EXTENDED LEARNING MODULE B

THE WORLD WIDE WEB AND THE INTERNET

STUDENT LEARNING OUTCOMES

1. Define the relationships among Web site, Web site address, domain name, Web page, and uniform resource locator (URL).
2. Explain how to interpret the parts of an address on the Web.
3. Identify the major components and features of Web browser software.
4. Define Web 2.0 and its many technologies including wikis, social networking sites, blogs, RSS feeds, and podcasting.
5. Describe the various technologies that make up the Internet.
6. Identify the key considerations in choosing an Internet service provider (ISP).
7. Describe the communications software and telecommunications hardware you need to connect to the Internet.

MODULE SUMMARY

This Extended Learning Module teaches your students about the Web and the Internet.

This first part of the module focuses on helping students become effective surfers and exploring the Web 2.0. The latter part of the module covers the Internet infrastructure that makes the Web possible and connection options to the Internet.

The primary sections of this module include:
1. World Wide Web
2. Search Engines
3. Web 2.0
4. Internet Technologies
5. Connecting to the Internet

LECTURE OUTLINE

INTRODUCTION (p. 351)

WORLD WIDE WEB (p. 352)
1. Web Sites, Addresses, and Pages
2. Understanding Addresses
3. Using Web Browser Software

SEARCH ENGINES (p. 356)

WEB 2.0 (p. 357)
1. Wikis
2. Social Networking Sites

3. Blogs
4. RSS Feeds
5. Podcasting

INTERNET TECHNOLOGIES (p. 359)
1. The Internet Backbone
2. Internet Servers
3. Communications Protocols
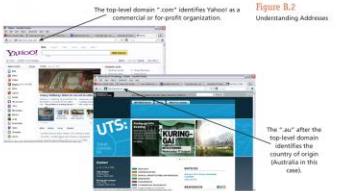
CONNECTING TO THE INTERNET (p. 362)
1. Communications Software
2. Telecommunications Hardware

END OF MODULE (p. 365)
1. Summary: Student Learning Outcomes Revisited
2. Key Terms and Concepts
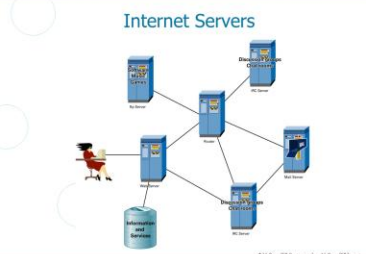3. Short-Answer Questions
4. Assignments and Exercises

SLIDE 2	STUDENT LEARNING OUTCOMES 1. Define the relationships among Web site, Web site address, domain name, Web page, and uniform resource locator (URL). 2. Explain how to interpret the parts of an address on the Web. 3. Identify the major components and features of Web browser software.	• These are the Student Learning Outcomes for the module. • Use them as a road map to inform your students of what you will be covering. • At the end of the module is a summary of each
SLIDE 3	STUDENT LEARNING OUTCOMES 4. Define Web 2.0 and its many technologies including wikis, social networking sites, blogs, RSS feeds, and podcasting. 5. Describe the various technologies that make up the Internet. 6. Identify key considerations in choosing an Internet service provider (ISP).	• These are the Student Learning Outcomes for the module. • Use them as a road map to inform your students of what you will be covering. • At the end of the module is a summary of each
SLIDE 4	STUDENT LEARNING OUTCOMES 7. Describe the communications software and telecommunications hardware you need to connect to the Internet.	• These are the Student Learning Outcomes for the module. • Use them as a road map to inform your students of what you will be covering. • At the end of the module is a summary of each

SLIDE 5	**INTRODUCTION** • The Web and Internet are a part of every aspect of your life • Television • Magazines • Education • B2C e-commerce • Everywhere	• This slide introduces the notion that the Web is everywhere, in every part of your students' lives. • Some of your students may not even remember when the Web wasn't an integral part of everything about them.
SLIDE 6	**MODULE ORGANIZATION** 1. World Wide Web • Learning Outcomes #1, #2, and #3 2. Search Engines 3. Web 2.0 • Learning Outcome #4 4. Internet Technologies • Learning Outcome #5 5. Connecting to the Internet • Learning Outcomes #6 & #7	• This slide presents the organization for the module. • It does so by listing the major sections and the learning outcomes associated with each.

SLIDE 7	**WORLD WIDE WEB** • ***Web*** – multimedia-based collection of information, services, and sites supported by the Internet • Interface you see and work with • ***Internet*** – vast network of computers that connects millions of people all over the world • Infrastructure that makes the Web possible	• This slide presents the definitions for the Web and Internet. • The Web cannot exist without the Internet; the Internet can exist without the Web. • The Internet is the underlying infrastructure that makes the Web possible. • If you recall the early versions of Windows, the Web is like Windows and the Internet is like DOS. That is, the Web is the graphical user interface laid on top of the Web.
SLIDE 8	**Web Sites, Addresses, and Pages** • ***Web site*** – Web location where you visit, gather information, order products, etc • *USA Today* • ***Web site address*** – unique name for a Web site • www.usatoday.com • Also called a ***domain name***	• This next series of slides introduces your students to Web sites, addresses, and pages (**Student Learning Outcome #2**). • Your students will probably be familiar with these terms, but perhaps not some of the distinctions between them or some technical terms. • Here, we define Web site and Web site address and use *USA Today* as an example.
SLIDE 9	**Web Sites, Addresses, and Pages** • ***Web page*** – portion of a Web site that deals with a certain topic • Sports in *USA Today* • ***URL (uniform resource locator)*** – address for a Web page, document, etc • www.usatoday.com/sports/default.htm • Technical term for a Web page address	• This slide presents the definitions for Web page and URL. • Again, your students are probably familiar with these. • We continue to use *USA Today* as an example.
SLIDE 10	**Web Sites, Addresses, and Pages** Web site address or domain name	• This slide presents Figure B.1 on page 352. • You can use it to illustrate Web sites, pages, addresses, URLs, etc. • We have found the *USA Today* to be the cleanest for presentation purposes. It has the usual subdirectory of folders. • If you choose to use another Web site, please keep in mind that the addresses for pages need to be "clean."

SLIDE 11	**Understanding Addresses**
	
	• Consider www.uts.edu.au (University of Technology in Sydney)
	  • http:// - starts most addresses but may be left off
	  • www – World Wide Web
	  • uts – the organization
	  • edu – **top-level domain** (organization type)
	  • au – country location (if none, then current country)
		• This slide breaks down a Web address into its various parts.
		• It also illustrates the use of a country identifier.
		• As a short class project, visit any Web page (not the home page for the site) and ask your students to identify the various parts of the address.

SLIDE 12	**Top-Level Domains** • com – commercial or for-profit business • coop – cooperative • edu – educational institution • gov – U.S. government agency • mil – U.S. military organization • net – Internet administrative organization • int – International treaties organization • info – general information • biz – business • museum – accredited museum • name – personal • pro – Accountant, doctor, lawyer, etc. • Many more Note: Can also use specialized TLDs like .nba – requires a fee of $185,000.	• This slide presents the major top-level domains for Web addresses. • It does present the new top-level domains including info, biz, museum, name, and pro. • Your students may not be familiar with these. • As a value-added component, you might want to take them to a site that supports domain name registration and search for some new domain name. • ICANN now lets organizations apply for a unique TLD, such as .nba that the National Basketball Association might want to use. The non-refundable application fee is $185,000.
SLIDE 13	**Understanding Addresses** The top-level domain ".com" identifies Yahoo! as a commercial or for-profit organization. **Figure B.2** Understanding Addresses The ".au" after the top-level domain identifies the country of origin (Australia in this case).	• This slide presents Figure B.2 on page 353. • It illustrates how to understand addresses.

SLIDE 14	**Web Browser Software**
	
	• **Web browser software** – enables you to surf the Web
	• Three most popular
	  • Internet Explorer (Microsoft)
	  • Firefox (Mozilla)
	  • Chrome (Google)
		• This series of three slides discusses the role of Web browser software (**Student Learning Outcome #3**).
		• On this slide, you will find the three most popular browsers today.
		• Firefox, open-source software, is really gaining in market share.
		• It may very well topple IE someday.
		• Chrome is also becoming popular (Google's search engine).

SLIDE 15	**Web Browser Software**
	
	• All look slightly different but work the same with the same features
	  • Printing Web pages
	  • Working with a Favorites list or Bookmark list
	  • Etc.
		• This slide presents the fact that it doesn't really matter which browser software you choose to use.
		• They all support the same functionality; only the look and feel are a little different.
		• Most people tend to stay with the browser they first start with.
		• Ask your students how many are using Firefox or Chrome.

SLIDE 16	**Web Browser Software**	• This slide presents Figure B.4 on page 355. • It includes a screen capture from the three most popular browsers. • You can use this slide to point out similar and different features.
SLIDE 17	**SEARCH ENGINES** • **Search engine** – helps you find sites with the information/services you want	• These next three slides cover the basics of search engines. • Most students are familiar with these, with most students using Google.
SLIDE 18	**Search Engines** Figure B.5 Search Engines	• This slide presents Figure B.5 on page 357. • It shows the similarities of using Yahoo! and Google. • It also shows that you get similar search results from both engines.
SLIDE 19	**Boolean Operators** • **Miami Dolphins** – everything related to either Miami or dolphins and both • **Miami +Dolphins** – everything related to both appearing in a Web site • **Miami –Dolphins** – everything related to Miami without dolphins	• This slide discusses how to use Boolean operators to refine a search. • You should demonstrate this with whatever search engine you choose. • Enter something like Miami Dolphins, **Miami +Dolphins**, and **Miami –Dolphins** to illustrate how a search engine returns different lists. • You might also want to connect to a search engine and explore with your students how to perform advanced searches.

SLIDE 20	**WEB 2.0**
	
	• **Web 2.0 (Live Web)** – second generation of the Web; focuses on online collaboration, users as both creators and modifiers of content, dynamic and customized information feeds, etc.
	  • Wikis
	  • Social networking sites
	  • Blogs
	  • RSS feeds
	  • Podcasting
	  • Many others
		• This series of four slides introduces your students to the Web 2.0 (**Student Learning Outcome #4**).
		• While the Web 2.0 is very new and still emerging, most young people are very familiar with Web 2.0 technologies such as wikis, blogs, etc.

SLIDE 21	**Wikis & Social Networking Sites** • **Wiki** – site that allows you – as a visitor – to create, edit, change, and often eliminate content • Wikipedia is the most popular • **Social networking site** – site on which you post information about yourself, create a network of friends, read about other people, share content such as photos and videos, and communicate with other people (e.g., Facebook)	• This slide defines wikis and social networking sites. • It also provides examples for each. • Take a quick class poll and see how many social networking sites each of your students is on.

SLIDE 22	**Blogs & RSS Feeds** **Blog** – Web site in the form of a journal in which you post entries in chronological order and often includes the capabilities for other viewers to add comments to your journal • **Microblogging** (like Twitter) **RSS feed** – technology that provides frequently published and updated digital content on the Web	• This slide defines blogs and RSS feeds. • Most all of your students will be familiar with blogs. • The new technique is called microblogging, which includes things like Facebook status updates and using Twitter. • They've probably heard of RSS feeds but may not have signed for and/or used one. • You might want to show an RSS feed and how to register for it.
SLIDE 23	**Podcasting** **Podcasting** – your ability at any time to download audio and video files for viewing and listening using portable listening devices and personal computers.	• This slide defines podcasting. • If you're like most faculty, your students can tell you more about podcasting than you know. • Ask your students to describe the business advantages of using podcasting (beyond music).
SLIDE 24	**INTERNET TECHNOLOGIES** **Internet backbone** – major set of computer connections on Internet	• This section introduces your students to some of the more technical aspects of Internet technologies and the infrastructure that makes the Web possible (**Student Learning Outcome #5**). • But it's not a section to skip. • Your students will be most effective on the Web if they understand what makes it work. • This slide presents the definition for Internet backbone and Figure B.7 on page 359, a graphical illustration (although not perfectly correct) of what the Internet backbone looks like.
SLIDE 25	**INTERNET TECHNOLOGIES** **Network access point (NAP)** – point on Internet where connections converge (Dallas) **Network service provider (NSP)** – owns and maintains routing computers, NAPs, and even connection lines • AT&T • MCI	• This slide presents the definitions for network access point and network service provider. • These are more infrastructure elements.
SLIDE 26	**INTERNET TECHNOLOGIES** **Internet Service Provider (ISP)** – provides access to the Internet • AOL • NetZero • Your school • Your work • Connects its computers to the Internet at an NAP	• This slide presents the definition of Internet service provider (ISP). • There are many types – school, work, free, pay-for-use, etc. • Poll your students to create a histogram of who uses what ISP.

SLIDE 27	Internet Servers	• This slide presents Figure B.8 on page 361 as a way of illustrating the different types of servers on the Internet. • The two subsequent slides provide server definitions.
SLIDE 28	Internet Servers • **Internet server computer** – provides information and services on the Internet • **Web server** – provides information and services on the Web • **Mail server** – provides e-mail services	• This slide presents the definitions for Internet server computers, Web servers, and mail servers. • Your students will most often interact with a Web server. • They have probably extensively used a mail server but were not aware of its name.
SLIDE 29	Internet Servers • **ftp (file transfer protocol) server** – maintains files you download • **IRC (Internet Relay Chat) server** – supports discussion groups and chat rooms	• This slide presents the definition for ftp server, and IRC server. • Again, your students have probably interacted with these extensively but were not aware of it. • Point out to your students that all these servers can be a part of the same Web site. If you connect to Yahoo!, you can find links (for mail, chatting, and the like) that actually take you to a different type of server. • To the user, this is transparent, which is good.

SLIDE 30	Communications Protocols
	• **Communications protocol** – set of rules computers follow to transfer information
	• Most common
	  • TCP/IP
	  • http
	  • ftp
		• These two slides present the notion and definition for communications protocol.
		• To support any type of device, computer, and software (mainly operating system), communications protocols must exist that define the exact steps and formatting of the transfer of information.

SLIDE 31	Communications Protocols • **TCP/IP** – primary protocol for sending information on the Internet • **http** – supports movement of information on the Web • **ftp** – support file transfers (downloading and uploading) from/to other computers	• This slide presents the definitions for the three most common types of communications protocols – TCP/IP, http, and ftp. • It is important that your students understand that TCP/IP is always in use. If you connect to a Web site, TCP/IP is supporting the Internet infrastructure and http is supporting your interaction with the Web site.

SLIDE 32	**CONNECTING TO THE INTERNET** • You do it through an ISP • ISPs can be free, charge a monthly fee, charge a per-minute fee, etc • Many offer **Web space** – storage area where you keep your Web site	• This section presents an overview of the various ways in which you can connect to the Internet from home (**Student Learning Outcome #6**). • It will probably be important for your students to have Web space so they can create a Web site. • If your school supports Web space, this is a good time to cover how to use it, how to connect to it, and – most importantly – any rules and regulations your school may have in how Web space can be used and what type of content is inappropriate.
SLIDE 33	**CONNECTING TO THE INTERNET** *Figure B.9* *NetZero is a Popular Free ISP* **NETZERO** $14.95 $9.95 *Net2Zero free Internet access is for up to 10 hours per month.*	• This slide presents Figure B.9 on page 363. • It is of a screen capture of NetZero, a popular ISP. • NetZero offers both free Internet access and subscription service.
SLIDE 34	**Communications Software** • **Connectivity software** – connect to your ISP • **Web browser software** – to surf the Web • **E-mail** – electronically communicate with e-mail	• This slide presents the three types of software you need to be on the Internet. • Connectivity software is what you use to connect to an ISP. It may be simple modem software for telephone use. • If you use high-speed access, the ISP will provide this software. • E-mail software will be common for your students. We provide a formal definition here.
SLIDE 35	**Telecommunications Hardware** • Many types • More coverage in *Extended Learning Module E* • Telephone modem (modem) • Digital Subscriber Line (DSL) • Cable modem • Satellite modem	• This slides introduces the types of hardware you need, mainly some sort of telecommunications hardware (i.e., modem). • We cover these more thoroughly in *Extended Learning Module E.*
SLIDE 36	**Telecommunications Hardware** • **Telephone modem** – connects your computer via a phone line (slow) • **DSL** – uses phone lines but supports simultaneous phone calls (fast) • **Cable modem** – uses your cable TV service (fast) • **Satellite modem** – Internet access through satellite dish (fast)	• This slide presents the definitions for the four main types of modems. o Telephone – cheapest and slowest o DSL – fast and about $30-40 per month o Cable – faster than DSL and about the same price o Satellite – very fast and usually very expensive • Choices are usually dictated by where you live and what services ISPs offer.

SLIDE 37	Telecommunications Hardware DSL Access Module PHONE COMPANY Splitter YOUR HOME DSL Modem	• This slide presents Figure B.10 on page 364 as a way of illustrating how DSL works. • A splitter creates two separate lines – one for telephone communications and one for high-speed Internet access. • This allows you to simultaneously surf the Web and talk on the phone.

SHORT-ANSWER QUESTIONS (p. 367)

1. How do the Web and Internet differ?
   ANSWER: The Internet is the technological infrastructure that makes the Web possible. You can have the Internet without the Web but not vice versa.

2. What is the relationship between a Web site and a Web page?
   ANSWER: A *Web site* is a specific location on the Web where you visit, gather information, and perhaps even order products. A *Web page* is a specific portion of a Web site that deals with a certain topic. So, a Web page is contained within a Web site.

3. What are some of the technologies associated with the Web 2.0?
   ANSWER: Technologies associated with the Web 2.0 include wikis, social networking sites, blogs, RSS feeds, and podcasting.

4. What is the relationship between the Internet backbone, a network access point, and a network service provider?
   ANSWER: The *Internet backbone* is the major set of connections for computers on the Internet. A *network access point* is a point on the Internet where several connections converge. A *network service provider* owns and maintains routing computers at the network access points and even the lines that connect the network access points to each other.

5. What is the role of an ISP?
   ANSWER: An *Internet service provider (ISP)* provides individuals, organizations, and businesses access to the Internet.

6. What are the four major types of servers on the Internet?
   ANSWER: The four major types of servers on the Internet are Web servers, mail servers, ftp servers, and IRC servers.

7. What are the advantages and disadvantages of choosing a commercial ISP?
   ANSWER: The advantages of choosing a commercial ISP are: you usually get Web space, you usually have unlimited Internet access for the monthly fee, and you usually get great

technical support. The major disadvantage is price, with some commercial ISPs charging $25 per month.

8. What communications software do you need to use the Web?
    ANSWER: To use the Web you need communications software in the form of connectivity software, Web browser software, and e-mail software.

9. What are the four main types of modems you can use to access the Internet while at home?
    ANSWER: The four main types of modems you can use to access the Internet while at home are telephone, DSL, cable, and satellite.