

# Chapter 6

## EXCHANGING INFORMATION AND COMMUNICATING WITH STUDENTS USING A UNIVERSITY-WIDE INTRANET

*Debra S. Callihan*

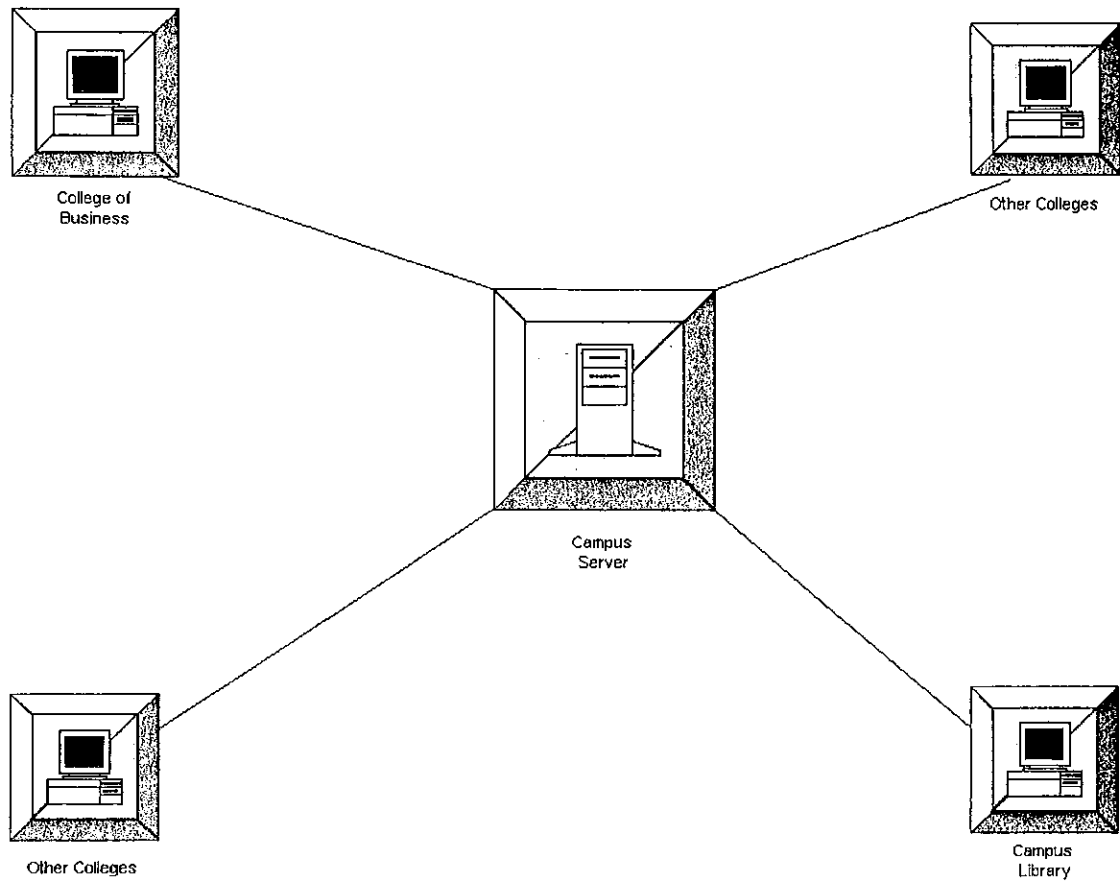
*Virginia Polytechnic Institute and  
State University*

The Internet connects millions of computers and their users all over the world to form a global network of many diverse organizations. In contrast, an Intranet is a specialized network connecting individuals within a single organization. The following discussion examines the workings of a university Intranet, the network of computers within the university, and the tools available within that network to make learning materials accessible to students and to facilitate interpersonal communications.

The first step in using an Intranet is to understand what it is and how it works. Most universities have one or more servers. A server is a computer or other physical device that manages network resources. One of the more commonly found types of servers is a file server—a computer or storage device dedicated to storing files. Users on the network can store files on the server. Other examples of servers include print servers that manage one or more printers, network servers that manage network traffic, and mail servers that manage network electronic mail. A database server processes data queries and manages database resources. Application processing may be shared among clients and servers within the network or by interconnections with clients and servers in other networks. The advantage of the network is that it allows members of the university community to share resources stored and managed at a single location. Exhibit 1 illustrates the basic network structure of a university campus Intranet.

The second step is to determine the intended applications of the Intranet and whether the existing university network and technology can support these applications (see Chapter 8 by Ronald R. Tidd for more information). This step requires the user group to be defined and its level of access to and knowledge of the university's technological infrastructure to be assessed. For example, if an instructor intends to use an Intranet to facilitate communication among students at a university that requires students to have computer hardware and software meeting minimum specifications, it can be assumed that the user group has the tools available to access information

**EXHIBIT 1**  
**Basic Structure of a University Campus Intranet**



sent through the Web, university and department servers, and email. However, if the university has not instituted such a policy, equal access to the technological tools cannot be assumed. Further, the level of training that the user group has had in using technology must also be considered. Users cannot be required to employ a tool with which they are not familiar unless the instructor is able to devote the time necessary for training.

**USING INTRANETS—MAKING MATERIALS ACCESSIBLE TO STUDENTS**

Use of Intranet tools allows expanded opportunities for sharing information with others. In an instructional setting, an Intranet gives students the opportunity to work in an environment similar to the one they will face once they leave the university and embark on a professional career. Today, many businesses work in some type of technologically interconnected environment. Knowing how to navigate through the various sources of information is a valuable skill.

Students, however, are not the only beneficiaries. Use of an Intranet allows an instructor to disseminate information from his or her office on a timely basis in a manner that makes the information easily accessible to students. A university network can be used to disseminate most or all of the information that is normally distributed in hard copy. A copy of any file can be stored on the server, allowing students to access it whenever they choose. This dissemination process

eliminates problems with bringing handouts to class as well as the need to meet reproduction deadlines. It also may free additional funds in the departmental budget, if duplication costs are borne at that level. Finally, access to data files can be provided as soon as the files are created, thereby eliminating time delays between class meetings.

### WWW Homepages

There are several mechanisms for making information available to students. One method is through a web site. The main page of the web site is the homepage. Typically, the homepage serves as an index or table of contents to other documents stored on the site. A hierarchy of pages can be created that contain the course syllabus, class schedule, class outlines, lecture notes, assignments, or other class- or subject-matter related information. Exhibit 2 provides an illustration of such a hierarchy of web pages.

Examples of this web page structure are accessible at the following addresses:

Instructor homepage:

<http://www.cob.vt.edu/accounting/faculty/callihan/callihan.htm>

Course syllabus homepage:

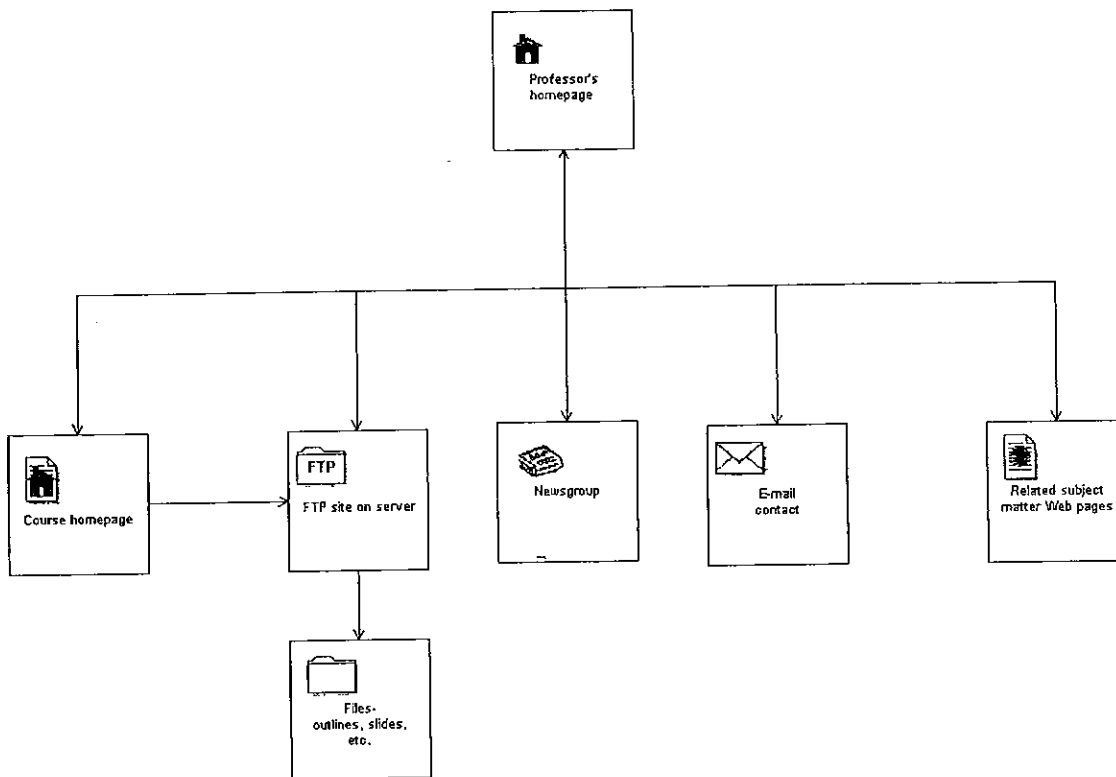
<http://www.cob.vt.edu/accounting/faculty/callihan/acct4314/syls00t1.htm>

Class schedule homepage:

<http://www.cob.vt.edu/accounting/faculty/callihan/acct4314/schs00t1.htm>

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**EXHIBIT 2**  
**Example of Homepage Hierarchy**



Links to more examples of tax faculty homepages can be found at the following web sites:

American Taxation Association:

<http://www.uni.edu/ata/>

American Accounting Association:

<http://www.rutgers.edu/Accounting/raw/aaa/index.html>

Web pages can be created using software such as Microsoft Word, Corel WordPerfect, or any other program that has the capability of creating files in HTML format. The HTML format includes all of the tags needed to design the layout and content of the web page. Web-based classroom systems such as WebCT, TopClass, or Webfuse may also be used (see Chapter 7 by Amy E. Dunbar for more information).

### **Storing Files on a Server**

As an alternative to using web pages, information can be distributed by storing copies of files on a university or department server. Students obtain the information by accessing the server and downloading a copy of the file. One problem associated with disseminating information in this manner is that different students have different types and versions of hardware and software. Therefore, files must be stored in a universal format accessible to all users.

A solution to this dissemination problem is to store files in portable document format (.pdf). These files are read using the Adobe Acrobat Reader software, which is available free for all platforms (PC or Mac). The student downloads a file from the server and then uses the Adobe Acrobat Reader software to read the file on-screen or to print a copy of the file. Because the file cannot be modified, the integrity of its information is preserved.

Storing a file in .pdf format is quite simple. First, the Adobe Acrobat software must be installed. The installation process adds a new printer type, Acrobat PDFWriter, to the computer's list of available printers. Using the Print option, any existing file can then be copied into .pdf format by selecting the Acrobat PDFWriter printer type and specifying the location where the new .pdf file is to be stored. After "printing" the file to the designated location, such as the university server and/or the instructor's hard drive, two copies of the file exist—one in the original format (i.e., Word, WordPerfect, Excel) and a duplicate in a .pdf format file accessible to students from the server. Copies of the Adobe Acrobat software and a wealth of information relating to the use of the .pdf file format is available on the Web at <http://www.pdfzone.com/>.

### **Student Access to Files on a Server**

To access files from a university server, students can employ one of two methods for downloading files/documents:

- 1) Download using the file transfer protocol (FTP) via either FTP software or a web browser. When the latter is available, the URL starts with <ftp://> rather than the hypertext transfer protocol, <http://>.
- 2) Download from a web page that has been accessed using the hypertext transfer protocol, <http://>.

A protocol is an agreed-upon format for transmitting data between two devices. For a transmission to occur, both devices must use the same protocol. A protocol can be implemented either through hardware or software.

When using FTP software, students sign on to the server, complete the information required in the sign-on and file access screens (see Exhibits 3 and 4 for examples of these screens), and then download the files to their hard drive or to a diskette. After the files have been downloaded, the Adobe Acrobat Reader software can be used to read and/or print the files.

**EXHIBIT 3**  
Example of FTP Sign-On Screen

**Profile Name:** [dropdown menu]

**Delete...**   **Save**   **New**

**Host Name:** acctserver.cob.vt.edu

**Host Type:** [dropdown menu: auto detect]

**User ID:** anonymous

**Password:** CALLIHAN@vt.edu

**Account:** [text box]

**Anonymous Login**

**Save Password**

**Auto Save Config**

**Initial Directories**

**Remote Host:** [text box]

**Local PC:** [text box]

**OK**   **Cancel**   **Advanced...**   **Help**

The other method by which students can access files from a server is through the Web. Using this method, students simply enter the URL server address in the location field of their browser software. A screen similar to that shown in Exhibit 5 will then appear, allowing students to download a particular file to their hard drive or diskette by merely clicking on its title.

### USING INTRANETS—COMMUNICATION WITH STUDENTS

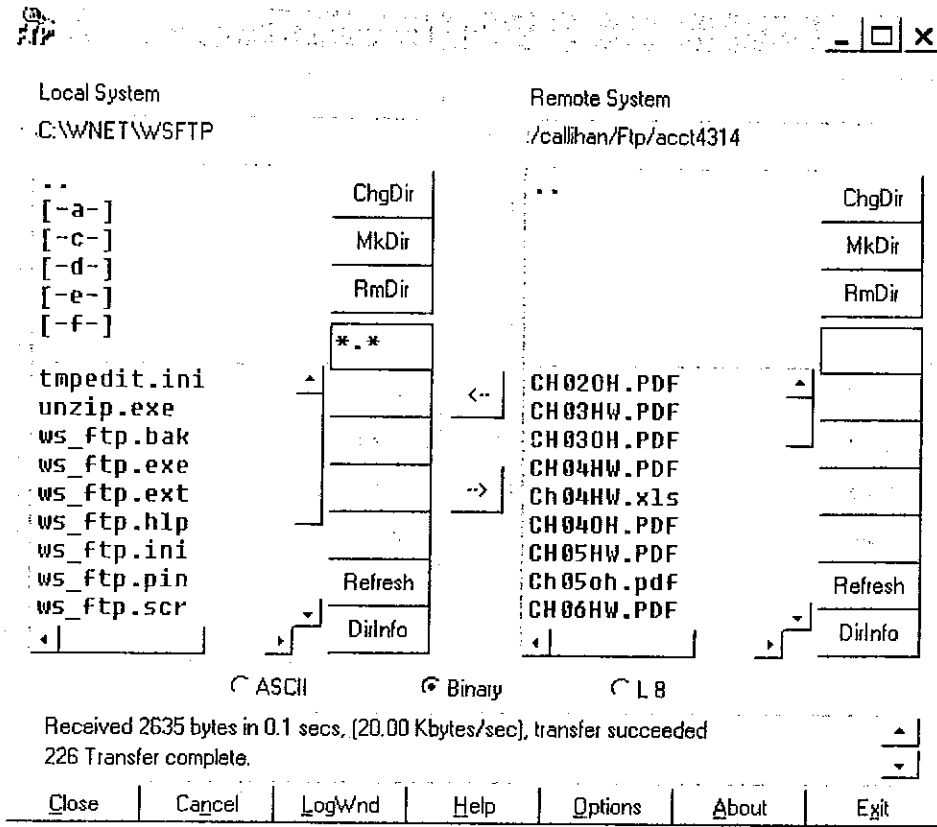
The facilities of the Intranet provide various means for communicating with students outside of class. In choosing one or more of these methods of communication, an instructor must consider his or her objectives and recognize that each method provides different opportunities and limitations. For example, if specific class-related information is to be communicated to students, use of a listserv may be appropriate. However, if a broader discussion of a topic among a larger group than just class members is desired, a newsgroup may be more appropriate.

#### Listservs

Technically, **LISTSERV®** is a system that allows for the creation, management, and control of electronic “mailing lists” on the Internet or through an Intranet. Over time, however, the term listserv has become associated with the electronic distribution list itself. Like a manual mail-distribution list, members of a listserv share some common interest. In the case of a class listserv, the instructor and the students in the class would be members of the list. In addition, like a manual list, items of interest are distributed to all members of the list. However, unlike a manual list, a listserv allows for simultaneous distribution of materials electronically to its members. This form of distribution eliminates the need for manual reproduction and the time delays inherent in non-electronic mail delivery systems (so-called “snail mail”).

The mechanics of setting up a listserv are relatively straightforward. First, a request is made by the list “owner,” generally the originator and moderator of the list, to the network administrator

**EXHIBIT 4**  
**Example of FTP File Access Screen**



where the list will be hosted. In a class setting, the list owner would be the instructor. The list owner provides the network administrator with the email addresses of all members to be included on the list. Using this information, the network administrator then creates the listserv for the group, assigning a unique email address to it.

Whenever a member of the list sends a message to the list address, the message is delivered to all members of the list. Similarly, when a member of the list uses the "reply" function of the email software to respond to a message sent through the list, the reply is also sent to all members of the list.

A listserv facilitates a variety of possibilities for communicating with students and managing class activities. Students can post questions to the listserv that arise while they are studying or working on a project and then wait for either the instructor or other class members to respond. This technique provides an efficient means for distributing answers to frequently asked questions. The listserv also allows for ongoing discussions of topics outside of class or as an alternative means for students to "present" the results of course projects. Additionally, an instructor can use a listserv for such class-management tasks as communicating updates and reminders on assignments.

Another use of listservs is to require students to sign up as members of other listservs dealing with topics relevant to the class. For example, Tax Analysts hosts a number of listservs, called email-based discussion groups. These listservs are devoted to various tax issues. Examples of

## EXHIBIT 5

## Example of Screen Allowing Access to a Server through the Web

File Edit View Go Communicator Help

Back Reload Home Search Guide Print Security

Bookmarks Location: <ftp://acctserver.cob.vt.edu/callihan/Ftp/acct4314/>

**Current directory is /callihan/Ftp/acct4314**

Welcome to the Virginia Tech, Academic Accounting and Information Systems Dep

7 Kb	Tue Sep 01 15:30:00 1998	Portable Document
13 Kb	Thu Sep 03 19:47:00 1998	Portable Document
10 Kb	Tue Sep 01 15:29:00 1998	Portable Document
6 Kb	Thu Sep 10 19:55:00 1998	Portable Document
12 Kb	Fri Sep 04 13:22:00 1998	Portable Document
6 Kb	Mon Sep 21 17:23:00 1998	Portable Document
10 Kb	Tue Sep 29 19:48:00 1998	Portable Document
9 Kb	Wed Sep 23 15:25:00 1998	Portable Document

Document: Done

issues covered by these lists include accounting, bankruptcy and insolvency, and damage-awards taxation. Students can be assigned to subscribe to one or more of these lists and then to report the information from these lists to the class. Information about subscription to Tax Analysts' listservs is available at <http://www.tax.org/> by clicking on the discussion groups button.

One negative aspect of listservs is that every message addressed to the listserv address gets delivered to all the members of the list. This can result in cluttered email boxes or unwanted messages from users who accidentally hit the reply button when their response is intended for only one person.

### Newsgroups (Discussion Groups)

Another alternative for communicating with students is the newsgroup, also often called a discussion group. A newsgroup is similar to a listserv in that it allows a group of individuals to share messages from a single posting. However, it differs from a listserv in that it is maintained through the Web, rather than through email. Its membership may or may not be restricted to a designated group.

In essence, a newsgroup is an electronic bulletin board that is hosted by a server. A network administrator sets up a newsgroup by allocating space on a server for the storage of messages posted to the group. Access to the newsgroup is available through the Web, generally from the home page of the host. Once a newsgroup is accessed, group participants can read and/or respond to the messages in a manner similar to using email software.

A newsgroup differs from a listserv in that messages posted to the group are not delivered to the individual email accounts of those participating. Instead, all messages are archived by the newsgroup by topic category. The subject of the message determines the category and a category includes all messages sent in response to a particular topic.

A newsgroup participant signs on to the group through the Web and accesses only those messages of interest. Since newsgroups use the Web rather than email, the problem of excessive or unwanted email is avoided. Newsgroups also may be more appropriate than listservs where message traffic is expected to be high and input from other than just class members is desired.

A newsgroup can either be open to all Web users or restricted to a set of members, such as class members or the university community. One benefit of unrestricted access is that it provides an opportunity for alternative viewpoints, since anyone can sign on and post messages. Unrestricted access can cause problems, however, if unwanted and unrelated messages are sent to the newsgroup. To avoid this problem, many newsgroups are moderated, whereby a moderator reviews the messages sent to the group and decides which ones are suitable for posting.

### CONCLUSION

As technology becomes a greater part of everyday life, it must also become more prevalent in the academic environment. The use of Intranet tools to store and communicate information is one means of integrating technology into the learning process. However, in determining how best to use these tools, the goals and objectives of the overall educational experience must be considered.

The first step to integrating technology into the learning process is to identify course objectives and the various activities that can be used to achieve these objectives, whether in or outside of the classroom. The second step is to determine which of the identified activities can be performed electronically, in whole or in part. If changing to electronic methods from manual applications enhances the attainment of course objectives, a move to these methods is clearly warranted. Instructors must be cautious, however, about making too many changes too quickly. Instead, only a few changes should be made at a time. A moderate process allows time for the building of a sound technological base, upon which additional changes can be made more quickly and smoothly in the future. Such a process benefits the instructor, who has time to work out the bugs commonly associated with the use of a new technology, and the students, who have time to adjust to their changing educational environment. When used with these points in mind, technology enhances and completes the learning process, rather than merely serving as window dressing.