



Columbia University Web Site Principles and Guidelines

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I. Introduction

In 2005, the University's Web Advisory Committee set out to define a common set of principles to promote Web-site improvements in:

- Accessibility
- Usability
- Currency or timeliness
- Consistency
- Accuracy
- Security
- Privacy and confidentiality

The Web is used in a variety of ways by Columbia schools, offices, and departments. The University is well served by communicating a set of shared principles and recommended implementation guidelines among the various departments and business units. What follows should not be viewed as edicts, but rather a set of recommendations, based upon industry best practices, that are now official University policy endorsed by Provost Alan Brinkley, Senior Executive Vice President Robert Kasdin, and Vice President for Information Services Jim Neal.

If you have questions, suggestions, or recommendations pertaining to the Web Site Principles and Guidelines, please e-mail webteam@columbia.edu.

II. Principles

1. Accessibility

University Web-site administrators and designers should create Web content to prevailing standards that provide for universal access and display on various devices.

2. Timeliness and accuracy of information

Web sites are most useful if information is accurate and up-to-date. Out-of-date information should be removed in a timely manner and, if appropriate, archived. (See point 7.) Whenever you remove a page or change a URL, take steps to ensure that users will find the new page.

3. Use of primary sources of information

Redundancy, duplication of effort, out-of-date information, and even piracy can be avoided by linking to the responsible unit's Web page. Avoid recreating the data in multiple locations. If you must recreate some of the information, confirm its accuracy with the appropriate source and comply with copyright laws.

4. Ownership of information

Owners of information should be identified and recognized as the authoritative source of their data. These information owners have the responsibility to ensure that their data are correct and that their sites adhere to University network-use policies and applicable federal laws on data transmission.

5. Columbia University identity

Logos, typeface, and colors are often used to promote a shared identity. If schools, departments, or business units have chosen to create a standard identity, use this standard consistently. Inclusion of the Columbia crown or University logotype in site design is strongly encouraged.

6. Usability

Web sites should apply best-practices usability principles when designing sites. This includes using consistent graphics, editorial style, and treatment of links to promote a user-friendly interface and intuitive navigation.

7. Archiving

Some of the information on Columbia Web sites is an institutional asset. Information owners should consider the appropriate use of archiving to preserve historical information as a matter of record.

8. Secure and reliable Web sites

Columbia Web sites should be managed at an industry-standard level of security and service. This will reduce security vulnerabilities, improve service, and ensure that all data is accurate and easily recovered.

9. Confidential data

Confidential information should not be displayed on a public Web site. When users view or enter a page displaying confidential data, a secure Web site and browser interface is required. When collecting confidential information, the University should use a secure server utilizing the SSL protocol.

10. Leverage existing technology and services

Whenever possible, utilize Columbia's existing technology and services. This promotes consistency and cost-effectiveness across the University. If existing technology and services are not sufficient, external services and technology may be used.

III. Guidelines in Support of the Web Principles**1. Accessibility**

University Web-site administrators and designers should create Web content to prevailing standards that provide for universal access and display on various devices.

The University should aspire to produce electronic and information-technology products that are accessible to people with disabilities. While this is especially true of personal computers, an effort should be made to test products on other devices, including those using emerging technologies

While not mandated for universities, Section 508 of the Rehabilitation Act is an excellent resource with Web guidelines that are considered a baseline for best practices. Another good resource is the World Wide Web Consortium (W3C), internationally recognized as the authority on developing and promulgating Web standards. Site designers should stay abreast of their work, particularly the Web Accessibility Initiative. In addition, the Mobile Web Initiative concerns the increasingly relevant question of delivering content to handheld devices.

Resources

- Section 508 federal standards: 16 rules for Web-based applications
<http://www.section508.gov/index.cfm?FuseAction=Content&ID=12#Web>
- W3C Web Accessibility Initiative (WAI)
<http://www.w3.org/WAI/>
- W3C Mobile Web Initiative
<http://www.w3.org/Mobile/>
- WebXACT accessibility test
<http://webxact.watchfire.com/ScanForm.aspx>
- Vischeck color-blindness test
<http://www.vischeck.com/vischeck/vischeckURL.php>
- High Accessibility Is Effective Search Engine Optimization
<http://www.alistapart.com/articles/accessibilityseo>

2. Timeliness and accuracy of information

Web sites are most useful if information is accurate and up-to-date. Out-of-date information should be removed in a timely manner and, if appropriate, archived. (See point 7). Whenever you remove a page or change a URL, take steps to ensure that users will find the new page.

Outdated information on University sites results in confusion, misunderstanding, and even raises possible legal issues. For example, if a Web page states a tuition or program fee that is no longer accurate, the University may be expected to honor the stated amount. To guard against this, the University recommends that at least once a semester site administrators review their pages for accuracy, with particular attention to the following types of information:

- Announcements and news
- Contact information
- Faculty and staff lists
- Fees structures and course listings
- Issues of newsletter or journals
- Links to other sites

For time-sensitive information such as course listings, it is helpful to both users and site administrators to indicate the date the page was last updated.

If you change the URL of your Web site or remove key pages, be sure to set up a redirect so that users who have bookmarked the site or type in the old URL will be taken to the most current page. In addition, notify colleagues that link to your site and request an update in the Columbia A-Z Index.

Resources

- Learn how to insert code that will automatically write the "last updated" date <http://www.columbia.edu/acis/webdev/ssi/index.html>.
- To set up a redirect, rename the old page and make a new page with the original name and the following code.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<title></title>
<meta http-equiv="refresh" content="0; url=http://newsite.edu/">
</head>
<body>
</body>
</html>
```
- To find out who is linking to your file, use the "link:" syntax in the Columbia Search.
link:www.columbia.edu/index.html will return a list of pages that include a link to <http://www.columbia.edu/index.html>
- To get listed in the Columbia A-Z Index, e-mail the Web Team at webteam@columbia.edu.

3. Use of primary sources of information

Redundancy, duplication of effort, out-of-date information, and even piracy can be avoided by linking to the responsible unit's Web page. Avoid recreating the data in multiple locations. If you must recreate some of the information, confirm its accuracy with the appropriate source and comply with copyright laws.

Linking to another unit's Web site is often the best way to provide accurate information on programs or events that you do not manage. When linking to other Web sites, consider ways to make the transition as seamless as possible for the user. For example, treat links to other sites differently from links in your main navigation by putting them under the heading "Related Links." Many developers choose to launch other sites in a new browser window. You may also provide introductory copy to let users know they will be going to another site or place a graphical icon beside a link indicating it will take the user to an external site.

Copying and pasting the same content on multiple pages increases the chances of one page missing an update and therefore being wrong.

There are three recommended ways to reuse content on your site without actually entering the information multiple times: through the use of "include" files, databases, and content-management systems.

- Server-side includes (SSI) are Web-page directives that can be placed in your HTML file, telling the Web server to include additional information in the displayed document. Content providers may be willing to set up certain pages, such as announcements, so that they can be included in other units' Web sites. Their simple syntax and widespread back-end support make them an attractive alternative to more complicated or less widely supported scripting solutions, such as PERL or PHP.
- While SSI is a good way to share a privacy policy or implement a site-wide footer, it is not well suited to repurposing content at a more granular level.

For that, some sort of database is needed. For instance a departmental faculty database might be accessed by more than one Web site, and each site might only need a particular subset of the data and also have very different data-formatting requirements. Using a supported programming language, Web applications can access and manipulate records from a common database. For security reasons, among others, accessibility needs to be carefully considered before creating common databases. The University supports programming languages such as PERL, Cold Fusion, and Java.

- In the case of building a new site or substantially changing an existing one, developers should consider the benefits of using content management systems (CMS). A CMS typically creates a content repository, which means that site content will be reusable. However, each CMS is different and the breadth and depth it allows for exchanging content will depend upon the product. At a minimum, though, the product should help you reuse common content and facilitate site-wide updates. For example, the University has developed and supports a promising CMS, Hypercontent.

If you must repurpose information originally published by another source, first confirm its accuracy with the source—and reconfirm each semester. Ensure compliance with copyright laws by linking to or referencing appropriate sources and by including copyrighted information only with appropriate permissions or consistent with the principle of fair use.

Resources

- Basics of server-side includes
<http://www.columbia.edu/acis/webdev/ssi/index.html>
- Java Development Kit
<http://www.columbia.edu/cu/help/jdk/>
- CUIT developed HyperContent as an open-source content management system that is being widely used at the University. HyperContent provides the ability for individuals to create, manage, and update Web sites without needing the technical expertise of a Webmaster.
<http://www.ais.columbia.edu/webproduction/services.html>
- For smaller sites, Adobe's Macromedia Contribute is a viable option
<http://www.macromedia.com/software/contribute/>
- Columbia University Copyright Policy
<http://www.columbia.edu/cu/policy/copyright.html>

4. Ownership of information

Owners of information should be identified and recognized as the authoritative source of their data. These information owners have the responsibility to ensure that their data is correct and that their sites adhere to University network-use policies and applicable federal laws on data transmission.

The simplest way to identify the source of information on a Web site is to maintain an "About" or "Contact" page. This page should include the department or unit sponsoring the site, the name of the person responsible for its content (e.g., an administrator or faculty member), and a contact for Web-related queries (e.g., a departmental administrator or Webmaster). This information can also be included at the bottom of the home page or each page. It is best to include a departmental phone number and generic e-mail so that contact information survives staff changes.

If the information on a Web site appears inaccurate or outdated and the designated owner cannot be reached, the University retains the right to temporarily remove Web pages from the central servers.

5. Columbia University identity

Logos, typeface, and colors are often used to promote a shared identity. If schools, departments, or business units have chosen to create a standard identity, use this standard consistently. Inclusion of the Columbia crown or University logotype in site design is strongly encouraged.

Departments and units at Columbia are free to use the logotype graphic "Columbia University in the City of New York," provided they do not modify the words or the crown other than to scale the graphic in direct proportion to the original.

Columbia's traditional blue colors may be incorporated into a site's design, as they are on the Columbia home page. The use of the various elements of the Columbia identity, as reflected on the University home page, is encouraged. In general, Web sites of schools, departments, and other offices of the University should incorporate some elements of the Columbia home-page style so that the site has a recognizable Columbia look. Note, however, that the tricolor style of the home page's left-hand navigation bar is unique to the University's core administrative pages; units should not import the tricolor bar and replace the hyperlinks with their own.

Web designers should consult the Columbia Visual Style Guide (see Resources below) to download the logo and acquire details on the fonts and colors used on the home page. If you have further questions regarding the university's visual style, please contact the Columbia Web Team at webteam@columbia.edu.

Some photographs that have been featured on the Columbia home page are available for use on other University sites. Credit and contact information accompanies each photo in the Home Page Slideshow and Archive.

Please note that Web sites are not permitted to use the Columbia shield or seal without the approval of the University Secretary.

The Columbia University Medical School has developed specific identity guidelines that should be used for CUMC Web sites.

Resources

- Columbia Style Guides
<http://www.columbia.edu/help/styleguide/index.html>
- Home Page Slideshow and Archive
http://www.columbia.edu/help/slideshow/current_01.html
- Office of the University Secretary, Services
<http://www.columbia.edu/cu/secretary/secretary/services.html>
- Executive Vice President template
<http://www.columbia.edu/cu/evp/>
- CUMC Identity System
<http://www.cumc.columbia.edu/identity/>

6. Usability

Web sites should apply best-practices usability principles when designing sites. This includes using consistent graphics, editorial style, and treatment of links to promote a user-friendly interface and intuitive navigation.

The key to a useful Web site is planning. The Columbia Web Team has outlined the steps below to help you build a quality site.

Consider your audience. Think about who will be looking for information on your site, what type of information they will be seeking, and what level of technology savvy they are likely to have. Once you develop a picture of your target users, keep those users in mind throughout every phase of the project.

Organize your content. Take an inventory of what information you need to present on your Web site and figure out who within your organization is responsible for that content. If you are responsible for the content, please consult the Columbia Editorial Style Guide (see below). Next create an outline and/or "wireframe" that shows the major sections you are proposing for the site and indicates what information would go within each section. Remember to also indicate the ways people will be able to interact with your site.

Design your interface. Once you know what will go on your site and how it will be organized, you can design the visual interface—the colors, graphics, typography, images, and shapes that give your site its unique look. Plan to keep the top level of navigation available to users as they move through the site—or at least provide them with a clearly marked "Home" link.

Build your site. Only after your internal constituents have approved the content, structure, and visual design of the site should you invest time and effort in producing all the graphics, building the pages, and coding the content, images, and interactive functions. Remember to include links to any software plug-ins that users might need to view your site, such as Acrobat Reader for PDFs, FlashPlayer for Flash animation, and RealPlayer for audio or video files.

Check it. Proofread the text. Test all links. View the site in multiple browser and platform configurations. Rather than expecting people to have the latest browser or fastest computer, aim to make your site as accessible as possible.

Resources

- Designing More Usable Web Sites (University of Wisconsin)
<http://trace.wisc.edu/world/web/>
- Top Ten Mistakes in Web Design (Jakob Nielsen)
<http://www.useit.com/alertbox/9605.html>
- CUIT's "Publish It" Guide (Columbia DKV)
<http://www.columbia.edu/acis/webdev/interactivity.html>
- Columbia Editorial Style Guide (Columbia DKV)
<http://www.dkv.columbia.edu/edstyleguide/index.html>
- CUMC Usability Central (CUMC)
http://www.cumc.columbia.edu/identity/cumc_uc/index.htm

7. Archiving

Some of the information on Columbia Web sites is an institutional asset. Information owners should consider the appropriate use of archiving to preserve historical information as a matter of record.

Currently, the University does not have guidelines on which online materials should be preserved. As a rule of thumb, any materials that were previously printed and now exist exclusively online (such as course bulletins) should be saved. Any major redesign of a Web site is an occasion for archiving the old site. Departments may also wish to capture a record of their site on an annual basis.

When the decision is made to archive digital materials, Columbia Web administrators have three basic options:

- Create an archive folder within your department's directory on CUIT servers. Set permissions so that these folders are not publicly visible.
- Leave the old site up for departmental reference but insert code to prevent the pages from being indexed by search engines.
- Back up the site files onto a CD-ROM (or equivalent) and then remove them from the server.

The "robots" META tag can be useful during migrations when you want to direct search engine users to a new site, but still need the old site online for reference purposes. By including the robots META tag within the <HEAD> </HEAD> tags at the top of an html document (i.e., <meta name="robots" content="noindex, nofollow">), search engines pass over the site and do not index it.

Resources

- Columbia Computing Support Center
<http://www.columbia.edu/acis/support/>
- Search Robots
<http://www.w3.org/TR/html4/appendix/notes.html#h-B.4.1>

8. Secure and reliable Web sites

Columbia Web sites should be managed at an industry-standard level of security and service. This will reduce security vulnerabilities, improve service, and ensure that all data is accurate and easily recovered.

Building a secure and reliable Web server is a complicated process that requires resources and expertise beyond the capabilities of most departments at the University. If at all possible, CUIT should be contacted and utilized to provide space on one of the existing Web servers.

If it is determined that CUIT is incapable of providing Web service, see the links in this section for information on building a secure Web server.

Resources

- CUIT Security
<http://www.columbia.edu/acis/security/sysadmins/whitepaper.html>
- Guidelines on Securing Public Web Servers (NIST Special Publication 800-44, September 2002)
<http://csrc.nist.gov/publications/nistpubs/800-44/sp800-44.pdf>

- University of Florida, Office of Information Technology
<http://www.it.ufl.edu/policies/security/uf-it-sec-network.html>

9. Confidential data

Confidential information must not be displayed on a public Web site. When users view or enter a page displaying confidential data, a secure Web site and browser interface is required. When collecting confidential information, the University should use a secure server utilizing the SSL protocol.

The following are examples of confidential information:

- Birth date, place of birth, ethnicity, home address, phone number
- Education information (e.g., grades, academic status), immigration status, social security number, credit card number
- Personal health information (PHI)

Departments such as Human Resources and Student Services may require that confidential information be transmitted by and stored on University servers. Proper encryption and security measures have been established to ensure the confidentiality of employee and student information. If a school, department, or organization within the University needs to collect and store information of this nature, they should first seek approval from authorized channels and undergo a security audit of their collection and storage processes.

The following rules apply to all units of the University:

- Confidential information must not be displayed on public Web sites. A public Web site is defined as any Web site that is generally accessible without authentication.
- Certain confidential information may be displayed on a secure, authenticated Web site, and requires consent of the individual and authorized users.
- Information such as Social Security number, grades, medical information, educational information, etc. must not be captured or displayed unless the site has been authorized by the University to do so (e.g., Student Services).
- Departmental or school sites may display faculty and staff information (name, office number, work phone number) in accordance with departmental and University policies.
- Confidential information must not be sent by e-mail.

Resources

- University Computing, Network, and Information Policies
<http://www.columbia.edu/cu/policy/>
- CUIT Security
<http://www.columbia.edu/acis/security/users/index.html>
- Office of the General Counsel
http://www.columbia.edu/cu/ogc/staff_directory.htm

10. Leverage existing technology and services

Whenever possible utilize Columbia's existing technology and services. This promotes consistency and cost-effectiveness across the University. If existing technology and services are not sufficient, external providers and products may be used.

Below are examples of technology and services supported by the University:

Search: When implementing search on your Web site or application, you may use the University's central search-engine at no cost.

HyperContent: CUIT developed a content management system (CMS) for Web sites that is called HyperContent. It is an open-source application and is widely used at the University. It provides the ability for individuals with limited technical knowledge to create, manage, and update Web sites.

Sundial: This is a comprehensive and scalable calendaring system that powers the University's events calendar, as well as several school, departmental, and group calendars. Sundial's event-retrieval interface makes it easy for anyone to find out what activities are taking place. Sundial is customizable and can generate specific, filtered calendars.

Databases: The University maintains industry-standard databases that are stable, secure, and backed up regularly. It also uses a Web application server for Java programming. Qualified staff may be able to utilize these systems; otherwise, the University's in-house technology organizations can help to implement specific projects.

CU Technology Units: When planning a new project or reevaluating an existing Web site or Web-based application, technology decision makers should see if one of the existing technology organizations within the University can provide the technology or service that is needed.

- Columbia University Information Technology (CUIT)
The central IT organization at Columbia, provides network computing and communications systems, services, and support.
- Biomedical and Health Information Services (CUBHIS)
Provides network services in Medical Center buildings and residence halls, computing support for CUMC faculty, staff, and students, and Web services.
- Columbia University Digital Knowledge Ventures (DKV)
A multimedia design and development group, provides services including Web design, digital video production, and content-management tools.
- Center for New Media Teaching and Learning (CCNMTL)
A service for faculty members, aids in constructing course Web sites, facilitates the use of CourseWorks, and consults on related projects.

Resources

- Search
<http://www.columbia.edu/httpd/cgi/ultraseek.html>
- HyperContent
<http://www.ais.columbia.edu/webproduction/services.html>
- Sundial
<http://www.columbia.edu/httpd/cgi/sundial.html>
- CUIT
<http://www.columbia.edu/cu/cuit/>
- CUBHIS
<http://cubhis.columbia.edu/>
- DKV
<http://www.dkv.columbia.edu>
- CCNMTL
<http://ccnmtl.columbia.edu/web/index.html>