Course Description: A course examining the structure, development, evolution, and use of the Internet and related network technologies. Discussion of network protocols, client/server architecture, web page design and publishing, markup languages (HTML, XML), and scripting as well as Internet information retrieval/Internet resource evaluation in the context of social/legal environment of the Internet and the evolving roles of libraries and librarians. Prereq: LIS636, Foundations of Information Technology or consent of instructor. 3 Credits.

Course Objectives

- To understand the historical background and evolution of today’s Internet;
- To examine network topologies and models (OSI model);
- To develop an understanding of the technological foundations of the Internet and core Internet protocols (TCP/IP, SMTP, FTP, Telnet, ICMP, RSS, and HTTP);
- To understand client/server relationships in the context of the Internet and intranets;
- To identify important Internet file formats and understand the access issues they present users and the software they require;
- To develop a framework for evaluating web resources and designs;
- To develop advanced web publishing and design skills with the Hypertext Markup Language (HTML);
- To learn techniques for image acquisition and manipulation as well as animations, sound, and video content creation for the web;
- To examine web enhancements possible with web programming techniques (ASP, PHP and JavaScript);
- To examine trends in markup and the use of HTML, DHTML, XHTML, and XML for information delivery and data structuring.
- To develop an understanding of the Internet in the context of information storage and retrieval and library services. Discussion will include how searchable Internet indexes are constructed, comparison of web search engines and directory services with more formal LIS information systems, and an examination of metadata and cataloging approaches as they relate to enhancing intellectual access to Internet information;
- To examine the social/political context of the Internet, specifically in the areas of copyright and intellectual property rights, privacy/security issues, and the censorship/filtering debate.

*Note: office hours reflect times I am usually available for consultation; however, unforeseen commitments (meetings, etc.) often arise, so appointment requests are encouraged.

Textbook

Miller, Joseph B. (2009). Internet Technologies and Information Services. Westport, CT: Libraries Unlimited, ISBN 978-1-59158-625-8. TEXTBOOK NOTE: I do not personally profit from assigning this text. University of Kentucky policy asks authors who require their text for a course to track and donate resulting royalties to avoid any appearance of a conflict of interest. To comply with this policy, I ask each student who purchases a new (not used) copy of this text.
to inform me via an email message. Please state whether you bought the hardback or paperback edition. Royalties generated by its use in our class will be donated to the SLIS for either scholarships or technology support.

**Supplemental Readings**
We will depend on our textbook for much of the technical information in this course. I have also assigned supplementary readings for some topics. In addition, I will use the Blackboard course management system as a way to present these supplemental resources as well as the UK ExecuTrain system that students can access with their AD accounts. You will need an AD account for Blackboard and SWEB access for this course. Both use the AD login provided to students.

**Course Evaluation and Grading:**

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<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Examination 1</td>
<td>100 points</td>
<td>(30%)</td>
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<tr>
<td>Examination 2</td>
<td>100 points</td>
<td>(30%)</td>
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<tr>
<td>Projects</td>
<td>140 points</td>
<td>(40%)</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>340 points</strong></td>
<td><strong>40%</strong></td>
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Examinations will include short essay and/or objective questions drawing upon class discussions, lectures, out-of-class assignments, and assigned readings.

100-90% (306-340 pts) = A  
89 -80% (272-305 pts) = B  
79 -70% (238-271 pts) = C

**Cheating and Plagiarism**

A grade of E for the course will be assigned to any student guilty of cheating or plagiarism on an examination or an out-of-class assignment.

**Exam Policy**

It is the responsibility of every student to be present for exams. If a student misses an exam as a result of a documented illness or unforeseen emergency, the student will be given an opportunity for a make-up the test by appointment. If a student misses an exam for a non-medical or non-excused reason, the instructor will determine if a makeup exam is appropriate. Students wishing to schedule a makeup exam for a non-medical reason must seek advance approval from the instructor at least two weeks prior to the scheduled exam for a make up option to be considered.

**Attendance Policy**

Students are expected to attend class. While there is no formal participation component in the grading scale, note that unexcused absences that total up to one fifth of the contact hours for the course will result in a letter grade reduction. If the total of unexcused absences exceeds one third of the contact hours, an automatic grade of E will be assigned. Even if the absences are excused, if they total one fifth or more of the contact hours, the student may be required to petition for a late withdrawal. Students are responsible for all material covered during any absence.

**Projects**

Late assignments will have 10% deducted for every class period they are late up to two periods. Project more than two periods late will not be accepted without a documented excused reason.
Projects are late if turned in any time after the end of class period they are due. The instructor reserves the right to modify (i.e. extend) the due dates listed here if needed.

**Project Summary**

Project 1 (20 points): Email, Telnet, FTP, ping, Unix utilities, social networking, and web apps.
Project 2 (20 points): HTML, and graphics manipulation techniques; use HTML for tables, forms, and frames.
Project 3 (20 points): Web scripting, style sheets, and XML.

Course Project: (80 points) Students will create a web site on a topic or subject area selected from a list provided by the instructor or on some other approved topic. This project will require original content and research; it should not be merely a collection of pointers to other web sites. Students will design, construct, and upload a set of linked web pages with supporting graphics to the UK SWEB UNIX web server. Along with developing the content, all aspects of web publishing will be evaluated including initial design and layout, the accurate use of HTML, image acquisition and manipulation techniques, successful construction of document objects, formation of relative and absolute hypertext links, scripts for interactivity, and UNIX awareness as pertains to the successful uploading of the work.

**General Overview of Course Modules**

**Module 1: Introduction**
Introduction to the Internet: Development and Structure
Overview of the development of the Internet: How it began and how it has evolved over the last 30 years.
Network Technologies: Basic network technologies and the OSI model are examined.
Connection technologies
Chapters 1, 2, 3

**Module 2: Packets and Protocols, Clients and Servers**
TCP/IP: Comparison of SLIP, PPP, and ethernet access. Protocols of the Internet--TCT/IP, ping, SMTP, Telnet, TN3270, FTP, gopher and HTTP. Discuss the function of each and why an understanding of them is important even in the current web environment. Develop an understanding of the client/server relationship as it pertains to the web.
Web 2.0 technologies: RSS, blogs, wikis.
TCP/IP security issues
Chapters 4, 5, 6

**Module 3: Web design and publishing**
Graphics primer. Scanning technologies, appropriate formats, GIF animators.
Web design
HTML Web Authoring - Basic elements and principles of web authoring are examined including HTML, image acquisition, click maps and page layout. Students develop, upload, and evaluate their web pages. Students review Unix as it pertains to uploading to a unix web server. Web server issues and functions (CGI scripts, etc.) would be briefly examined.
Image acquisition and manipulation techniques
Content management systems
Miller Chapters 7, 8, 9

**Module 4: Web programming**
Introduction to enhancing web interactivity with selected multimedia and programming techniques (e.g. JavaScript, PHP, Macromedia Flash, etc.)
Module 6: Internet content and Information Retrieval
Internet content and formats - An examination of the variety of file types found on the Internet
Evaluation of web resources - Discussion of some important related issues including problems of authentication (evaluating) web information, dealing with content that may be inappropriate for some audiences, intellectual property rights and copyright.
Internet Information Storage and Retrieval - Develop an understanding of the issues surrounding the Internet in the context of information storage and retrieval.
Metadata and Internet Resources - Discussion of the concept of Metadata, its use in HTML, and efforts to improve intellectual access to the Internet through cataloging activities (Dublin Core and PURLs).
How search engines create searchable indexes. The Google engine in more detail.
Chapters 13, 14, 15

Module 7: Course wrap up and review
Libraries and the Internet, past and future.
Chapter 16

Weekly Schedule and Readings
Week 1 – 8/26
Course Introduction, UK Computing Accounts
Internet history
Text Readings:
Miller Chapter 1, Appendix A
Supplemental:
UNIX File permissions readings:
http://www.engr.uky.edu/unixhelp/index.html
http://www.users.csbsju.edu/~jgramke/Help/Web/permissions.html
http://www.users.csbsju.edu/~jgramke/Help/unix/unix/data/chmod.html

Week 2 – 9/2
Introduction to networks, OSI
Client/Server Architecture
Data layer: topologies, MAC addresses
Bridges, hubs, switches
Ethernet
Phone/data systems
Text Readings:
Miller Chapter 2, 3

Week 3 – 9/9
Internet Protocols
IP Addressing, Subnet masks, Domain names
PC Windows TCPIP configuration
Connecting to the Internet: SLIP, PPP, ISDN
Email and SMTP, attachments and encoding
Discussion list programs, Usenet, spamming, and ‘netiquette’
Readings
Miller Chapter 4

Week 4 – 9/16
Protocols and utilities: Telnet, FTP, Gopher, Finger, Ping, and Whois
HTTP protocol
Web 2.0: RSS
Evaluation of web resources
Readings
Miller Chapter 5
Creating web graphics: http://www.widearea.co.uk/designer/

Week 5 – 9/23  PROJECT 1 DUE
Graphics primer: background and text colors and Web palates
Image acquisition and manipulation programs, GIF animation
Web Publishing and Design Issues
Readings:
Miller Chapter 7, 8
Yale site - Design Issues and Concerns:
Font choices and readability http://psychology.wichita.edu/optimalweb/text.htm
http://www.makoa.org/web-design.htm Many links to design sites
http://www.vischeck.com/vischeck/ check for color blind
http://www.firstmonday.org/issues/issue3_5/sowards/index.html libraries and design
http://www.webaim.org/simulations/screenreader screen reader simulation
http://validator.w3.org/ markup validator and http://www.w3.org/WAI/ from w3c
http://webxact.watchfire.com/ and Bobby for site analysis

Week 6 –9/30
HTML Document Structure; tags and elements
Tables, links (local and remote), inline images, relative and absolute references, named
anchors and targeted links
Readings:
Miller Chapter 9
W3 on HTML: http://www.w3.org/TR/REC-html40-971218/intro/intro.html
HTML at W3 schools: http://www.w3schools.com/

Week 7 –10/7
HTML Authoring Continued: frames and image maps (clickable images)
Framesets and floating frames (iframes)
Escape sequences and character entities
Forms and form scripts
HTTP revisited
Readings:
Miller Chapter 9
Netscape on Frames: http://wp.netscape.com/assist/net_sites/frames.html
Netscape on Targets: http://wp.netscape.com/eng/mozilla/2.0/relnotes/demo/target.html

Week 8 – 10/14 **Project 2 Due**
Security issues
Readings
Miller, Chapter 6

Review

Week 9– 10/21
Midterm exam
Style sheets and CSS
Readings:
Miller Chapter 10
http://www.w3schools.com/

Week 10 –10/28
Exam discussion
Styles continued
Introduction to scripting
Miller Chapter 11

Week 11 –11/4
JavaScript and PHP
Introduction to XML
Miller Chapter 11, 12
Readings:
http://www.w3schools.com/
http://members.tripod.com/~SSHETTY/
http://www.javascript.com/

Week 12 – 11/11
XML DTD and schema examples
Readings:
http://www.w3schools.com

Readings
Miller Chapter 12
Supplemental:

Week 13– 11/18
**PROJECT 3 DUE**
Internet Content and Formats: Documents (PDF, etc.)
File Compression and Encoded formats.
Content evaluation
Information retrieval overview
Readings:
Miller Chapters 13, 14
Readings on Internet Resource Evaluation:
http://school.discovery.com/schrockguide/eval.html
http://www.ala.org/parentspage/greatsites/criteria.html

Week 14 – 11/25 THANKSGIVING BREAK

Week 15 – 12/2
Internet information retrieval continued
Retrieval issues and strategies
Search engines and directory services comparison
Relevance ranking
How search engines create an index
Cataloging Internet resources and Local assisted access systems
PURs
Cookies and other server-side issues
Google details
Readings
Miller, Chapters 13, 14, 15
and http://www.cookiecentral.com/faq.htm

Week 16 – 12/9
COURSE PROJECT DUE
Course Wrap up
Libraries and the Internet
Web 2.0 and beyond
Critiques of Web 2.0
Readings
Chapter 16

Final review

Week 17 Finals week
FINAL EXAM 12/16 6:00 PM

NCATE statement: Integration with UK Educator Preparation Unit Themes
This course supports the four themes of the conceptual framework for the UK professional education unit: research, reflection, learning, and leading. The ultimate goal is to produce leaders who work together to improve service and learning among diverse populations in Kentucky and beyond.