust" -- they can accept a large range of HTML tags. Other browsers are less flexible and only accept and interpret a subset of the tags available to you. Another factor that influences how your pages will look is the set of rules that a browser must follow for placing text and images on a page.

The Tags in HTML

Almost every set of tags in HTML has an "open" and a "close" tag. There are a few exceptions, but for the most part, tags are opened before the item to be formatted, and closed after it. Tags are enclosed in pointed brackets, < and >. To open a tag, simply type the name of the tag in the brackets, <HTML>. To close a tag, use a slash inside the bracket before the name of the tag, </HTML>.

Creating Your First Document

We'll progress step-by-step to create a document from scratch. First we'll write the document as text, and then we'll use HTML tags to apply the proper formatting. You should use the simplest text editor you have. If you use something like Microsoft Word or WordPerfect, you must be sure to save your document as Text Only or web browsers will not be able to read it.

1. Write some text for your page.

• Launch your text editor. HTML editing can be done in any word processor, the simpler the better. If you are using Microsoft Word or WordPerfect, there will be formatting codes in the document which are invisible to you, but which will confuse the browser. If you must use a high-end word processor, save as Text Only when you save your document.

• Type some text for your page. For example, type a short course description including a course title, your name, a description of the course, and a list of required readings. Feel free to be inventive.

Shepherding 101: Intro to Shepherding

Instructor: Lassie
Email: lassie@comehome.com
Shepherding University of the South

This course will cover the basic skills every sheepdog should have, including Turning, Starting and Stopping the herd. As a bonus we'll talk about how to alert the parents of small children in your charge when the children have fallen down wells.

Required Readings:
Talking to Modern Sheep (1963, Lassie)
When Humans go Berserk (1972, Bonnie Belle)
101 Barks, Howls and Growls (1988, Old Yeller)

• Save your file in a folder on the computer's hard drive, or better yet, on your own floppy disk. Name the folder with your name, and name the file index.html. If you are in a public lab, the computer may not allow you to save the file on the hard disk.

2. View your page in Netscape.

• Launch Netscape. Select Open File... from the File Menu. Find index.html in the dialog box and click Open.

• Your file will appear in Netscape, but it will not be formatted.

3. Make your course title into a header.

• Insert the tags for a level one header around the text of your course title as shown:

<H1> Shepherding 101: Intro to Shepherding</H1>

• There are six preset headers that you may use. Level one is the largest, and level six is the smallest. You may substitute any number from 2-6 in place of the 1 if you wish.

• Save the file index.html. In Netscape, click on the "Reload" button to see the change you have made.

4. Make some text in your paragraph bold.

• Insert the tags for the strong attribute around some of the text as shown:

<B> Instructor: Lassie</B>

• Save the file. In Netscape, click on the "Reload" button to see the change you have made.

5. Correct the line spacing of the file.

• Add tags for double spacing and for forcing a new line where appropriate. Use the Paragraph tag <P> for double spacing, and the Line Break tag <BR> for single spacing. These tags have no "close tag" counterparts.

<H1>Shepherding 101: Intro to Shepherding</H1>

<STRONG>Instructor: Lassie</STRONG>
Email: lassie@comehome.com
Shepherding University of the South
<P>

This course will cover the basic skills every sheepdog should have, including Turning, Starting and Stopping the herd. As a bonus we'll talk about how to alert the parents of small children in your charge when the children have fallen down wells.
<P>
Required Readings:
Talking to Modern Sheep (1963, Lassie)
When Humans go Berserk (1972, Bonnie Belle)
101 Barks, Howls and Growls (1988, Old Yeller)

• Save the file. In Netscape, click on the "Reload" button to see the change you have made.

6. Create a bullet list in your document.

• Create the list itself by inserting the list tags, <UL> and </UL> around the text that will be your list.

• Define each bullet with the List Item tag, <LI>. This tag has no "close tag" counterpart.

Required Readings:
<UL>
<LI> Talking to Modern Sheep (1963, Lassie)
<LI> When Humans go Berserk (1972, Bonnie Belle)
<LI> 101 Barks, Howls and Growls (1988, Old Yeller)
</UL>

• Save the file. In Netscape, click on the "Reload" button to see the change you have made.

• To create a numbered list, simply replace <UL> and </UL> with <OL> and </OL> (for ordered list). Make sure to change them both!

7. Add a Horizontal Rule to separate parts of your page.

• Insert the Horizontal Rule line tag <HR> to set off the bulleted list. This tag has no "close tag" counterpart.

<H1>Shepherding 101: Intro to Shepherding</H1>

<STRONG>Instructor: Lassie</STRONG>
Email: lassie@comehome.com
Shepherding University of the South
<P>
This course will cover the basic skills every sheepdog should have, including Turning, Starting and Stopping the herd. As a bonus we'll talk about how to alert the parents of small children in your charge when the children have fallen down wells.
<P>
<HR>
Required Readings:
<UL>
<LI>Talking to Modern Sheep (1963, Lassie)
<LI>When Humans go Berserk (1972, Bonnie Belle)
<LI>101 Barks, Howls and Growls (1988, Old Yeller)
</UL>

- Add attributes to the <HR> tag:

```
<HR width=60% size=15 align=right noshade>
```

- Save the file. In Netscape, click on the "Reload" button to see the change you have made.

8. Center the title on the page.

- Insert the center tags around the text you wish to center, as shown:

```
<CENTER>  <H1>Shepherding 101: Intro to Shepherding</H1></CENTER>
```

- Note that when tags are nested, they open and close in reverse order.
- Save the file. In Netscape, click on the "Reload" button to see the change you have made.

9. Add anchor tags that will allow you to link to other documents.

- When the other document is in the same folder, you can use a "relative" tag which just lists the file name, like this: <A HREF="resume.html">
- When the link is to another web site or remote place, use a "fully qualified" URL in your tag, like this: <A HREF="http://www.sonoma.edu/">

```
<A HREF="http://www.sonoma.edu">       Shepherding University of the South</A>

...

Required Readings:<BR>
<UL>
<LI>Talking to Modern Sheep (1963, Lassie)
<LI>When Humans go Berserk (1972, Bonnie Belle)
<LI><A HREF= "yeller.html">     101 Barks, Howls and Growls</A>  (1988, Old Yeller)
</UL>
```

- Save the file. In Netscape, click on the "Reload" button to see the change you have made.

10. Add an email link so viewers can send you email.

- The email anchor tag is similar to a regular anchor tag. Simply replace http: with mailto: and add your email address, as shown:

```
Email: <A HREF = "mailto:lassie@comehome.com">          lassie@comehome.com</A> <BR>
```

11. Add the final tags required for a proper HTML document.

- Open and close your document with the <HTML> and </HTML> tags.
- Define the Head and Body sections with the appropriate tags.
- Use the Title tags to give a page title to your document.

```
<HTML>
<HEAD>
<TITLE>Lassie on the Web</TITLE>
</HEAD>
<BODY>
<CENTER><H1>Shepherding 101: Intro to Shepherding</H1></CENTER>
```

```
<STRONG>Instructor: Lassie</STRONG><BR>
Email: <A HREF = "mailto:lassie@comehome.com"> lassie@comehome.com</A><BR>
<A HREF="http://www.sonoma.edu">Shepherding University of the South</A>
<P>
This course will cover the basic skills every sheepdog should have, including Turning, Starting and
Stopping the herd. As a bonus we'll talk about how to alert the parents of small children in your
charge when the children have fallen down wells.
<P>
<HR>
Required Readings:<BR>
<UL>
<LI><A HREF = "http://www.shepherds.com/"> Talking to Modern Sheep </A>(1963, Lassie)
<LI>When Humans go Berserk (1972, Bonnie Belle)
<LI><A HREF= "yeller.html">101 Barks, Howls and Growls</A> (1988, Old Yeller)
</UL>
</BODY>
</HTML>
```

• Save the file. In Netscape, click on the "Reload" button to see the change you have made.

12. Add a graphic to your document.

• **Use the Image tag to specify which graphic to use. The graphic must be in the GIF or JPEG format. The image should be in the same folder as your file.**

```
<CENTER><IMG SRC = "book.gif">       <H1>Shepherding 101: Intro to Shepherding</H1></CENTER>
```

• Save the file. In Netscape, click on the "Reload" button to see the change you have made.

13. The Final File

```
<HTML>
<HEAD>
<TITLE>Lassie on the Web</TITLE>
</HEAD>
<BODY>
<CENTER><IMG SRC = "book.gif"><H1>Shepherding 101: Intro to Shepherding</H1></CENTER>
<STRONG>Instructor: Lassie</STRONG><BR>
Email: <A HREF = "mailto:lassie@comehome.com"><BR>
<A HREF="http://www.sonoma.edu">Shepherding University of the South</A>
lassie@comehome.com</A>
<P>
This course will cover the basic skills every sheepdog should have, including Turning, Starting and
Stopping the herd. As a bonus we'll talk about how to alert the parents of small children in your
charge when the children have fallen down wells.
<P>
<HR>
Required Readings:<BR>
<UL>
<LI><A HREF = "http://www.shepherds.com/"> Talking to Modern Sheep </A>(1963, Lassie)
```

```
<LI>When Humans go Berserk (1972, Bonnie Belle)
<LI><A HREF= "yeller.html">101 Barks, Howls and Growls</A> (1988, Old Yeller)
</UL>
</BODY>
</HTML>
```

More Tips for Your Pages

Background Colors

To put background colors on your pages, use the HTML tag:

```
<BODY bgcolor = "#hex-code-goes-here">
```
For example, the way to make a white background is this:

```
<BODY bgcolor = "#FFFFFF">
```
because the hex code for white is #FFFFFF.

To find hex color codes, check these URLS:

- ColorMaker: http://www.missouri.edu/~wwwtools/colormaker/

- List of Hex Codes: http://www.imagitek.com/hex

Where to Go For More Help

For even more help on writing HTML, download A Beginner's Guide to HTML:

http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html

Or visit this page of links to lots and lots of HTML and WWW resources:

http://www.pitt.edu/~hbjst/eng_html.htm

Viewing Your New Pages

After you have placed your pages in your web directory, you can show them to the world!

To view your web page(s), launch Netscape. Click the Open button at the top of the window and type your URL. (If you do not know your URL, check with the Web Administrator at your school or organization.) Click OK... And your index.html page should load!

Common HTML Tags & Tag Attributes

HTML Tags

Open Tag	Close Tag	Result
<HTML>	</HTML>	Begins & ends an HTML document
<HEAD>	</HEAD>	Specifies the information in the head of the document
<TITLE>	</TITLE>	Used inside the HEAD tags to specify the document's titl
<BODY>	</BODY>	Opens and closes the body of the document
<H1>	</H1>	Header tag. Causes surrounded text to be placed on a separate line, in large bold type. Other header tags in descending size order are H2, H3, H4, H5 and H6.
<STRONG>	</STRONG>	Makes surrounded text bold.
<P>	(none)	Creates a paragraph break -- two carriage returns.
 	(none)	Creates a line break -- one carriage return.
<UL>	</UL>	Opens and closes an unordered list.
<OL>	</OL>	Opens and closes an ordered list.
<LI>	(none)	Creates a bullet or number for an item in a list.
<HR>	(none)	Creates a horizontal rule line on the page.
<CENTER>	</CENTER>	Centers surrounded text.
<A HREF = "URL">	</A>	Creates an anchor in the HTML document and a link on the web page. (Substitute a real URL for the letters URL.
<IMG SRC="image">	(none)	Places an image on the page.

Some Tag Attributes

Tag	Available Attributes	Example
<BODY>	bgcolor -- *colors the background of the page*	<BODY bgcolor = "#FFFFFF">
	background -- *specifies a background image*	<BODY background="clocks.gif">
<IMG>	width -- *sets image width (in pixels)*	<IMG width=75 height=15 SRC="bar.gif">
	height -- *sets image height (pixels)*	<IMG SRC="home.gif" alt="To My Home Page">
	alt -- *specifies text to display if image fails to load*	
		<IMG border=0 SRC="bar.gif">
	border -- *sets the border of the image (in pixels)*	<IMG border=3 SRC="home.gif">
<HR>	width -- *sets width of bar (in percentage of page, or pixels)*	<HR width=100%> or <HR width=300>
	size -- *sets height of bar (in pixels)*	<HR size=2> or <HR size=15>

Formatting with Tables

Even though browsers have strange rules about text and image placement on a web page, you can use tables to make your page look the way you want. Tables can be used to create "false imagemaps," columns, rows of icons, or arrangements of small pictures and text, as well as many other layouts that would not be possible without them.

The Table Tag

Tables have a set of tags. These are as follows:

Open Tag	Close Tag	Name	Purpose
<table>	</table>	Table Tag	Begin and end the table
<tr>	</tr>	Table Row Tag	Begin and end a row in the table
<td>	</td>	Table Data Tag	Begin and end a cell in the table

Be careful to match up your table tags. They must occur in pairs of open & close tags.

Table Basics

Tables are made up of rows, which go across a page, and columns, which go down a page. Cells in HTML tables must match up with the perceived number of rows and columns; that is, if there are five rows, all columns must have five rows' worth of cells. If there are six columns, all rows must have six columns' worth of cells. You can put text, images, and links, among other things, inside table data tags.

Sample 2x2 table:

```
<table>
<tr>
<td>Cell one  </td>
<td>Cell two  </td>
</tr>
<tr>
<td>Cell three  </td>
<td>Cell four  </td>
</table>
```

Cheating

You can cheat to make your table more interesting by forcing one cell to be more than one row or column in height or width. To do this, use the rowspan and colspan attributes inside the <td> tag.

The trick is that the math still has to work out: if you increase one cell from one row to two in height, you have to remove another cell somewhere else.

```
<table>
<tr>
<td rowspan=2>Cell one  <BR>Two rows tall   </td>
<td>Cell two  </td>
</tr>
<tr>
```

```
<td>Cell four   </td>
</table>
```

Images and Tables

To insert an image into a table cell, simply place the image tag inside the table data tags:

```
<td><IMG width=34 height=210 SRC="button1.GIF" alt = "resume"></td>
```

Tips & Tricks

The trick to making a table look like an imagemap is tweaking the attributes of the `<table>` and `<IMG>` tags. Inside the `<table>` tag, you can specify the width of the table's border, the amount of padding inside each cell, and the amount of spacing between cells. Inside the `<IMG>` tag, set the border attribute to zero, so that there will not be a blue line around the image (as there usually is around an active link).

• For an imagemap-like effect, set each of the table's attributes to zero, as shown.

```
<table border=0 cellpadding=0 cellspacing=0>
```

• Then, inside each `<td>` tag, place one GIF file and its anchor tag, as shown. Be sure to set the image's border attribute to zero.

```
<td><A HREF = "newpage.html"><IMG border = 0 SRC = "button1.GIF"></A></td>
```

Examples

• **Imagemap-like arrangement:**

   http://www.pixeldust.com /matisse/links.html

These images are put together seamlessly to form a cohesive whole, but there are 5 images in all. These images load much faster than a large imagemap, and there is no delay in accessing the appropriate link. On successive pages, many of these images are reused and can be loaded instantly from disk cache, whereas a real imagemap would have to be unique for each page, loading from scratch each time. Notice that even though the example is made up of circular shapes, the table is still made up of rectangular pieces.

• **Columns made with a table:**

   http://www.imsproject.org

Notice that there are several elements in each row of this table, including text, bullets, the puzzle icons, and an invisible "spacer" GIF that forces whitespace in the table.

• **An unusual page layout using a table:**

   http://www.sonoma.edu/people/smithr

Creating this page layout would not be possible without using a table.

For any of the above, please feel free to view the **Document Source** (look under the **View Menu** in Netscape) to see how the HTML was written. If you check **Document Info** (also under the **View Menu**) you can see what each individual piece of the table looks like.

Special Characters in HTML

There are some characters which you may need to display, including symbols and accents, which require special attention. This sheet briefly explains how to use such characters and lists several web sites where complete listings may be found.

How to Use Special Characters

1. Look up the character on a list (see URLs below).
Each character is represented by an ASCII code beginning with an ampersand (&) and ending with a semicolon (;). For instance, the special character for an acute accent over a lowercase **e** (for instance, in **fiancée**) is:

é

2. Include the special character in your HTML.
Simply replace the letter which will have the accent with the *entire* ASCII code for the character, as shown:
Before:
My fiancee attends <a href="http://www.sonoma.edu">Sonoma State University.</A>

After:
My fianc**é**e attends <a href="http://www.sonoma.edu">Sonoma State University.</A>

Sites for Special Characters

There will be overlap among these sites, but perhaps one of them will have what you are looking for.

Special Characters, including international characters and symbols
http://hiwaay.net/~crispen/etc/special_chars.html

International and Special Characters
http://gate.gtz.de/isat/help/intchar.html

International and Special Characters in HTML
http://www.proper.com/www/intchar.html

Troubleshooting Web Pages

Creating a web page has become the easy part... but what do you do when something goes wrong? This guide explains how to troubleshoot your pages (or anyone else's) and points out common errors and their solutions.

The Troubleshooting Process

1. Look at the page in Netscape. It's almost impossible to find an error in an HTML document without seeing it in a browser. When you view the page in Netscape, keep in mind what it should look like, and look for the places where something is wrong. If the error is very obvious -- for instance, the background is a different color or the page fails to display at all -- you'll have a clue where to look for the mistake.

2. Think about the thing that isn't working. You can often figure out generally where the error must be, even if you can't pick out the exact tag just from seeing the page in your browser. If the first three paragraphs display correctly, but the fourth is missing, you'll know to look for a mistake or typo somewhere after the third paragraph. If nothing displays, check your <TITLE> and </TITLE> tags, your <BODY> tags and your <TABLE> tags. See *Text Problems*, below, for more information.

3. Look at your HTML file carefully. Even if you know you typed it right, look carefully at the tags under suspicion. Sometimes it's very hard to see an error in a tag, especially if the error is a missing slash in a closing tag, or transposed letters in the tag name. Check your pointy brackets. Look for the opening and the closing tag if the tag should occur in a pair.

4. After you make a change, save the file and look at it in Netscape again. It may be that you've found and fixed the problem -- or it may be that you've fixed one problem only to uncover another. Check your file carefully. One way to avoid lots of errors is to check your file as you build it: write a section, save and view in Netscape, write another section, and so on.

Some Common Mistakes

Image Problems

The most common problem people encounter with images is not calling the image correctly. That means one of several things: the image is saved under one name, and referred to in the HTML file by another name; the image is in one folder and the HTML file is in another, and the path is not correct; or there is an error in the <IMG> tag itself. Another problem occurs when the image was not saved in the proper format to be used on the web.

> **1. Filenames.** Make sure that the filename in the HTML document matches exactly the name that the image has been given. For instance, image.gif and image.jpg are two different filenames. IMAGE.GIF and image.gif are also two different files, to many web servers -- so check your capitalization, punctuation and spelling. Also check for extra spaces at the beginning and end of the file name.

2. Paths. Check the path carefully. If the image is in the same folder as the HTML file, and will be in the same folder as the HTML file on the web server, it should be called by name only, like this:

```
<IMG SRC="picture.gif">
```

If it is in a separate images folder, and that folder is in the same folder that contains the HTML file, the path to the images folder must be included, like this:

```
<IMG SRC="images/picture.gif">
```

If the image is in a separate images folder, and the HTML file is in a separate HTML folder, and both folders are inside your root web directory, the path back to your root web directory and down to the images folder must be included, like this:

```
<IMG SRC="../images/picture.gif">
```

The ../ means that the server should look in the parent folder of the one the HTML file is in, for another folder called "images."

3. Errors in the Image Tag. Make sure you have IMG (and not IGM, for instance). It is also common to type SCR instead of SRC (SRC is correct). Make sure that if you have used quotes around the filename, that you have a complete set:

```
<IMG SRC="picture.gif">  OR  <IMG SRC=picture.gif>
                 BUT NOT
<IMG SRC="picture.gif>  OR  <IMG SRC=picture.gif">
```

The first mistake, "picture.gif, will usually block out large parts of your page (until another closing quotation mark occurs -- usually at the next image or link). The second one will result in the error *picture.gif" -- file not found.*

4. Proper Format. Your images must (for the moment) be either GIF or JPG (or JPEG, if you have a Mac). You may use upper or lower case, but the filename must end in .gif or .jpg/.jpeg, and the file must actually be that format. Saving a PICT file as picture.gif will not make it web-readable unless you change it to a gif first. Don't name your JPG files with a .gif extension, and vice versa.

Text Problems
Common text problems include text not displaying at all; displaying at the wrong size or format; displaying in the wrong place; or displaying with HTML tags that are supposed to be invisible to the browser.

1. Text That Doesn't Display. If whole parts of your page are missing, check any <TABLE> tags in your document. If you have an opening <TABLE> tag without a closing </TABLE> tag, nothing below the <TABLE> tag will display in the browser. If your whole page is displaying as one long line at the very top of your web page, check your <TITLE> and </TITLE> tags -- omitting the closing tag will cause your page to look very strange. If nothing shows up at all, check to see that you have <BODY> and

</BODY> tags in the right place, that your <HEAD> and </HEAD> tags are in the right place, and that none of the body of your document is inside the <HEAD> and </HEAD> tags. Also make sure your document begins with <HTML> and ends with </HTML>. If you forget a bracket on one of these tags, the browser may think your whole document is one long tag and nothing will be displayed.

If you have comments in your page, check to see that you haven't inadvertently commented out parts of the page that you wanted. Also check to see if you have properly closed your comment tags. Never nest one comment tag inside another -- that is, finish each comment before starting another.

2. Text in the Wrong Size or Format. Check to see that you have closed all of your formatting tags. For instance, if all of your text is bold from the heading of paragraph two down, look at the end of the heading for paragraph two. Did you include your </B> or </STRONG> tag? If your text is too big or too small, look for a missing </H1> or </FONT> tag. If everything is a link, check to see if you've omitted a </A> somewhere.

3. Text in the Wrong Place. This commonly happens when you are either making a table or trying to put a caption near an image. Remember that tables have to have the same number of rows per column and columns per row, unless you have used the COLSPAN and ROWSPAN attributes. Check to see that you have used them correctly. It's often helpful when troubleshooting tables to turn the border on to see what's up.

With image captions, remember that the browser reads your document the same way you do -- left to right, top to bottom. If your <IMG> tag comes before your caption, the caption will be to the left of or underneath the image. If you want the caption under the image, remember to include a <BR> or <P> tag after the image tag and before the caption text.

4. HTML Tags Showing. If HTML tags are showing, make a note of the first one you see and check that one for missing brackets. If it's part of a pair, check both parts of the pair (the opening and closing tags for that set). Sometimes strange invisible characters will show up in your HTML file. You can't see them, but they mess up your page in the browser. (Sounds spooky!) If you suspect this is the problem, erase the tags that aren't working and type them again. See below, *When All Else Fails.*

Table Problems
Tables are complicated in HTML and thus are prone to problems. Usually the trouble is a missing bracket, missing tag, or misspelled tag; sometimes the culprit is the COLSPAN or ROWSPAN attributes, which can be misused or missing.

If your table doesn't display at all, check for the closing </TABLE> tag. If this tag is omitted, nothing after your <TABLE> opening tag will display at all. If most of your table shows up but one or two cells or a row is missing, check your <TD> and </TD> tags (for missing cells) and check your <TR> and </TR> tags (for missing rows).

Make sure you have not accidentally typed a space between the bracket and the name of the tag. Check to see that you have not inadvertently transposed the letters of any tag in your table.

If your table is lopsided, or cells aren't lining up as they should, the problem may be that there is not an even number of rows per column or columns per row. Remember that if you want one cell to take up the width of two, you must include the COLSPAN attribute in the <TD> tag:

    <TD colspan=2>stuff in cell goes here</TD>

If you want one cell to take up the height of two, you must include the ROWSPAN attribute in the <TD> tag:

    <TD rowspan=2>stuff in cell goes here</TD>

When troubleshooting tables, it is often helpful to turn the borders on so that you can see what's going on. Sometimes seeing the borders will allow you to pinpoint the exact cell that is causing the trouble.

Broken Links
If your links are not working, check the filename of the new page; the path to the page; the anchor tags; and check to see that the page actually exists.

1. Filename of the Page. The name you put in the anchor tag must match exactly, including punctuation and capitalization, the name of the file as it has been saved. This is similar to the filename of your image references, above.

2. Path to the Page. If the new page is in the same folder as the one with the link, you should refer to it only by its filename:

    Read more <A HREF="MyCat.html">about my cat</A> here.

In the above example, there must be an HTML document called MyCat.html in the same folder as the document I'm working on, or the link will not work.

If the page is not in the same folder, use pathnames as illustrated under *Image Problems: Paths*, above, or use a fully-qualified URL:

Read more about <A HREF="http://www.sonoma.edu"> Sonoma State University.</A>

Notice the double set of quotes; the full URL (http://www.sonoma.edu); the closing anchor tag; and the correct spelling of HREF (HERF doesn't work!).

3. Anchor Tags. Check to see that your tag syntax is correct, that you have used a full set of quotes (or none at all), and that you have closed the tag properly. Also check to see that you have closed the previous anchor tag properly -- if not, this link may lead to the previous linked page instead of the correct one. Sample syntax for a correct anchor tag:

```
<A HREF="http://www.sonoma.edu">Sonoma State University</A>
```

Notice that the text which becomes the link, *Sonoma State University*, appears between the opening anchor tag and the closing anchor tag. If nothing appears between these tags, no link will be visible on the page. Sample **incorrect** syntax:

```
WRONG:   <A HREF="http://www.sonoma.edu"></A> Sonoma State University
```

4. Does the Page Exist? Check to see that you have created a page with the appropriate name, and that you have placed it in your web directory in the correct folder. If the link is to a page that is off-site, one which you did not create, type the URL into your web browser and check to see that the page really does load. One last thing to check: the URL itself. No matter how perfect your anchor tag syntax, if the URL is wrong, the browser will not be able to load the page.

When All Else Fails
Sometimes, no matter how hard you look, you can't find the source of the problem. All your tags are correct, all your tables are perfect, there are no typographical errors that you can see, and nothing has been omitted. In this case, the best thing to do is to guess as well as you can which tag(s) would be causing the problem if it were wrong, and erase and retype that tag or tags.

The Evil Delete Key
People who are familiar with IBMs who create web pages on a Mac will often use the delete key in the home/end set of keys instead of the delete key above the return key. While this causes no problems on a PC, on a Mac this other key inserts invisible characters which will mess up HTML code without being detectable. Erasing (with the mouse and the correct delete key!) and retyping the tags will get rid of the problem.

Spaces Within Tags
Another hard-to-spot error is extra spaces in tags. Never put spaces between the brackets and tag names:

```
<BR> not < BR>  or <BR >  or < BR >
```

The Most Important Thing
By far, the most important thing to know about troubleshooting your HTML files is that you should not be afraid to do it. There's nothing mysterious, complicated or mystical about it. It's simply a process of looking at the file with your browser, then tracking down the typo, error or omission and correcting it. The purpose of this troubleshooting exercise is to help you become comfortable with the process of troubleshooting, and to show you files which have common mistakes that you will see from time to time in your own code.

Creating Web Pages Using Claris Home Page

There are a number of HTML editors that allow you to create a page without ever seeing or writing HTML. Claris Home Page is one such editor. This guide takes you step by step through the process of creating a page using Home Page.

Features of Claris Home Page

With Claris Home Page, you can easily do the following things:

- add HTML elements to your web pages without typing any HTML tags
- use libraries to store elements and quickly reuse them
- create, copy and test links easily
- create tables and frames
- create interactive forms (quizzes, questionnaires, surveys, guestbooks...)
- edit HTML source code if you wish
- preview your web pages inside Home Page and/or in your favorite browser
- upload your pages to your web server (with some configuration)

In this workshop, we will create a new page and format it using Claris Home Page. We will not use Home Page's more advanced features; however, help for these features is available online at this URL:

> http://www.claris.com/support/products/clarispage/

In addition, Home Page has onscreen help. Moving your mouse over a button in the toolbar without clicking will bring up the name of the button in the upper right of the toolbar. Context-specific help is available for many dialog boxes -- just click the question mark in the dialog box when the dialog box is open on your screen. There is an extensive user's guide as well, which is installed on your computer when you install Home Page.

Creating Your Page

1. Write the text of your document, or copy and paste from a word processor file.
- Launch Claris Home Page. A new, untitled window will appear.
- Open your text file and select the contents. Paste them into Home Page, or...
- Type in your text as you would in a word processor. Type in a course title, the instructor's name and email address, the university or department, a description of the course, and a short list of required readings. Here is some sample text:

Relationships 301: St. Valentine's Day for the Hopeless

Instructor: Cassanova
Email: cassanova@love.com
Institute for Personal Studies

This course will take you through the basics of Valentine's Day. Even if you have never spoken to a member of the opposite sex, you'll learn how to tip your heart irresistibly to your Valentine-to-be. Once you have completed the assignments you'll know what to say, what to give as presents and which cards are best for your sweetheart. Never spend the night on the couch again!

Required Readings:
Origins of Valentine's Day, The (Capulet, 1564)
Victorian Valentines (Windsor, 1963)
1001 Romantic Ballads (Tarkan, 1984)

• Don't worry about formatting your text for now. If you copy and paste into Home Page, you'll notice that there are extra line breaks inserted.

2. Save your file.
• Home Page will ask you to supply a title for your page. This title will appear in the title bar of your browser window. It may contain spaces and is not the same as the filename. This title will show up in someone's bookmarks list when they choose to bookmark your page, so use something relevant. For example, for the text above, the title might be Valentine's Day for the Hopeless.

• Once you have chosen a title, Home Page pops up a save file dialog like any other application, with the title you selected in the filename box. Erase that title and type index.html.

• Create a new folder on the desktop and name it with your name. Save index.html inside this folder.

3. Correct the line spacing of the file.
• If you copied and pasted into Home Page, you'll notice that extra line breaks have been inserted into your document. If you press the **Return** key once, Home Page reacts as though you had pressed **Return** twice.

• To get a single line break, hold the **Shift** key while you press **Return**. You may need to use the **Delete** key to fix the line spacing in your file.

• Leave the bullet list alone for now; do not correct the line spacing of the list.

• Save your file. You can choose Save from the File menu, or hold the **Apple** key while you press **S**.

4. Make your course title into a header.
• Use the mouse to select the text that is your course header (the first line in the sample text).

• Use the popup menu in the upper left to select Heading 1 or Heading 2, depending on the length of your text.

• Save your file.

5. Make some text in your paragraph bold.
• Select the instructor's name with the mouse and use the **Bold** button (B) to make it bold.

• Save your file.

6. Create a bullet list in your document.
• Select the three double-spaced lines of the bullet list (the required readings).

• Click the bullet list button. It looks like three little lines of text with three little bullets beside the text.

• Save your file.

7. Add a Horizontal Rule to separate the parts of your page.
• Click on the line where you would like the Rule Line to appear, for example, before the R in Required Readings.

• Click the Horizontal Rule button (it has a single line through the middle).

• Save your file.

8. Center the title on the page.
• Select your title with the mouse. Click the Center Format button in the upper right (the middle of the three format buttons).

• Save your file.

9. Create a link to another document elsewhere on the web.
• Select the text that you would like to serve as a link. In the sample, I've chosen the phrase *Valentine's Day* in the course description.

• Click the Link Editor button (sixth from the left, top row). Type this URL into the box that appears: http://techdirect.com/valentine/origin.html

• Press **Return**. You can leave the Link Editor open. You may wish to move it to one side.

• Save your file.

10. Create a link to another document which you will create later.
• Select the text that you would like to serve as a link. In the sample, I've chosen the word *presents* in the course description.

• Click the Link Editor button (sixth from the left, top row). Type this page name into the box that appears: presents.html

• This page will be created later.

• Save your file.

11. Add an email link so viewers can send you email.
   • Select the email address with the mouse. In the Link Editor, type the following instruction to the browser: mailto:cassanova@love.com

   • Replace *cassanova@love.com* with your own email address.

   • Save your file.

12. Add a graphic to your document and set its options.
   • Click in your document and click the Insert Image button (top row, near the middle; it has shapes on it).

   • Select an image in the dialog box that appears.

   • When the image appears in your document, move it where you would like it to be.

   • Center your image by clicking on the Center Format button (the same one we used to center text earlier).

   • Double-click the image to bring up the Image Dialog Box. Add an alternate text label, which will be displayed if the image fails to load. Add a border if you wish, or enter 0 (zero) if you do not want a border around the image. If you wish to make a color transparent, click "Set" next to Transparency and choose a transparent color.

   • Save your file.

13. Set the background color of your page to white.
   • Select **Document Options** from the **Edit** menu. Click the colored box next to **Background**.

   • Move the slider bar all the way to the right to select white, or choose another color.

   • Save your file.

14. View your page in Preview Mode.
   • To get a preview of your page as it would appear in a browser, click the **Preview Page** button (second from the left, top row).

   • To return to Edit mode, choose the **Edit Page** button (all the way on the left, top row).

Exercises

Exercise One: Create a second page.
Using the filename you chose in step 10 above, create a second file.

Exercise Two: Use an image as a link.
Add an image to your new page and link it back to index.html, so that clicking on it will take the viewer back to your first page.

Exercise Three: Add a list of hot links to your page.
Find two or three (or more) pages that relate to your course on the web and create a list of links on either of your two pages.

Annotate the list so that your students can find what they are looking for quickly. Make the title of the link active, and the annotations normal text (that is, to access a page, your students would click on the title of the link, not on the annotations).

Exercise Four: Add a table to your page.
Add a table that shows your office hours, or the hours the course meets, to your page. Use the Table button in the upper right.

Exercise Five: View the HTML that makes up your page.
Click the **Edit HTML Source** button (third from the left, top row) to view the source that makes up your page. What happens if you edit the source? Try it and use **the Preview Page** button to see what happens.

Creating Basic Forms

Using Forms

Forms are HTML pages that allow the viewer to enter information. Usually, the information is handled in some way. A form works with a CGI script or program which specifies how the information is to be handled. Keep in mind that the form is a web page, while the CGI program or script is not.

Forms can be used to collect data about visitors to your site: name, email address, favorite flower. You can solicit comments about your site's design and/or content. You could set up a series of questions -- a survey or quiz -- for viewers to answer.

The data entered into your forms is useless unless you collect and organize it in some way. You could have the data emailed to you (one of the simplest ways of collecting it). You may wish to have the data posted to a web page, which grows as more people fill out your form. An example of this type of collection is a guestbook, where visitors record their impressions of your web site in a form. The results are appended to a web page which contains all of the responses collected for that site.

Another use for forms is to enter data in a database. The database is not necessarily part of your web site, but a CGI script or program acts as a go-between so that data collected from a web page(s) can be added to your database (or word processing file, or whatever). This type of collection is more complicated and may require a specialized script or program.

What Does a Form Look Like?

To a viewer, a form looks like a bunch of boxes and/or buttons that can be selected and filled in. Usually questions are associated with each box: name, comments about the site, and so on. To the author of the form, however, a form is a special kind of HTML document.

Creating a Form

There are special HTML tags for forms, just as there are special tags for formatting regular text and images. This guide will take you step-by-step through the process of creating a form. In addition, a very good (unrelated to this sheet) online tutorial is available at this URL:

http://robot0.ge.uiuc.edu/~carlosp/cs317/ft.1.html

There are four parts to a successful form:

1. The HTML document which contains the form itself.
2. The template page which specifies how to format the information if it is emailed to someone.
3. The script which handles the information, and plugs it into the template if applicable.
4. The reply page, which is simply an HTML document that thanks the user for filling out the form.

This document covers the first part above, the HTML document which contains the form itself. Please be aware that the second part, the template page, will vary depending on

which script you are using to handle your form. The script will generally come with instructions for the template. It is beyond the scope of this workshop to cover templates.

The third part, the script itself, must be obtained from the web or written by a programmer.

The fourth part, the reply page, is simpy an HTML document which is indicated by a hidden field (see below). It is the page the user will see when the Submit Form button is clicked (see below).

Let's create a form that a new student would fill out when he or she visits a course web site for the first time. This form will collect data about the student, and point to a script which will email the data to the professor. Here are the questions we will pose:

What is your name?
What is your student number?
What level of student are you? (Freshman, sophomore, junior, senior, graduate, other?)
Why have you chosen this course? Please select all that apply:
    I need this course for General Education requirements.
    I've taken similar courses and enjoyed them.
    I'm new to this subject but it interests me.
Is this course in your major area of study? (Yes, no, undecided?)
Please tell me a little bit about yourself, in a paragraph or so.

At the end of the form, we will present two options: Reset Form, and Submit Form.

1. Alert the browser to the form's presence.
The first thing you need to do is specify that you are creating a form. These tags go inside the regular HTML tags: a form is just part of a web page, and can be placed on the same page as other text, links, and graphics if you wish. Specify the form's beginning and end with the <FORM> and </FORM> tags.

```
<HTML>
<HEAD><TITLE>A Bit About Yourself</TITLE></HEAD>
<BODY>

<FORM>
(all form stuff goes here)
</FORM>

</BODY>
</HTML>
```

Everything that makes up the form will go in between the two <FORM> and </FORM> tags.

2. Specify how to send information to the server.
This is done with the METHOD attribute. There are two options: **GET** and **POST**. GET encloses all form information in one variable, which is generally considered a bad idea. POST is preferable, as it uses a different and better method of getting the form data to the CGI script. The METHOD attribute goes inside the FORM tag.

```
<FORM METHOD="POST">
```

3. Specify where the information should be sent.
This is done with the ACTION attribute, which includes a URL. The URL will almost always point to a script which will be handling the information. This attribute goes inside the FORM tag also.

```
<FORM METHOD="POST" ACTION="/cgi-bin/MyScript.cgi">
```

4. Create a text entry field for the student's name.
The simplest type of form input is the text entry field, which allows the user to enter a single word or line of text. the TEXT field defaults to a length of 20 characters, though you may specify other lengths.

What is your name?
```
<INPUT TYPE="text" NAME="first_name" VALUE="Your Name" SIZE="15" MAXLENGTH="15">
```

Attribute	Required?	Effect
VALUE=""	No	Specified text appears in text entry field as default, and must be erased by user.
SIZE=""	No	Sets display size of text entry field, but does not limit number of characters user may enter.
MAXLENGTH=""	No	Sets maximum number of characters user may enter. Excess typing will cause beeps but no keystrokes will be recorded.

Notes:
• Use underscores instead of spaces for the NAME attribute: "first_name" rather than "first name." Spaces may cause problems when the server attempts to read the data.
• If there is only one text entry field in a form, the user may be able to submit the form by hitting ENTER rather than clicking on the submit button (see below). This could cause the user to inadvertently leave buttons unchecked.
• It is generally good practice if using the MAXLENGTH attribute to set the SIZE attribute to an equal value, so the user can get an idea of how much space he/she has to work with.

5. Create a field with covered characters for the student number.
In this type of field, users can enter information which is covered with another character for privacy. The password field works just like a text entry field, except that all the characters are replaced with an asterisk (*) or bullet (•) as the user types them.

Enter your 8-digit student number:
```
<INPUT TYPE="password" NAME="your_password" SIZE="8" MAXLENGTH="8">
```

Attributes are identical to those for the TEXT field, above.

Notes:
• If you specify a default VALUE, it will appear covered with asterisks or bullets, but the user can see the actual text by viewing the HTML source of the document (an option available on many browsers).

6. Create a popup menu from which the student may select one option.
If you would like your students to select one and only one option from a lengthy list, it is more efficient to use a popup menu than a series of buttons. This set of tags is a little different from the previous few tags. Instead of a single INPUT TYPE tag, a set of tags is required: the open <SELECT> tag, and its counterpart, the close </SELECT> tag. The list of options you wish to provide is enclosed by these two tags.

What level of student are you?
```
<SELECT NAME="student_level">
<OPTION VALUE="new">Freshman
<OPTION>Sophomore
<OPTION>Junior
<OPTION SELECTED>Senior
<OPTION>Graduate
<OPTION>Other
</SELECT>
```

Attribute	Required?	Effect
<OPTION>	Yes	Specifes a choice in the popup menu.
VALUE=""	No	Specifes the value to be sent to the server if this menu item is chosen. In the example, if 'Freshman' is chosen, the server will instead receive the information 'new.' If no VALUE is specified, the name of the option is sent as the value.
SELECTED	No	Specifies which menu item is displayed on the screen. If no item is SELECTED, the first item in the list is displayed.

Notes:
• This type of input is useful if you have several options for the user to choose from but you want them to select only one.

7. Create checkboxes so the student can select multiple options.
With this type of input, more than one option may be selected at the same time.

Why have you chosen this course? Please select all that apply:
```
<INPUT TYPE="checkbox" NAME="GEreq" CHECKED>
```
I need this course for General Education requirements.
```
<BR>
<INPUT TYPE="checkbox" NAME="similar">
```
I've taken similar courses and enjoyed them.

```
<BR>
<INPUT TYPE="checkbox" NAME="interests">
```
I'm new to this subject but it interests me.

Attribute	Required?	Effect
VALUE=""	No	Specifies the value of the option to be sent to the server. If not defined, the value that is sent is "on."
CHECKED	No	Specifies that the box is checked when it appears in the form. User must click in the box to uncheck it if desired.

Notes:
• Checkboxes are most effective for yes/no or on/off responses.
• You can emulate a multiple selection list by having checkboxes with the same name but different values. This is not recommended for long lists:

Which types of music do you like? Select all that apply:
```
<INPUT TYPE="checkbox" NAME="music" VALUE="rock">Rock Music
<INPUT TYPE="checkbox" NAME="music" VALUE="classical">Classical Music
<INPUT TYPE="checkbox" NAME="music" VALUE="blues">Blues
```

8. Create a radio button list, where the student may only select one option.
Radio buttons are similar to checkboxes in that they are either on or off. However, the user may only select one radio button per group, whereas more than one checkbox may be selected. A radio button deselects itself if another button in the same group is selected.

Is this course in your major area of study?
```
<INPUT TYPE="radio" NAME="major" VALUE="yes" CHECKED>Yes
<INPUT TYPE="radio" NAME="major" VALUE="no">No
<INPUT TYPE="radio" NAME="major" VALUE="undecided">Undecided
```

Attribute	Required?	Effect
VALUE=""	Yes	Specifies the value that will be sent to the server if the button is selected. If no value is defined, a value of "on" is sent to the server, which may not convey any useful information.
CHECKED	No*	Specifies which radio button will be selected by default. The user can change the selection by clicking on any other option.

* Strongly recommended.

Rachel S. Smith • Distributed Learning Specialist • CSU Center for Distributed Learning
http://www.pixeldust.com/rachel

Notes:
• If your list has a number of items, you may prefer to use the popup menu (see above) in order to avoid cluttering the screen with buttons. Some browsers have trouble displaying a lot of buttons.
• Once a radio button has been selected, there is no way to deselect it except to choose another from the same grouping (that is, another button with the same name).
• If a user resets a form (see below), the radio buttons will return to default checked/unchecked settings.
• If you fail to specify values for radio buttons, the server will not be able to tell which button in a given grouping was selected since all buttons have the same name. Be sure to specify values.

9. Create a space where the student can type in a paragraph of text.
This is done with the TEXTAREA tag. It works a little differently than the previous tags. Like many HTML tags, there is an open tag <TEXTAREA> and a close tag </TEXTAREA> for this function.

Please tell me a little bit about yourself, in a paragraph or so:

<TEXTAREA NAME="about" ROWS="5" COLS="40">
(Erase this and replace with your own text.)
</TEXTAREA>

Attribute	Required?	Effect
ROWS=""	Yes	Specifies the number of rows that show in the text entry box. Some browsers allow the user to type more rows than appear on the screen (a scroll bar will appear to one side of the text area).
COLS=""	Yes	Specifies the number of columns showing in the text entry box. Text that is typed in the box does not wrap, no matter how many columns are specified. You may wish to advise the user to "hit return every so often" so that you don't receive one long line of text.
Default text	No	The default text appears in the text entry area when the page is displayed. Users must erase this text or it will be included in the response sent to the server. In the example above, the default text is "(Erase this and replace… etc)"

Notes:
• No, there is no way to specify that the text in the entry box should wrap. If it does, it's the browser doing it, not the HTML.

10. Add a reset button, in case the student has messed up horribly and wishes to start over; and add a submit button, to send correct information to the server.
Rather than require a user to correct each response, which on a long form can be quite tedious, you can place a reset button which will return all fields to their default settings in one fell swoop. The user may then start over with a clean page.

The reset button is usually paired with a submit button, for those who have filled out the form to their satisfaction. The submit button takes all the data entered into the form and sends it to the URL you specified in the ACTION element.

```
<INPUT TYPE="reset" VALUE="Clear fields">
<INPUT TYPE="submit">
```

Attribute	Required?	Effect
VALUE=""	No	Specifies the text that is displayed on the button. If no text is defined, the buttons default to "Reset" and "Submit Query."
NAME=""	No	You can specify different names for different submit buttons if you require more than one button. The information specified in the value attribute will be sent to the server in this case.

Notes:
• Not all browsers support multiple submit buttons. Generally, you will be better off using only one. In any case, you cannot send the same form to multiple locations using multiple submit buttons.

11. The Finished Form
Here is the entire form, which would be placed in an HTML document:

```
<FORM METHOD="POST" ACTION="/cgi-bin/MyScript.cgi">
```

What is your name?
```
<INPUT TYPE="text" NAME="first_name" VALUE="Your Name" SIZE="15" MAXLENGTH="15">
```

Enter your 8-character student number:
```
<INPUT TYPE="password" NAME="your_password" SIZE="8" MAXLENGTH="8">
```

What level of student are you?
```
<SELECT NAME="student_level">
<OPTION VALUE="new">Freshman
<OPTION>Sophomore
<OPTION>Junior
<OPTION SELECTED>Senior
<OPTION>Graduate
<OPTION>Other
</SELECT>
```

Why have you chosen this course? Please select all that apply:

```
<INPUT TYPE="checkbox" NAME="GEreq" CHECKED>
```
I need this course for General Education requirements.
```
<BR>
<INPUT TYPE="checkbox" NAME="similar">
```
I've taken similar courses and enjoyed them.
```
<BR>
<INPUT TYPE="checkbox" NAME="interests">
```
I'm new to this subject but it interests me.

Which types of music do you like? Select all that apply:
```
<INPUT TYPE="checkbox" NAME="music" VALUE="rock">
```
Rock Music
```
<INPUT TYPE="checkbox" NAME="music" VALUE="classical">
```
Classical Music
```
<INPUT TYPE="checkbox" NAME="music" VALUE="blues">
```
Blues

Is this course in your major area of study?
```
<INPUT TYPE="radio" NAME="major" VALUE="yes" CHECKED>
```
Yes
```
<INPUT TYPE="radio" NAME="major" VALUE="no">
```
No
```
<INPUT TYPE="radio" NAME="major" VALUE="undecided">
```
Undecided

Please tell me a little bit about yourself, in a paragraph or so:
```
<BR>
<TEXTAREA NAME="about" ROWS="5" COLS="40">
```
(Erase this and replace with your own text.)
```
</TEXTAREA>
<INPUT TYPE="reset" VALUE="Clear fields">
<INPUT TYPE="submit">

</FORM>
```

Other Form Tidbits Of Interest
Listed below are three other options you may choose to include in your form, though they were not included in this workshop.

1. Multiple Choices From A Scrolling List
With this option, you can provide a list of choices and the user can select more than one if he or she desires.

Which of these choices best describes your learning style? Select all that apply:
```
<BR>
<SELECT NAME="style" MULTIPLE SIZE="5">
<OPTION>
```
Learn by listening
```
<OPTION VALUE="doing" SELECTED>
```
Learn by doing
```
<OPTION>
```
Learn by reading
```
<OPTION>
```
Learn by writing
```
<OPTION SELECTED>
```
Study well in groups
```
<OPTION>
```
Study better alone
```
<OPTION>
```
Prefer hands-on workshops

`<OPTION>`Prefer lectures
`</SELECT>`

Attribute	Required?	Effect
MULTIPLE	No	Specifies that multiple options may be selected. If MULTIPLE is not specified, the user may select only one option from the scrolling list.
SIZE=""	Yes	Specfies the number of lines to be displayed in the scrolling list before the user has to scroll.
OPTION	Yes	Specifies a list option. You will generally have more than one option in the list.
VALUE=""	No	Specifies the value to be sent to the server when an option is chosen. If no value is specified, the name of the option is sent.
SELECTED	No	Specifies which option(s) are selected by default.

Notes:
• With some browsers, the user may need to hold down the CONTROL or SHIFT key to select more than one item.
• If multiple items are selected, they will be sent to the server under the same name (the name of the list). Therefore, your script must be able to handle multiple values under one name.

2. Clickable Image Buttons
It is possible to provide an image in place of the submit button. When the user clicks on the image, the form is submitted. In addition, the place in the image where the user clicked is recorded.

Click on your favorite fruit to submit the form:
`<BR>`
`<INPUT TYPE="image" SRC="fruitbowl.GIF">`

Attribute	Required?	Effect
SRC=""	Yes	Specifies the name and location of the image file to be used.
NAME=""	No	If used, this tag includes the value of NAME when reporting the coordinates where the user clicked: fruit.X and fruit.Y, for instance. Without it, only X and Y will be reported.

Notes:
• Not all browsers support this tag.
• While an imagemap will only report a set of coordinates, this form-type image will report additional information (text fields, menu selections, etc).

3. Hidden Text Fields

If for some reason you require a form input but do not wish the user to enter any information, you can hide the field completely. The information is relayed to the server but never shown to the user.

For example, if you wished to use a custom reply page (the page that thanks the user for submitting the form), you might put that information in a hidden field:

```
<INPUT TYPE="hidden" NAME="reply_page" VALUE="/yourdir/reply.html">
```

Attribute	Required?	Effect
VALUE=""	Yes	Specifies the value that is sent to the server. This is the whole point of the hidden field, so don't leave it out.
NAME=""	No*	Specifies the name of the hidden input field. If you have more than one, you should give them unique names.

* Strongly recommended

Notes:
• The user may see the hidden text by viewing the HTML source of your document, as with the PASSWORD field.

Common Gateway Interface (CGI)

Overview
The Common Gateway Interface (CGI) is a standard for linking applications or programs with information servers (web servers, for example). Normally, a web page (HTML document) is a static text file stored on the web server. However, if you want your page to change "on-the-fly" (based on input from the user), you need a CGI program to provide the dynamic data. The CGI program runs on the server, and the pages it creates can be different every time, not static like a plain web page.

For instance, if you had a quiz online, and you wanted the results for each student taking the quiz entered into a database, you would need a CGI program that takes the information entered by the student and transmits it to your database. If you wanted to be able to use a web page to call up a chart comparing your students' quiz results, you would need a CGI program to take your query to the database and return with the information you requested. This communication between a web browser and a database is called a gateway.

Although the idea may sound simple, setting up a working gateway to a database or other non-HTML file is not as easy as setting up simple "static" web pages. Fortunately there are already many freely available CGI programs. As long as you can find or write a CGI program or script to handle your query, you can link any kind of information to the web.

Some Points to Keep in Mind
When a CGI script or program executes, program runs on your web server, so it is important to keep security issues in mind. CGI programs must usually be kept in a special directory (usually called /cgi-bin) with special permissions -- not in your regular web directory! The /cgi-bin directory is controlled by the Web Administrator. This person may be understandably wary of allowing anyone to write programs and put them there, so you may find that your Administrator will not allow individuals to put CGI scripts on the server. Your first step, then, should be to contact your Web Administrator to find out whether the script you want is already there, or may be placed there.

CGI programs may be written in any language will create a program to run on your web server, such as C or C++, PERL, TCL, Visual Basic, or AppleScript (there are others). Note that some of these languages (C, C++, Visual Basic) *are programming languages* and some (PERL, TCL, AppleScript) are *scripting languages*. The practical implication here is that if you are using a programming language, your CGI program must be compiled before it will run. If you are using a scripting language, the script itself can reside in the /cgi-bin directory, but you must have a copy of the scripting language on the server as well. Scripts are typically easier to debug and modify than programs.

A good resource for learing about CGI programs and scripts exists on the web at the following URL:

<div align="center">http://hoohoo.ncsa.uiuc.edu/cgi/overview.html</div>

This page includes an overview similar to this one, a primer on how CGI works, a guide to handling HTML forms with CGI scripts, examples, tutorials, and some advanced information for script- or program-writers.

Images for the Web

Two File Types for the Web

When placing an image in a web page, you must be sure to have the image in the correct file format. But how do you know what format to use? Your choices are currently limited to two: JPEG and GIF.

JPEG (Joint Picture Experts Group): JPEG (or JPG) compression is best for photographs and images with lots of little areas of different colors. Text, however, does not come out well in a JPEG file. JPEG compression is lossy, which means that some data is lost every time an image is compressed or decompressed.

GIF (Graphical Interchange Format): GIF compression works best with images developed on a computer, or images with text or large areas of flat color. GIF is a loss-less compression format, which means that no data is lost in compressing or decompressing a GIF.

If you plan to include a transparent background in your image, you must use the GIF file format. JPEGs cannot be made transparent.

An Upcoming Third Choice

A new graphic file format is under development: Portable Network Graphics (PNG, pronounced *ping*). Right now PNG images can't be viewed without a special plug-in for your browser, but new browsers may include the PNG format soon. PNGs support millions of colors, like JPGs, but offer loss-less compression and support transparency, like GIFs.

Turning a Scanned Image into a Web Picture

If you have an image that you have scanned, it may not be in the correct format. It may be in TARGA or BMP format (Windows) or PICT format (Mac), or any one of several other formats, none of which are good for the web. If you have a photo CD, the images may be in JPEG format already, or they may be in a special format unique to the photo CD.

In order to display these images on the web (except for JPEG photo CDs, which are ready to go), you must first convert them to the correct format. You'll need a graphics application to do this. Adobe Photoshop will convert graphics, but Photoshop is quite expensive. If you only use it to convert graphics from one file format to another, you will find it a waste of money (though it is a wonderful graphics program for creating and editing graphics). GraphicConverter, available as shareware on the web, is a less-expensive alternative. GIF Converter is another.

Once you have an application that will convert your graphics, simply open the graphic in the application and Save As GIF or JPEG. There are a few things you'll need to keep in mind:

• If the image is a photograph, you should usually use JPEG compression.
• To save as a GIF, you may need to reduce the bit depth (number of colors) to 256. You will not be able to save a file as a GIF if it has more than 256 colors. Check with the instructions that came with your software if you are unsure how to do this.
• When you save the file, rename it to include a .JPG or .GIF extension so you remember what kind of file it is, and so the browser knows how to display it.

Streamlining Your Pages

This sheet outlines some tips for creating web pages that load faster. If you are creating images for your web pages, you may find this information helpful.

• Use tiny graphics (tiny as far as file size, not necessarily actual dimensions). If your images are mostly one color or only a few colors, save as GIF. If you're using photographs, crop out anything you don't need and save as JPEG (JPG).

• Try the PhotoGIF and ProJPEG plug-ins for Adobe Photoshop. These plug-ins are made by Boxtop Software. They can dramatically lower your file sizes without compromising quality. You can obtain the plug-ins over the web. There is a low shareware fee for these plug-ins. Visit http://www.boxtopsoft.com for more information.

• Use attributes of the **image** tag which help your page to draw faster. The **WIDTH** and **HEIGHT** attributes of the **image** tag will let the browser know how much space to leave for your images, allowing the text on your page to show up right away. Your viewers can read the text while waiting for the images to load. The width and height values are given in pixels.

```
<IMG width=168 height=32 SRC="titlebar.GIF">
```

• Use image tables instead of imagemaps. Imagemaps (server-side) require an extra round of communication from the server to the client, which slows down response time. Tables can work just like links, allowing for instant response. If you must use imagemaps, try using client-side imagemaps, which download information to the client ahead of time so it is available more quickly.

• If you must use an imagemap or other large graphic, use the **LOW** attribute of the **SRC** tag to specify a low-resolution image which can load first, giving your viewers an idea of what will appear when the real image finally loads.

```
<IMG width=300 height=300 SRC = "hugeimage.JPG" LOW="lowimage.GIF">
```

• Reuse elements from one page to another whenever possible. If you use tablemaps instead of imagemaps, you can often reuse images in each table, swapping out only the one that changes depending on the page being viewed (the button for the current page can be "grayed-out" or otherwise made to look inactive).

• Think about overall design issues. Don't use graphics where text will work just as well. Try a mono- or duotone image instead of a full color one for a simple yet elegant look and a small file size. Your graphics will load faster.

• Remember, the web is not a magazine! Don't expect people to wait while your full-screen graphic loads, no matter how great it looks. Warn viewers when a link will take them to a large file that may be slow-loading, and give them an in-line thumbnail of the image beforehand.
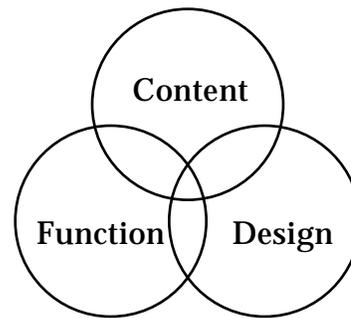
Web Publishing with Style

This document covers three aspects of style on the World Wide Web: content, function, and design. In addition, suggestions and examples are given to help you create your own site.

Content, Function and Design

Content, function and design should work together in a web site. In some cases, one or another of these pieces may be emphasized, but the best sites blend elements of each.

It's possible to have a site that is well-designed with very little content; a site which has wonderful content and beautiful design but is not functional; or a site that is very functional and beautifully designed, with no content whatsoever. Aim for a balance of all three if you can.

Content, Function & Design

Content: What's the page about?

Do you have something interesting to say? Do you have special knowledge of a subject area? What is your web page about? It's possible for different pages of a site to be about different topics, but all should relate in some way -- even if it's just that you're the author and all the topics are of interest to you.

Ask yourself these questions when you review a web page for content -- whether it's your page or someone else's: Is the content accurate? Is the content readable? Is it presented in a logical way -- does the flow make sense? Does the author seem knowledgeable and interested?

Function: How easy is it to use?

Even if your pages are filled with the most interesting, best-worded, most accurate content in the world, if viewers can't find what they're looking for, they won't read your pages. When considering the functionality of any web site, ask yourself these questions: How easy is it to navigate around the site? Are the page headers clear? Do they indicate the content that will be found on the page? If there are buttons on the page, is it clear what they do? Are there obvious tools for navigating the site? Does everything do what you think it will? While some surprises are fun and can spice up your page, the basic elements must be clear or people will become confused and frustrated.

When considering navigation, remember that people do not generally like to sift through endless layers of menus to find information. Keep your pages organized, and keep the important information as close to the top level as possible. See below for more tips on organizing your pages.

Design: How does it look?

To some people, design is the most important part of a web page. To others, however, it is the least. While you do not have to be an artist or designer to have a good web site, clever use of graphics and careful layout can be an asset to your site.

Even if your site has no graphics, pay attention to the layout of your pages. The easiest -- and most boring -- page to create is simply text, perhaps with a header or two, on a gray background, all lined up on the left margin. However, with very little effort, you can make your pages more interesting, more individual, and more attractive.

Style on Your Pages

There are a few guidelines you can follow to help your page look interesting and well-planned. Even if you aren't a designer, you can make choices that lead to good design on your page. Remember, there's a lot of stuff out there on the web. Make your pages stand out for their attractiveness and ease of use.

Here are some *general guidelines* to follow:

1. Keep your images under 500 pixels wide. For a header or banner, 500 should be a maximum. For buttons and bullets, think 64 pixels to a side for square buttons maximum, and 20 pixels to a side for bullets, maximum.

2. If you are creating your own graphics, choose a palette of five to seven colors, and stick to it. It's amazing how much better a design looks when the palette is limited.

3. Label your buttons with text and/or with icons that clearly indicate what the button should do. Users do not like to have to guess what a button will do.

4. Use all parts of the screen -- not just the left side. Since HTML is set up in such a way as to make this difficult to do, you may need to be sneaky with your graphics or layout. Check the section Tips & Tricks, below, for help on sneaky layouts.

5. General do's and don'ts for web design:

DO	DON'T
• blend graphics & text	• put too many graphics
• vary layouts where appropriate	• use same old layout on every page
• break up page in interesting ways	• use gratuitous images
• use alt, height, width attributes in IMG tags	• use big/wide images
• keep a consistent look within sections	• bury information layers and layers down
• give viewers a path back to the home page	• depend on graphics to convey your meaning

Steps for Designing a Site

1. Decide what the site is about and divide the content into pages.

A website with more than one page usually has an "entry" page, which has a menu of sub-page choices. The entry page may also contain information about new additions to the site, or information that is frequently requested (a professor's office hours, basic facts about the subject of the web site, or location and phone numbers of a department, for example).
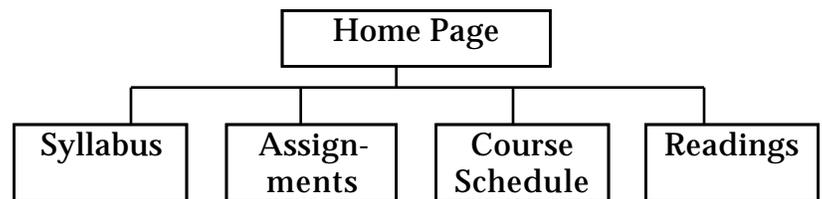
Divide the rest of the content into sections. Chances are, your site will not consist of one entry page and one long page containing everything else. Come up with categories and divide your information into them: friends, family, pets, work (for a personal site); syllabus, course assignments, course schedule, required readings (for a course web site); services, required forms, staff, events (for a departmental site). Your categories may differ from these, and you may have more or fewer than those listed.

Once you have your content divided into sections, you're ready for the next step.

2. Map out the site.
There are several ways you can make a map of your site. One method is to use a large sheet of paper, and represent each page with a rectangle.

Write the category/section title in the rectangle. Work in levels -- the entry page is on the top level, the sub-pages are on the second level, and any pages that relate specifically to the sub-pages are on a third level. For instance, "Readings" might have a sub-level with a page for each selection.

```
                    ┌──────────────┐
                    │  Home Page   │
                    └──────┬───────┘
        ┌──────────┬───────┼───────────┬──────────┐
   ┌────┴───┐ ┌────┴───┐ ┌─┴────────┐ ┌┴─────────┐
   │Syllabus│ │Assign- │ │ Course   │ │ Readings │
   │        │ │ ments  │ │ Schedule │ │          │
   └────────┘ └────────┘ └──────────┘ └──────────┘
```

Mapping the Site & Adding Navigation Arrows

Another way is simply to write the names of the categories on different lines of notebook paper. Leave space between the titles for the next step. Use any method that makes sense to you.

Occasionally you may have information that could either be split into many little pages, or left on one long page with links to the various parts of the page (descriptions of courses, for example). When deciding which method to use, consider the length of each section. If most of the sections would fill one screen or more, you may wish to split them into independent pages. If each section is only a few lines long, perhaps one long page would be less work for you and less clicking for your viewers. If the content is a set of instructions that viewers may wish to print out, perhaps leaving them on one page would be better, since one page is easier to print than many.

Once you have mapped out each page in your site, you are ready for the next step.

3. Decide how to get around the site (navigation).
Use the map you have drawn. Consider which pages should link to which other pages. Don't stack your information too deeply -- be kind to your viewers, and don't make them click too many times.

It's a good idea to offer lateral movement as well as up and down -- that is, your sub-pages should link back to the home page, but they should also link to each other, so that viewers don't have to go back to the home page to view another sub-page.

Use your site map at this point. Add arrows to indicate which pages link to which other pages. You may wish to use a red pen to make the links stand out. Once you have drawn in the links, you will have an idea of how many links there are per page. If you have only a few pages in your site, you could consider adding a button for each link.

However, if you have many links on each page, buttons could quickly clutter up the screen.

Consider how you want your viewers to navigate your site. A banner across the top of the page? A strip down one side? Simple text-based links at the bottom? A neat row of buttons? Choose a format that will fit on your page, and that you are capable of creating. If you hate graphics programs, perhaps text buttons will suit your pages best.

4. Plan your page layouts carefully.
At this point, focus on the layout of individual pages in your site. Generally, pages that work as a set should have similar layouts. The easiest layout to use is to align everything to the left side of the screen and work from top to bottom. However, this layout can also be exceptionally boring. You may find that a layout like this also wastes space on the right side of the screen which could otherwise be filled with information.

A good way to get interesting layouts when you are first starting out is to copy them from other people's pages. Simply use the "View -- Document Source" menu item in Netscape to download a copy of the HTML file for any page you like, and substitute your own graphics and text.

Almost the only way to get interesting layouts that use both the left and the right sides of the screen is to use tables. Keep in mind that not all browsers can display tables -- if your audience is primarily users of such a browser, consider staying away from tables. However, if most of your audience will be using a browser that can display tables, you can use tables and add tags that make your display readable to those who can't see the tables.

Check the handout <a href="tables.html">Formatting with Tables</A> for more information on using tables to format your web pages.

Tips & Tricks
Although HTML was not designed for page layout, there are a few things you can do to force the layout you want. One way is to use tables, as mentioned above. Three other ways are to use creative backgrounds and to use invisible images or nonbreaking spaces to force white space.

Creative Backgrounds
If you would like a certain image to appear on all of your pages, and always in the same place, consider making a special background that includes this image. For instance, on most of the pages in my website (http://www.sonoma.edu/people/wilson), There is an image, usually a word, along the left margin of the screen. This image is part of the background.

To create such an image, simply make a large white (or background color of your choice) graphic. Add the image that you want along the left, or top if you prefer. Keep in mind that your background must be very large, or it will tile and your design will appear twice. (To view the background of a web page, choose "View -- Document Info" and click on the name of the background image. A miniature picture of it will appear in the lower window.)

Once you have created this image, simply specify that it is your background image, and then make sure the text of your page doesn't overlap the image. One way to prevent this is to align all your text to the right, and place your image on the left. If that is not an option, perhaps you can use an "invisible image" to force white space in your page.

Invisible Images

One way to force white space in HTML is by using invisible images. An invisible image is simply a rectangle or square that is completely white, and set so that white is the transparent color in the image.

It is possible with some browsers to stretch an image to any width and height. Therefore, you could have one single transparent image that was 30 pixels by 30 pixels (for example), and stretch it to be any width and height you need to force other page elements over or down. The workaround, for browsers that do not support stretching images, is to create several transparent images, each in the exact size you require.

Simply place the image in a table cell or in your HTML as you would any other image. It will appear as empty space -- if you have an image in the background, it will show through. Your layouts can be made more complex by using this trick.

Nonbreaking Spaces

Another way to force white space is to use nonbreaking spaces. If you want to stack several paragraph tags in a row, you can use nonbreaking spaces to add something which is invisible but which will keep the browser from "collapsing" the paragraph tags, which is the default behavior for many browsers.

To use a nonbreaking space, just insert its ASCII code:

```
<P><P><P>  = one blank line
<P> <P> <P>   = three blank lines

<TD></TD>  = collapsed table cell
<TD> </TD>  = a cell which will not collapse
```

Nonbreaking spaces can be used to force horizontal white space, too, although they aren't as good at that as invisible images are. If you want to keep a table cell from collapsing (default behavior for empty cells in Netscape), simply put a nonbreaking space in the cell.

Working with Portable Document Format (PDF)

This guide introduces Adobe's Portable Document Format and explains the various pieces of the Adobe Acrobat suite of applications. It explains how to publish a Microsoft Word document in PDF format and how to put that document on the Web, making it available for download.

What is PDF Format?
Portable Document Format (PDF) is a flexible, cross-platform file format will preserve fonts, page layouts, and other graphical elements in a document. Therefore, if you save a file in PDF format, a viewer can see exactly what you saved, even if you created your file on a PC and your viewer has a Mac, or even if you used custom fonts that are not installed on the viewer's machine.

Why would I want to use PDF Format?
If you prepare documents with special fonts, formatting or layouts, you will find that it is difficult to replicate your documents as web pages. However, you can easily save your files in PDF format and make them available for your students or colleagues to download. The files can be read onscreen or printed, and they will always look just the way you intended.

What is the suite of Adobe Acrobat applications, and what does each one do?
Acrobat Reader is used to view PDF documents. Reader is free and available for download at Adobe's website (http://www.adobe.com/prodindex/acrobat/readstep.html).

Acrobat Exchange is the application that allows you to open a saved PDF file and edit it, adding sound, buttons, links, and other features.

Adobe PDF Writer is not an application at all. Once installed, it produces a "printer" in your Chooser (called PDF Writer). In order to save documents in PDF format, you will "print" them to the PDF Writer. Instead of getting hardcopy output, you will get a new file, just as if you had chosen **Save As** and set the file format to **PDF** (unfortunately, some applications are not able to save as PDF). This process is also called *printing to a file*.

Acrobat Distiller is the application that allows postscript output to be slimmed down and saved in PDF format. We will not use Distiller in this workshop. We will use Acrobat Exchange, the Adobe PDF Writer and Acrobat Reader in this workshop.

Lesson One: Publish a Document in PDF Format
1. Open a text file and make any necessary changes.
>You may use a file of your own, or you may use the test file that has been provided for you.

2. Print to Adobe PDF Writer.
>Open the **Chooser** (look under the Apple Menu in the upper left of your screen).
>Select **Acrobat PDFWriter.** Close the Chooser.

In your text editor, with the document you wish to convert open, select **Print** from the **File Menu.** Click **OK** in the *first* and *second* boxes that appear (you can play with the options if you like, but it is not necessary to change anything or enter any information at this time). In the third box, click the **Desktop** button, name your file (PLEASE USE A NAME WITH NO SPACES - for example, **myfile.pdf**), and click **Save**. This will save your file to the Desktop, where it will be easy to find. You may save to your own floppy disk instead, if you wish.

3. Open the file in Acrobat Exchange and view it.

Launch Acrobat Exchange. From the **File Menu**, choose **Open**, and find the name of the file you wish to view (look on the Desktop). Click **Open**. Now explore some of Exchange's features:

3a. Explore the work area.

The main window is the document window, where your document appears. Above the document window is the *toolbar*, and above that, the *menu bar*. Below the document window is the *status bar*. To the left of the document window you may see the *overview window*, if your document has bookmarks or thumbnails. If you have opened a new document, you may not see the overview window.

3b. Navigate the document.

Acrobat Exchange allows you to turn the pages of your document as if you were turning the pages of a book. In addition, you can magnify the view, jump to the beginning or end of the document, and return to any previous page view, including its magnification.

Jumping Pages, Magnification and Screen Display

The status bar (at the bottom) shows, from left to right, the total number of pages in the document and which page you are on; the magnification level of the current page; and the paper size of the printed document. By clicking on the page number, you can choose any page in the document to jump to. If you click and hold on the magnification level, you can choose from several levels, to change the view of the page you are on. Clicking and holding on the paper size allows you to choose from different screen display options. Try different settings to see what you get.

Paging Forward and Back

In the toolbar at the top, you will see a group of buttons that look like track advance buttons on a CD player. The single forward triangle pages forward one page; the single backward triangle pages backward one page. The triangles with the vertical lines take you to the first or last page in the document. Try them!

Retracing Your Path

Each time you look at a new page, and each time you change the magnification, you are changing the view. Acrobat lets you move through your views, even if you stayed on one page and just changed the magnification, up to 64 views. Use the double triangles to page back and forth through your views.

4. Add bookmarks and thumbnails.

Bookmarks and thumbnails help you and your readers to navigate, organize and edit your documents quickly and easily. Bookmarks and thumbnails will appear in the overview window, which is to the left of the document window.

4a. Add some bookmarks.

Click the **Bookmarks and Page** button in the toolbar. It is the second button from the left. The first button is the **Page View** button, which will make the overview window disappear again. If you are working on a new document, no bookmarks will appear. If you have opened the sample file, you will see some bookmarks.

Setting a Bookmark

To set a bookmark, navigate to the page you would like the bookmark to open. With that page showing, choose **New Bookmark** from the **Document Menu** (or press Apple-B). An untitled bookmark will appear. Give it a title that reflects its destination.

Using a Bookmark

To use a bookmark, double-click the name of the bookmark in the overview window. The view will change to the one specified by the bookmark.

Redirecting a Bookmark

If you find that your bookmark goes to the wrong page, you can easily redirect it. Select the bookmark by clicking on it once. Navigate to the page the bookmark should be tied to, and choose **Reset Bookmark Destination** from the **Document Menu**. (Note that this option will be dimmed if you have not selected a bookmark.)

Saving Your File

After adding bookmarks, you can save the PDF file so that it includes the bookmarks. Your readers will see the same bookmarks when they download and view your document. Choose **Save** from the **File Menu** to save over the previous version, or choose **Save As** and give this file a new name if you wish.

4b. Add some thumbnails.

Click the **Thumbnails and Page** button in the toolbar. It is the third button from the left. If you are working on a new document, a set of blank thumbnails will appear. If you have opened the sample file, you will see its thumbnails.

Creating Thumbnails

To create thumbnails, select **Create All Thumbnails** from the **Document Menu**. A dialog box will appear, and you can watch the status as Acrobat creates a miniature image of each page in your document. The longer your document is, the longer this process will take.

Using Thumbnails

Clicking on a thumbnail will take you to that page.

Resetting Thumbnails

To delete all thumbnails in your document, choose **Delete All Thumbnails** from the **Document Menu**. Acrobat will remove all your document's thumbnails. If you make layout changes to your document after creating the thumbnails, you may wish

to delete the thumbnails and recreate them so that they accurately reflect the new layout.

Saving Your File

After adding thumbnails, you can save the PDF file so that it includes the thumbnails. Your readers will see the same thumbnails when they download and view your document. Choose **Save** from the **File Menu** to save over the previous version, or choose **Save As** and give this file a new name if you wish.

5. Add links in your document.

You can add links to your PDF file so that viewers can click on a word or phrase and jump to another section of the document. For example, if you have a table of contents in a long document, you can link each item in the table of contents to the correct page. Viewers could then click on the item in the table of contents to go to the correct page.

Another use for this feature would be to link to footnotes or diagrams from the relevant point in the text.

Creating Links

To create a link, first navigate to the page where you will put the link (the page with the text you want viewers to click on). Next, select the **Link** button (it looks like two pieces of chain linked together). Your cursor will change to a crosshairs.

Using the crosshairs, draw a little box around the text you want to link (click and drag with the mouse to do this). When you have drawn the box, the **Link Dialog Box** will appear, and you may set options for your link.

You can choose to make the box around the text *visible* or *invisible*. If you select *visible*, you can also set options like highlighting, shading, and color. Once you have set the appearance of your box (or non-box), and *while the **Link Dialog Box** is still open on your screen,* you will need to navigate to the page that the link leads to.

> For example: Your link is in the table of contents. You have selected the text Chapter One and you wish to link it to the first page of Chapter One. As soon as you are finished selecting appearance options, you would leave the Link Dialog Box open and navigate to the first page of Chapter One. You may move the dialog box to one side if you wish.

When you have navigated to the page your link will lead to, simply click Set Link in the dialog box, and the box will disappear. Your link is now set.

Testing Your Link

To test your new link, select the Hand button. This will allow you to view the document as if you were in Reader instead of Exchange. With the hand tool selected, simply click on the text of your link. You should jump to the linked page!

Saving Your File

After adding links, you can save the PDF file so that it includes the links. Your readers will see the same links when they download and view your document. Choose **Save** from the **File Menu** to save over the previous version, or choose **Save As** and give this file a new name if you wish.

Lesson Two: Make Your PDF File Available for Download on the Web
1. Place the file in your web directory.

Copy the file into your directory on the SSU Web Server. To do this, you must connect to the server and locate your directory, then copy the file.

Connect to the server.

Open the **Chooser** and select **Appleshare**. Choose **SSU Ethernet** in the **AppleTalk Zones** box on the lower left, and then select the server called **SSU Web Machine** in the **Server** box on the right. Click **OK**.

Enter your name and password as a registered user and click **OK**. If you do not have a web account, you must go to the IT Service Center to request one.

Choose the volume you would like. You should choose either **People** or **Classes**, depending on where your account is located. **Do not** check the little box to the right! Click **OK**. The server will appear on the Desktop. Close the **Chooser**.

Locate your directory and copy the file.

Open the volume on your Desktop (**People** or **Classes**). Locate your folder and open it. Find your new PDF file, which you saved to the Desktop, and drag it into your folder. This will copy the file into your web directory.

2. Make a link to the file in a web page.

Launch SimpleText (look for it under the Apple Menu on the lab machines). We will create a short web page that contains a link to the new file.

Type the following into your new SimpleText document, but replace *myfile.pdf* with the name of your PDF file (whatever you called it when you saved it). The name **must** end in .pdf for the download to work properly.

```
<HTML>
<HEAD>
<TITLE>My PDF File!</TITLE>
</HEAD>
<BODY bgcolor="white">
<H2>MY NEW PDF FILE</H2>
Here is a link to <a href="myfile.pdf">my new PDF file!</A>
</BODY>
</HTML>
```

Save the SimpleText document on the desktop as pdftest.html.

3. Add a link to Adobe's site for downloading Acrobat Reader.

If your readers try to download your file, but they do not have the free software Acrobat Reader installed, they will be unable to read your file. Since not everyone knows this, you may wish to put a link on your page to Adobe's site so that your viewers can easily get the Reader. Add this line into your SimpleText document, right before the </BODY> tag:

```
You can <a href="http://www.adobe.com/prodindex/acrobat/readstep.html">download Acrobat Reader</a> for free, if you do not have a copy.
```

Save your SimpleText file again, and then quit SimpleText.

Rachel S. Smith • Distributed Learning Specialist • CSU Center for Distributed Learning
http://www.pixeldust.com/rachel

4. Copy the new web page to your directory.

Put the file you have just created into your web directory. Copy the file into your web directory by dragging it from the Desktop to your folder.

5. Check Netscape's settings.

It is important to set up Netscape so that it knows what a PDF file is, or it will give you a page of garbage instead of your beautiful file! In the computer labs at SSU, Netscape has already been configured, but it may be that your own machine is not. To configure Netscape to download PDF files, follow these steps:

- Launch Netscape. Select **General Preferences** from the **Options Menu**.

- Click the **Helpers** tab and scroll down in the list until you see **Portable Document Format**. Click the **Edit** button on the right.

- Click the radio button next to **Application** in the bottom part of the box. Click the **Browse** button to select your application.

- Find **Acrobat Reader** (or Acrobat Exchange if you have it) on your machine. Select it and click **Open**. Click **OK**, then click **OK** again.

You may wish to add these steps to your web page, in case your viewers do not know how to configure their browsers once they download Reader.

6. View your page and download your new file!

To view your page, enter one of these URLs into Netscape's location bar. Replace *yourdirectory* with the name of your directory:

http://www.sonoma.edu/people/yourdirectory/pdftest.html

or

http://www.sonoma.edu/y/yourdirectory/pdftest.html

or

http://www.sonoma.edu/classes/yourdirectory/pdftest.html

Click on the link, and Netscape will download your PDF file. It will appear on the Desktop. Double-click it to open it!

Downloading Acrobat Reader

1. Go to Adobe's website.

Launch your web browser (on the computer you wish to install Reader on) and go to http://www.adobe.com.

• If you cannot access the web with the computer you wish to install Reader on, you will need a Zip disk or similar storage medium to copy the installers onto. The Reader installer is between 5 and 8 MB depending on which version you get.

2. Click the yellow button in the lower left.

The button reads, "Get Acrobat Reader." This will take you to the first download page.

3. Register if you wish.

> This step is optional. To register, click the red text that says, "Register," and fill out the information requested. When you click "Submit Registration," you will be returned to the download page.

4. Select the version, language, and computer platform you require.

> • Your choices for version are "Reader" and "Reader with Search." Reader with search will allow you to install not only Acrobat Reader, but also a searching feature that lets you search on the information you entered when you saved your PDF file. This option is larger and takes longer to download and install. Only select it if you need it.

> • English is most likely the language you will require; however, feel free to select any that will be useful to you. You may only select one language at a time.

> • Select your computer platform and/or operating system. This choice should reflect the machine type you will install Reader on, even if you are downloading Reader on a different type of machine.

5. Click the Download button; read installation instructions.

> You will move to another page. Instructions for installing Reader on your machine are included partway down the page. Please read these instructions before beginning your download. You may wish to print this page for reference.

6. Download Reader.

> Select the download option that is best for you.

> • You will probably want one of the top two options, as they are served from machines in the United States and may be faster.

> • You may select either the .bin or the .sit.hqx. The binary file is smaller (.bin), but you may not be able to decode it. The stuffed, bin-hexed file (.sit.hqx) may take a little longer to download, but Netscape should be able to decode it automatically.

7. Install Reader.

> After downloading is complete, follow the instructions from the web page in Step 5 above to install Reader on your machine.

For More Information

For more information on Adobe PDF or the Acrobat products, visit Adobe's website at http://www.adobe.com.

Guide to MOOing for Educators

Real-Time Interaction

It is possible to allow your students to sit down at any computer with an internet connection and access an environment where other students, professors, and instructional technology professionals are available for discussions, lectures, and informal conversations. Two ways of accomplishing this connection are Internet Relay Chat (IRC) and Multiuser Object-Oriented environments (MOOs).

IRC

Internet Relay Chat generally takes place over a public channel, though it is possible to set up a private "Chat Room" if you desire. If you wish to do this, you will need server space and someone to maintain the channel. If you use a public channel, you will find that not everyone who logs in is there for educational purposes. Conversations are very rapid and there is no really good way to describe yourself (other than choosing an appropriate nickname). On the other hand, it is very easy to send sound files or images to other people in your chatroom.

MOOs

MOOs can be accessed the same way, and may either be public or private. If you wish to set up a private MOO, again you will need a computer to act as a server, and you will need a programmer to set up and maintain the MOO. However, it is possible to use public educational MOOs, which you do not have to maintain.

There are other benefits of using a public educational MOO over a private IRC channel. Since the MOO already exists, no maintenance or server space is required of any of the universities involved at your end. You simply telnet to the server, log in, use the MOO, and log out when you are done.

A MOO also allows for more flexibility in expression and conversation. The interface is designed to make the technology as transparent as possible. In other words, once you log in to the MOO and get the hang of the commands, you will be able to converse with others without thinking about commands or menu choices. Talking to someone on a MOO is as easy as speaking on the telephone, except that it helps if you can type quickly.

Each regular user has a permanent character which can be described and named. Characters interact within rooms which are also described and named. In the case of MOOWP, the University of Wisconsin-Parkside MOO whose address appears below, a character can be a teacher or a student (among other things). Each teacher carries a property which is a list of his/her students. The teacher can check to see when his/her students have logged in; send a message to all of his/her students simultaneously, whether they are logged in or not; and, in a class setting, prevent students from leaving the room or speaking out of turn or engaging in private conversations with other characters. The teacher can also choose not to regulate student interactions, too.

For an introduction to MOOing and to MOOWP in particular, please review this MOO guide, prepared by the wizards (custodians) of MOOWP:

http://voice.uwp.edu/moo/

That page contains links to short documents that explain how to get around a MOO. You may find it useful to print some of these pages and keep them handy while you check out the MOO.

To log in to MOOWP, please telnet to this address:

it.uwp.edu 7777

Once you see the welcome screen, type:

connect guest

then type:

@who

to see who is logged in. My character is called Ivy. I am sometimes there during the day to answer questions. However, I may be away from my desk and still logged in. You may page me with questions, and I will answer if I am there. For more information on connecting and paging, please review these documents provided by UW-Parkside:

http://voice.uwp.edu/moo/

 Feel free to email me if you get stuck (rachel@cdl.edu).

A list of other educational MOOs is available:

http://tecfa.unige.ch/edu-comp/WWW-VL/eduVR-page.html

Here is a list of MOO resources from all over the web:

http://MiamiMOO.MCS.MUOhio.Edu/moos.html

There are some client software packages that make it easier to work with the MOO environment. A good one for the Macintosh is called MUDDweller—it's free. You can download MUDDweller—for Macintosh only:

ftp://tornado.rfx.com/pub/info-mac/game/mud-dweller-12.hqx

Good luck and happy MOOing!

Plug-Ins for Netscape

What Is a Plug-In?
A plug-in is simply a smallish piece of software that you can install to add functionality to a larger piece of software. It's called a plug-in because it's designed to be used with another application -- to plug into that application -- and not to be used by itself.

For example, in order to view Shockwave animations on the web, you have to have the Shockwave plug-in installed in Netscape's plug-ins folder.

How Do I Use a Plug-In?
Plug-ins are designed to be very easy to use. Simply follow these steps for each plug-in you wish to install:

1. Find the plug-in.
Usually, when you visit a page that requires a plug-in, there will be a link to a page where you can download the plug in. Click on the link to go to that page.

2. Download the plug-in.
Usually, you will see a link or series of links that ask you to specify your browser (sometimes) and/or your operating system -- Windows 95, NT, MacOS. Select the link that is appropriate. You should find another link, eventually, that invites you to download the correct version of the plug-in for your operating system. Click on the link to begin the download. Netscape will generally decode and expand the file for you if it has been compressed.

3. Install the plug-in.
Instructions will usually come with the plug-in or be available on the page where you downloaded the plug-in. Installation is generally a matter of placing the downloaded, decoded plug-in into a plug-ins folder within your Netscape folder (Macintosh), or double-clicking on the file, which self-installs (Windows).

Where Can I Find Plug-Ins?
Listed below are some pages which list plug-ins. Usually a description of what the plug-in is for is included as well. If you visit a page which requires a certain plug-in, you may be able to download the plug-in from there as well.

If you plan to make use of plug-ins on your own pages, you should add a link on your page that allows your users to download the plug-in too, in case they don't have it already.

Netscape's Extensive List of Plug-ins:
 http://home.netscape.com/comprod/products/navigator/version_2.0/plugins/index.html

For More Information
http://www.incontext.com/spidweb/archives/gus/april15/plugins1.htm

Using the Web in Teaching

This guide explains some ways in which the web can be used in teaching. The types of sites that are already available to be used in your courses are discussed. Suggestions as to the types of pages you may be able to create for your courses are also offered.

Selected URLs are included in this document. These and others mentioned in this guide are accessible as links from this page:

<div align="center">http://www.sonoma.edu/people/smithr/uwt.html</div>

Vocabulary

Chat or **online chat:** A forum in which real-time discussions can take place. Each participant types what he/she wishes to say, and it is displayed to all other participants immediately. Chat sessions can be held on the web within web pages, or by opening a window in a telnet application such as MacSamson or NCSA Telnet.

Form: A web page which contains fields that can be filled out. The completed form can be processed by the web server and posted to a web page, added to a database, or submitted to an email address.

HTML (Hypertext Markup Language): The set of formatting codes which is applied to a document so that the document can be displayed by a web browser.

Hypertext link: A link contains the address of a web page (a file) on the internet. The address includes the name of the file, the directory the file is in and the machine the file is on.

LISTSERV or **mailing list:** A list of email addresses to which articles can be submitted. Everyone on the list receives a copy of the article, which generates lots of traffic on the internet. Many listservs do not allow anonymous postings, and some are moderated.

Newsgroup: A group of related articles submitted via email to a list server which publishes the articles on the internet. Anyone can access the postings anonymously, and in many cases postings can be made anonymously.

Web Search engine: An application with a web-page interface which can search a database for words or phrases. Different search engines have different databases, though many pages are listed with several search engines. Examples include Alta Vista, Infoseek, Excite, Yahoo, Lycos, Big Book, WhoWhere People Search.

Usenet: That part of the internet which consists of newsgroups. Usenet was created to reduce the need for listservs. Each newsgroup is basically a list server which forwards messages to a few places where many people can read them, thereby reducing the amount of traffic.

Web browser: Any application which can display documents written in hypertext markup language (HTML).

Web page: Any document which is written in HTML and stored on a web server for viewing with a web browser.

Web server: A program which gives out web pages to browsers when asked.

Web site: A group of related web pages which are usually on the same machine.

How Can You Use the Web?

There are many ways to use the web in teaching, ranging from highly interactive to no more interactive than reading a book. Instructors can spend a little time on creating web sites for students to access, or lots of time, or none at all. Generally, sites which are most interactive also require the greatest time investment. However, it is possible to appropriate sites which have already been created.

There are many sites which exist simply to be used by as many people as possible, for free, to do anything from finding a friend's zip code to learning hands-on about advanced scientific methods. An instructor can find out about existing sites and encourage students to use them without having to create his/her own sites.

The web can be used as a set of research tools, as a place to store course information so that it can be updated instantly and is available twenty-four hours a day, and as an interactive learning environment.

How Much Interaction?

Interaction is the promise of the web, but you can choose the levels of interaction that you want to deal with. Minimally interactive uses of the web require the least effort on the part of the instructor; moderately interactive uses require more time and patience; and high levels of interaction call for a team of programmers, artists, and content experts who can dedicate time to their web projects. However, many highly interactive sites are available for anyone to access and use.

How Do You Know What's On the Web?

Okay, cool! Now that we're excited about these wonderful things, how do we find them? Given that professors have a limited amount of time, how can we ensure that we find something worthwhile? Will everything we find be as great as the things described here?

Unfortunately, no. Just as any expert can post a web site, anybody with an internet connection can publish information that is incomplete, inaccurate, and wrong. However, even with all the junk available on the web, if you are able to spend a little time evaluating the sites you've found, you are bound to find something worthwhile. And if you absolutely can't find exactly what you're looking for -- chances are someone else is looking for it too, and you'd be doing a service to create it yourself and add to what is already out there.

Finding/appropriating sites

Use any means you can to find informative and interactive web sites. Use search engines, read newsgroups in your area, ask questions on those newsgroups, and ask for URLs whenever someone says, "Oh, by the way, I found this great site..."

Evaluating content

When you do find a site of interest, check it out thoroughly to be sure it contains valid information and working links. If you encourage your students to use the web for research -- and the web is a fine tool, just as a library is a fine tool -- stress that care must be taken to ascertain the validity of the source. A book found in a university library is generally of some merit, or it would not have been published and purchased for the collection. Not so with web pages. Check the author's credentials. Check the

information to see if it seems sound. Does the URL look like www.nasa.gov or like www.someplace.com/user/myhomepage/myideas.html? Not that every page that isn't served from a reliable agency isn't a good resource, but such pages should be checked carefully. Encourage your students to be critical researchers, and do the same yourself.

A guide to teaching critical evaluation skills for websites can be found at this URL:

http://www.science.widener.edu/~withers/webeval.htm

Creating sites

If all else fails, you may have to roll up your sleeves and create a site yourself. If you don't know hypertext markup language (HTML), you can either learn it in about two hours or use a web editor that allows you to type text just like a word processor. For more interactive sites that use discussion groups, listservers, or forms, help is available on Sonoma State University's web site, from the Service Center, and from the Webmaster (Amanda Tunison). None of these resources will create the pages for you, but they can help you get started and point you in the right direction.

Another resource that has proved useful to professors is their own students. There are many students who have home pages who might be willing to lend their time and expertise to help you develop your course pages. If you have a really neat idea that could be used by others in your discipline, consider trying for a grant to develop the project. Many of the sites mentioned here were developed with grant money, and some of them may even discuss that on the site.

If you would like to learn HTML yourself, there are some online resources available:

HTML Primer:
http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html

Links to HTML Resources: http://www.pitt.edu/~hbjst/eng_html.htm

Help for Your Pages: http://www.ece.utexas.edu/lrc/lrc1/web/HTMLhelp.html

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Minimal Interaction: Examples
The web offers many kinds of research tools. Search engines, government data sites, sites by subject-matter experts, and professional resources are just a few.

Search engines

Search engines can be used to find zip codes, telephone numbers and addresses, works by Shakespeare, menus and recipes, information about medical conditions, book and movie reviews... If you want to find out about just about anything, chances are there are some web pages that will give you what you're looking for. Search engines can help you find that information.

Think of a search engine as a computerized card catalog, where each card represents a web page. You type in your search criteria, and the engine returns a list of web pages that match your request. Usually the list will be broken into groups of ten entries, but there may be hundreds of pages on the list. Not all of them will be what you had in mind, but chances are, something useful will be there. You simply select the page(s) which looks the best, and with a click of your mouse, you're looking at the information on your screen.

URLs for some search engines:

Alta Vista: http://www.altavista.digital.com/
Zip Code Lookup: http://www.usps.gov/ncsc/lookups/lookup_zip+4.html
Search.Com: http://www.search.com/
Library of Congress: http://www.loc.gov/

Sites by NASA, NOAA, USGS, other agencies

The web has proved to be an excellent resource for government agencies which have lots of data to quickly and cost-effectively distribute that data to a wide audience. For instance, the US Geological Survey (USGS) provides the equivalent of millions of pages of information at very little cost to them. This information is published on the world wide web where it can be accessed by anyone with a net connection for free. Information about weather, including live data from ocean buoys off the coasts of the United States (wave height and direction, water temperature, and wind speed and direction), is available twenty-four hours a day to anyone with a web browser. NASA publishes data from interplanetary missions including maps of Venus, photos of the outer planets, and selected data from the Hubble space telescope. Other agencies provide their data in the same manner. Researchers can access this original source material at any time.

Goverment Agency Sites:

USGS: http://www.usgs.gov/

NASA: http://www.nasa.gov

National Weather Service/NOAA: http://www.nws.noaa.gov/

Sites by subject-matter experts

Anyone can publish a web page, which means that people who have specialized knowledge can easily share it with others. Such knowledge is often the subject of personal home pages. For instance, there is a site by a professor of architecture at Berkeley which deals in depth with aerial kite photography. Medical researchers and special-interest groups have published sites which explain medical disorders and syndromes. Such sites often include discussion of symptoms, history of the disorders and their treatments, and case studies of patients.

Kite Aerial Photography: http://www.ced.berkeley.edu/~cris/kap/index.html

Professional associations/listservs/newsgroups

Many professional journals are now available on the web, where they are often indexed and searchable. In addition, listservs and newsgroups dedicated to various professions exist. In these lists, professionals can share ideas and have discussions with other members of their disciplines in any part of the world. With a listserv, the discussion is carried on through email, and each participant receives postings at his/her own email address. The newsgroup model is slightly different, in that the postings are emailed only to a few servers, and then published on Usenet where readers can access them with any news reading software.

Higher Ed Discussion Forum at Prentice Hall Canada:
http://www.phcanada.com/general/discussion.html

The Global Campus: http://www.csulb.edu/gc/index.html

Minimal Interaction: Doing It Yourself

Links to other sites

The whole point of the world wide web, the very feature that makes it special, is the ease with which you can create hypertext links. These links transport viewers from one page to another and can be made of images, text, or both. You can create a single page that has lists of links to relevant topics.

To add a link, place an anchor tag in your HTML document:

```
<A HREF="http://www.sonoma.edu">Sonoma State University</A>
```

The words "Sonoma State University" become the link, and when a user clicks there, the SSU home page is loaded in the browser's window. To make a graphic into a link, simply replace the text "Sonoma State University" with an image tag:

```
<A HREF="http://www.sonoma.edu"><IMG SRC="sonoma.GIF"></A>
```

Email links

An email link is simply some text that can be clicked on to bring up an email window in a web browser. The message is sent to the address coded into the link. Email links can be used to send questions and appointment requests to professors and/or TAs.

To make an email link, add an anchor tag with the special "mailto" command in your HTML document:

```
<A HREF="mailto:wilsonra@sonoma.edu">Send email to Rachel Wilson.</A>
```

The words "Send email to Rachel Wilson" become the link, and when someone clicks on them and writes a message, that message will be sent to the address wilsonra@sonoma.edu.

Usenet links

There are lots of newsgroups available, some of which might be pertinent to your course. It is possible to create a link that pops up a news reader and accesses a certain newsgroup when someone clicks on it.

To make a usenet link, you have to know the name of the newsgroup. For instance, to make a link that pops up a reader and the newsgroup rec.collecting.stamps, add an anchor tag with the special "news" command in your HTML document:

```
<A HREF="news:rec.collecting.stamps">Read about stamp collecting here.</A>
```

The words "Read about stamp collecting here" become the link, and when someone clicks there the news reader is popped open and the newsgroup rec.collecting.stamps is opened.

Moderate Interactivity: Examples

Moving toward more personalized and interactive use of the web, we find course web pages. Some course sites are simply up-to-date copies of the course syllabus and assignments. Other sites provide copies of class readings or images, sounds or video clips, which can be made accessible only to students enrolled in the course. Still others include discussion groups, chat sessions, and interactive quizzes and surveys. Your course web site can be as interactive and informative as you choose to make it.

Syllabus, assignment listings

The simplest and least interactive use of a course web page is to provide a copy of the course syllabus and assignments, office hours and contact information, perhaps a photograph of the professor and a short biography if desired. The syllabus and assignments can be updated as often as necessary to keep them current. Perhaps a list of discussion questions could be added, for students to keep in mind while reviewing the last class or preparing for the next. This kind of page is fairly easy to create and maintain with a minimum of effort.

Newsgroup-like discussion groups

Discussion groups can be set up so that the professor can post questions which students can discuss via email. Each response is sent to a server which publishes the message in a list for other students to view. These groups can be made private so that only students enrolled in the course have access to the list. This is a slightly more interactive use of the web, though students still have to return to the page to see responses to their postings. While some professors feel that there is little use for such a discussion group -- isn't it better to have face-to-face discussion? -- there are some cases where this type of resource can be useful. If classes are very large and in-class discussion is impractical, or if anonymous discussion is desired for some reason, a discussion group may be a useful addition to a course web site.

Online chat sessions

Stepping up the interactivity scale a little, we have online chat sessions. These sessions occur in real time, which means that as long as at least two people are logged in, a live discussion can take place. One participant types a message and presses <return> -- and all other participants see the message at once. Anyone can reply, and the reply is also instantly available. Again, this type of interaction is not always appropriate, but in some cases it is useful.

Forms: quizzes, surveys

Forms can be added to a web site with a little effort. A form can take the shape of a quiz, which is filled out by each student and sent in. It can be automatically graded, or emailed to the professor, or added to a database of that student's work. A survey or questionnaire can be posted on a web page, if there is some information the professor would like to gather anonymously.

Moderate Interactivity: Doing It Yourself

Collaborative web sites

Collaborative web sites are sites which are developed jointly by classmates, professors, and/or members of other classes. Some collaborative sites are created by students taking similar classes at different schools, or by students whose classes complement each other (students of French in the US, and students of English in a French-speaking country, for instance). These sites are often maintained on more than one machine, but the links between them make them seem like a single site.

The trick to creating collaborative web sites is having people to collaborate with. Some sites grow year by year as new groups of students add to them. Other sites are created each semester by the current group of students, then taken down to make room for the next site. For collaboration with other schools, the instructors should contact each other to set up tasks and compare notes. If you are looking for a partner for such a site, try searching the web for newsgroups and/or list servers in your discipline. You can post requests to these groups and get responses from all over the world.

Collaborative web sites are not necessarily interactive in and of themselves, but the process of working together to create a group work is.

Example - **Jack London Collection:** http://sunsite.berkeley.edu/London/

Discussion groups

A discussion group is basically a tame newsgroup that can be limited to the students enrolled in a class. Instead of being posted in a world-readable location (accessible by everyone), discussion groups can be placed on course web pages and locked to certain students.

In order to make a discussion group work at SSU, you will need to useNetforms. The are available on SSU's web site. An example of a discussion group is the SSU Discussion Forum. For sample files you can adapt to your own needs, contact SSU's Webmaster, Amanda Tunison.

SSU Public Forum: http://www.sonoma.edu/University/forum/

Guestbooks/comment forms

Guestbooks and comment forms are also run by Netforms. Comment forms are pages that can be filled in by users, usually with questions about how the user likes the site. However, comment forms can be tailored for courses as well. The output of a comment form is generally emailed to the person who made the web page. A guestbook is a comment form which displays all or part of the output on a web page, so that future visitors can see the comments of previous ones.

For sample files you can adapt to your own needs, contact SSU's Webmaster, Amanda Tunison.

Quizzes, surveys and appointment books

These types of forms have specialized functions. You may post quiz questions and have the results emailed to you for review (easiest) or graded automatically and stored or mailed back to the student (harder) or entered into a database for your use (hardest).

If you would like to do either of the latter two options, you'll to write some specialized templates. For sample files you can adapt to your own needs, contact SSU's Webmaster, Amanda Tunison. For automatic grading, the quizzes will need to be multiple choice. It's possible to make the answers secure so that students can't simply download the correct answers. If you are interested in this, please contact Amanda Tunison. The process involved will not be quick or automatic, but it is possible to do and the results would be worthwhile.

There are also some software packages available that will create online quizzes automatically, right on the web. Some are free of charge, and some have different features than others.

Learning Space: http://weber.u.washington.edu/~lspace

Q-Form: http://www.satlab.hawaii.edu/space/hawaii/qform.html

Question Mark: http://www.qmark.com/

QuizMaker: http://www.ndsu.nodak.edu/instruct/wwwinstr/tools/quiz/Qmdoc.html

High Interactivity: Examples

At the high end of the interactivity scale are the interactive learning sites, including online tutorials and labs. These sites take time and energy to develop. Fortunately, lots of them have already been developed and are available for use by anyone who can find them.

Online tutorials and "labs"

There are online tutorials for everything from learning to browse the web to writing web pages to using computer software. Of course, not all tutorials are for computer-based activities: there are sites that provide drawing tips, give bird watching advice, or take you step-by-step through planning, planting and harvesting a vegetable garden. Instructors can find such sites using search engines and encourage their students to take advantage of the self-paced guidance provided by the sites' authors.

Some sites take learning a step further and allow students to perform experiments or do activities on the web. These sites are often simulations, but some are web-page interfaces for "real-life" activities. There is a site allows users to control a robot arm that plants seeds, waters the earth and monitors the growth of plants in a community garden. All gardening activities are done entirely by the robot, which is controlled entirely by registered users of the site all over the world. A camera looks down on the garden -- users can specify a section of the garden that they wish to see -- and gives gardeners an updated view of how their plants are doing.

Other sites allow students to dissect virtual frogs:

Interactive Frog Dissection: http://curry.edschool.Virginia.EDU/go/frog/

Virtual Frog Dissection Kit: http://george.lbl.gov/ITG.hm.pg.docs/dissect/

Simulations

Simulations are computer programs that provide interactive, "virtual" activities for people to use. An example of a web-based simulation is the Virtual Fruit Fly lab, where students can breed virtual fruit flies and generate hypotheses about genetic inheritance,

which can be checked by the computer. Another is EvolveIT, which allows students to manipulate parameters that affect the evolution of finches on two imaginary islands.

Simulations require fairly sophisticated programming and demand a heavy time commitment. A team of programmers usually develops these -- but you can certainly take advantage of any that you find on the web, by linking to them from your own site. If you do decide to create something like this on your own, and you are not a programmer yourself, you will need to hire a student or professional programmer. Depending on the type of simulation you'd like to do, you may also need to hire an artist, a writer, or an interface designer. Some schools have Multimedia Labs which are staffed with such people, who will help you free of charge or for a nominal fee.

Virtual FlyLab:
http://vflylab.calstatela.edu/edesktop/VirtApps/VflyLab/IntroVflyLab.html

EvolveIT (Beta): http://www.cdl.edu/EvolveIT

Realtime Interaction with Others

Realtime interaction can be done on the web in several ways. One is to have a link which opens another application (like NCSA Telnet or MacSamson) which makes a connection with a server. Two types of realtime interaction are Internet Relay Chat (IRC) and Multiuser Object-Oriented "dungeons" (MOOs).

IRC allows the user to choose a "handle" or name, and to converse with many other people as quickly as the user can type. Many educational IRCs are aimed at K-12 groups. MOOs go one step further than allowing users to choose names -- the user can describe him/herself, create and describe rooms, objects (coffee cups, pets, books...). The objects can be programmed so that simple commands ("read book," "drink coffee") produce messages that other players can see ("Peter flips through the pages of an old book," "Susan drinks from a cup of hot coffee."). Programming is not necessary to use a MOO, however, and many players only describe themselves without building rooms or objects.

There are several MOOs which are dedicated to educational discussions, though there are also many that are not. A list of educational MOOs is available at this URL:

> http://tecfa.unige.ch/edu-comp/WWW-VL/eduVR-page.html

While MOOs are not practical for discussions that should be held in class, they are useful for facilitating conversations between students who are separated by distance and who would not otherwise have the chance to talk in realtime. There are several foreign-language MOOs which allow students to practice spelling as well as conversation with students in other countries, for instance.

Although it is possible to create and run your own MOO, it is vastly easier and perfectly acceptable to join an existing one. Most are free for the asking. It takes a day or two for the "wizards" to process a request for a new character, but once that is done, the players may log in at any time and chat with anyone who is logged in and willing to converse.

The related handout **Guide to MOOing for Educators** is included in this booklet.

Resources on the World Wide Web

Corporate Sites
Claris Corporation
http://www.claris.com

Academic Press
http://www.apnet.com

Ruben Salazar Library Sites
Ruben Salazar Library's Internet Resources pages
http://libweb.sonoma.edu/Resources/

Citation Styles
http://libweb.sonoma.edu/Resources/citation.html

Evaluating Web Sources
http://libweb.sonoma.edu/Resources/eval.html

Subject Oriented Resources
http://libweb.sonoma.edu/Resources/#subj

Searching the Web
Collection of Specialized Search Engines
http://www.search.com

Strategies for Searching the Web
http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Strategies.html

Choosing the Search Tools You Need
http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/ToolsTables.html

Instructional/Tutorial Sites for Educators
Teaching Critical Evaluation Skills for Web Resources
http://www.science.widener.edu/~withers/webeval.htm

Guide to MOOing for Educators
http://www.sonoma.edu/people/smithr/moo.html

Instructional Uses of the World Wide Web
http://ltc.cit.cornell.edu/workshops/courseMaterials/WebIntro.html

Global Campus
http://www.csulb.edu/gc/index.html

Courses on the Web
Sonoma State University Courses on the Web
http://www.sonoma.edu/University/classes.html

The Jack London Collection
http://sunsite.berkeley.edu/London/

Web Course in a Box
Overview of Web Course in a Box
http://www.sonoma.edu/IT/ITS/wcb/wcb_overview.html

Web Course in a Box FAQ
http://www.sonoma.edu/IT/ITS/wcb/wcb_faq.html

Web Course in a Box Cookbook
http://www.sonoma.edu/IT/ITS/wcb/wcb_cookbook.html

Copyright and the Web
10 Myths about Copyright Explained
http://www.clarinet.com/brad/copymyths.html

Brief Introduction to Copyright
http://www.clarinet.com/brad/copyright.html

The Copyright Website
http://www.benedict.com/

Fair Use
http://www.libraries.psu.edu/avs/fairuse/fairuse.html

Sites with Links to Other Resources
Links to Resources for Using the Web in Teaching
http://www.sonoma.edu/people/smithr/uwt.html

Instructional Technology Connections
http://www.cudenver.edu/~mryder/itcon.html

Berkeley SUNSite
http://sunsite.berkeley.edu/cgi-bin/welcome.pl

Free Resources for Your Pages
Free Graphics Wonderland
http://www.geocities.com/SiliconValley/Heights/1272/index.html

Sample Lessons for Using the Internet in Your Classes
http://dewey.esc1.tenet.edu/internet/guide.txt

Help with HTML, Web Style, and Site Development
Links to HTML Resources
http://www.pitt.edu/~hbjst/eng_html.htm

Links to HTML Support Pages
http://www.pitt.edu/~hbjst/eng_toc.htm

Guide to Web Style
http://www.sun.com/styleguide/

Yale Web Style Manual
http://info.med.yale.edu/caim/manual/index.html

Doctor HTML: How Sound is Your HTML?
http://www2.imagiware.com/RxHTML/

Usability Tests for Your Pages
http://www.webreview.com/97/04/25/usability/index.html

Web Tips
http://www.caseyspm.com/needfulThings/wwwStuff/tips.html

Style & Images on the Web
http://ltc.cit.cornell.edu/workshops/courseMaterials/advstyle.html

Help with Creating Your Pages
http://www.ece.utexas.edu/lrc/lrc1/web/HTMLhelp.html

On the Lighter Side
Riddler
http://www.riddler.com

The Electric Postcard
http://postcards.www.media.mit.edu/Postcards/

Hotel Reservations Over the Internet
http://www.placestostay.com/index.html

Travelocity: Airline Flight Reservations over the Internet
http://www.travelocity.com

Bibliography and Selected Resources

Recommended Reading

Note: Some books are listed with two prices. The first is the price at http://www.amazon.com, an online bookstore. The second is the usual shelf price of the book at other bookstores, excluding promotions and discounts at those stores.

Blatner & Fraser. <u>Real World Photoshop 4: Industrial Strength Production Techniques</u>. Peachpit Press, 199?
…The Photoshop reference materials website gives the book a five star rating and states that this book is without peer for all users of *Photoshop* - $39.95

Castro, Elizabeth. <u>HTML for the World Wide Web</u>. 2nd Edition. Peachpit Press, 1997
…a concise and comprehensive guidebook for creating webpages with HTML - $17.95

Gilster, Paul. <u>Digital Literacy</u>. New York: John Wiley & Sons, 1997. ($18.36/$22.95)

Lai & Simsic. <u>Photoshop 4 Type Magic 1</u>. Hayden Books, 1997, 249 pages
… a book on creating beautiful typography effects with Photoshop for the Web. The book includes a CD-ROM with stock images, Adobe plug-ins, and preset lighting effects - $39.99

Langer, Maria. <u>Claris Home Page Companion</u>. Claris Press, 1997, 486 pages
… a complete manual for creating websites using Claris Home Page. Creating webpages with HTML code is not explained in this manual. It is currently available for $17.95 plus shipping (normally $29.95) by calling Claris at 800-544-8554, extension 1450.

Lemay, Laura. <u>Teach Yourself Web Publishing with HTML 3.2 in a Week</u>. Sams.net Publishing, 1996, 582 pages
…. a well written tutorial that carefully and fully explains how to develop both static and interactive websites with HTML - $29.95

Monroy & Biedny. <u>Adobe Photoshop: A Visual Guide for the Mac</u>. Addison Weslely Publishing, 1996, 138 pages
…makes extensive use of color images and step-by-step instructions which makes understanding Photoshop effects easier than text-based books - $34.95

Neiderst & Freedman. <u>Designing for the Web: Getting Started in a New Medium</u>. O'Reilly & Associates, 1996
…an outstanding beginners tutorial in using HTML and graphic design principles in the development of websites - $24.95

Siegel, David. <u>Creating Killer Web Sites</u>. Hayden Books, 1996, 270 pages
…a book on designing more sophisticated webpages with HTML tricks and the use of excellent principles of design. This book is currently available on Amazon.com for $24.95 (normally $45.00).

Williams, Robin and Tollett, John. <u>The Non-Designer's Web Book</u>. Berkeley:
Peachpit Press, 1997
    ….if you wish to purchase only one book that will provide any easy to read and
    understand guide to web publishing, this is it! Robin Williams is a well known author
    of well-written succinct books for beginning computer users. - $29.95

Other Books on Web Design Available at amazon.com
The following books have not been reviewed by the workshop leaders.

Callihan, Steven E. <u>Create Your First Web Page in a Weekend</u>. Prima Publications, 1996.
    ($26.99/$29.99)

Dinucci, Darcy, et al. <u>Elements of Web Design</u>. Peachpit Press, 1996. ($35.96/$39.95)

Holzschlag, Molly E. <u>Professional Web Design : Theory and Technique on the Cutting
    Edge</u>. Prima Pub, 1996. ($36/$40)

McCanna, Laurie. <u>Creating Great Web Graphics</u>. Mis Press, 1996. ($16.77/$27.95)

Sachs, David and Henry H. Stair. <u>Seven Keys to Effective Web Sites</u>. Prentice Hall Books,
    1996. ($24.26/$26.95)

Sagalyn, Raphael. <u>The Great American Web Book: a Citizen's Guide to the Treasures of the
    US Government on the World Wide Web</u>. Random House, 1996. ($15.30/$17)

Waters, Crystal. <u>Web Concept & Design: a comprehensive guide to creating effective web
    sites</u>. New Riders Publishing, 1996. ($35.99/$39.99)