

Simmons GSLIS at Mount Holyoke College
LIS 488_20 (Fall 2004)
Technology for Information Professionals
Syllabus

NIOMTPLABOPARMBETZHELBTETRABSBOMONIMONKONOTDTEKHSTROMONT
World's longest acronym

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Class: Skinner 216
Office: 19 College Street
Office hours for Fall Semester:
Friday: 10:30 - noon
Friday: 2:30 – 4:00 and
by appointment on Saturday afternoon

Syllabus

This course covers the conceptual foundations and context of computing, internet, and digital publishing technologies as used in information-intensive professions. The course is a foundational overview of how computers, networking, the internet, and digital publishing, with an emphasis on the terminology that appears in the professional literature. The course serves as a gateway to other technology courses offered at GSLIS.

The syllabus is a framework to the course, but the coverage and pace of the content may change as we see how we are doing in the class. All readings are either on print reserve at the Mount Holyoke College Library, are available digitally through WebCT, or are available digitally through Simmons E-Reserve. The syllabus is an outline of the broad topics we will cover, and the dates for major assignments. There may be other small assignments during the course, including quizzes or questions, which are not identified on the syllabus.

The themes or broad areas of coverage, for this course are:

- Computer hardware concepts
- Networking infrastructure concepts
- Internet protocols and underlying structure, both political and technical
 - Internet security issues
- Digital content creation: structure and retrieval
 - Multimedia
 - Web based databases
 - XML
- Problem solving with IT
- Digital libraries

In addition to the assigned readings and assignments, for each class please either post one question about an issue that is not clear, and your best attempt to frame or discuss the problem it poses (limit your posting to one paragraph) or post your answer (also limited to one paragraph) to a question posted by one of your classmates. Post your question or your response by 06:00 pm (18:00) on Friday evening before class.

Saturday, September 11, 2004, 09:15 am – 12:15 pm

Topics

Welcome to technology for information professionals
Syllabus; Objectives, Expectations, and Readings
In class survey
WebCT
Books24x7.com
Review quiz and spot quizzes

History of computer, networking and Internet technologies

Saturday, September 18, 2004, 09:15 am – 12:15 pm

Topics

Questions

How does a computer work?

Binary counting: 2 by 2

Microprocessors, CPUs, and chipsets

BIOS, ROM, CMOS, RAM

POST

Motherboards

Discuss Memo: Cluster of Secure Workstations

Readings

White. *How Computers Work*.

pp. 2-35 (*Boot-up Process*)

pp. 36-63 (*Microchips*)

Walters. *Essential Guide to Computing*

pp. xxi-xxvi (*Introduction*)

pp. 3-37 (*Core of Computing*)

Supplemental readings

History of Computing

<http://ei.cs.vt.edu/~history/>

Learnbinary.com

<http://www.learnbinary.com/>

History of the Internet and WWW: The Roads and Crossroads of Internet History. By Gregory R. Gromov

<http://www.netvalley.com/intval1.html>

PCguide.com

<http://www.pcguid.com/intro/index.htm>

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, September 25, 2004, 09:15 am – 12:15 pm

Topics

Questions

Computer hardware

Disk drives

Storage

I/O bus, expansion cards

IDE, PCI, SCSI

IRQs and DMAs

Software

Operating systems (OS), DLLs, and APIs

Applications and scripts

Required Readings

White. *How Computers Work*.

pp. 122-175 (*Data Storage*)

pp. 64-99 (*How Software Works*)

Walters. *Essential Guide to Computing*

pp. 39-69 (*Memory, Storage and Input/Output*)

pp. 135-201 (*Software*)

This is a lengthy reading. Focus on the Fundamentals (137-159) and just read the rest for pleasure.

Supplemental readings

Stephenson, Neil. *In the Beginning was the Command Line.*

[browse desultorily or read intensely, depending on how you like the style.]

WebCT

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, October 2, 2004, 09:15 am – 12:15 pm

Topics

Questions

Workshop – break and fix

Introduction to Graphics

Resolution, pixels, dpi

CRT, LCDs, printers and scanners

Graphics and color

File formats: GIF, JPEG, etc.

Multimedia publishing

Issues and challenges in creating, using and distributing multimedia

Discussion of memo and design of workstation spaces – information commons?

Readings

White. *How Computers Work*

pp. 176-247 (*Input/Output Devices*)

pp. 362-389 (*How Printers Work*)

pp. 248-276 (*Multimedia*)

Walters. *Essential Guide to Computing*

pp. 71-102 (*Computer Monitors and Graphics Systems*)

Kasdorf. *Columbia Guide to Digital Publishing*

Chapter 6: *Composition, Design, Graphics*

This is a long chapter – read only 246-290 and read the rest for pleasure (!)

Chapter 9: *Multimedia Publishing*

Supplementary Readings

Common Internet File Formats

<http://www.endprod.com/tutor/format.htm>

Windows Media Player Multimedia File Formats

<http://support.microsoft.com/default.aspx?kbid=316992#3>

About.com - Desktop Publishing - Scanning

<http://desktoppub.about.com/cs/scanning/>

Color Matters – Computers

<http://www.colormatters.com/computers.html>

Builder.Com - Web Development Library. Graphics

<http://builder.com.com/1200-31-5084829.html?tag=st.bl.3883.nose.3880>

Assignments

Post question or response by 6:00 pm on Friday evening.

Saturday, October 9, 2004, Holiday

Happy Columbus Day (or Thanksgiving in Canada)

Catch up on the readings.

Saturday, October 16, 2004, 09:15 am – 12:15 pm

Topics

Questions

Finish up standalone PC

Security – viri and updates (patches)

Begin sharing PC

Hardware ports - Data in, out, and around the microcomputer

ASCII, Unicode

Protocols

Modems, PPP

Ethernet NIC

DSL (ADSL), cable modem

LANs and WANs

Packet switching and circuit switching

Media

ISDN, Frame Relay, T1 - T3, FDDI, ATM, UTP

Gigabit ethernet

Review for review quiz #1

Required Readings

White. How Computers Work

pp. 278-311 (How the Internet Works – up to chapter 29)

Walters. Essential Guide to Computing

pp. 267-292 (Digital vs. Analog)

Molyneux. Internet Under the Hood.

pp. 19-25 (History of Network Computing)

Supplemental readings

Cable Modem Tutorial

<http://www.cable-modems.org/tutorial/>

Cable Modem Basics

<http://www.cablemodeminfo.com/cmbasicsx.html-ssi>

Broadbandreports.com

<http://www.broadbandreports.com>

Microsoft. Security and Privacy.

<http://www.microsoft.com/security>

Assignment

Post question or response by 6:00 pm on Friday evening.

Memo: Cluster of Secure Workstations

Saturday, October 23, 2004, 09:15 am – 12:15 pm

Topics

Review Quiz #1

Server issues

Backup

UPS

Security
Remote access
Farms
NOS
Support issues – server and network

Required Readings

Supplemental readings

Assignment

Due: Review Quiz #1

Saturday, October 30, 2004, 09:15 am – 12:15 pm

Topics

Questions

OSI standard - the 7 layers

Topologies – ethernet and Token Ring

Bridges, routers, switches, hubs

MAC addressing

Introduction to IP Addressing

Discuss Memo: Secure Wireless Network

Memo: Issue from EDUCAUSE Security Discussion Group Listserv

<http://listserv.educause.edu/archives/security.html>

Memo: Improve a Digital Publishing Site

Required Readings

Walters. Essential Guide to Computing

pp. 293-350 (Network Fundamentals)

pp. 351-388 (Types of Networks)

Molyneux. Internet Under the Hood.

pp. 39-53 (Networking from the Physical Layer (LANS))

pp. 55-60 (Basic Computer Arithmetic) – look over just to validate

pp. 61-92 (Networking from the Data Link and Network Layers)

pp. 103-108 (NOS)

Supplementary readings

Cisco Internetworking Technology Handbook

http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/index.htm (Do not read all of this! Just marvel at what is required to run a network.)

Lantronix Ethernet Tutorial 1 & 2 only.

<http://www.lantronix.com/learning/tutorials/index.html>

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, November 6, 2004, 09:15 am – 12:15 pm

Topics

Questions

Wireless

Protocols - TCP/IP

More on addressing

Back to binary
Domain names, DNS, DHCP, NAT
Client/server on the Internet
Peer to peer
RSS

Internet history and organization
WWW, HTTP, HTML
GNU
Open source
Email
MIME types
Telnet, FTP
IPv4 v. IPv6

Required Readings

White. *How Computers Work*
pp. 312 – 361 (*How the Internet Works –chapter 29 to end*)

Walters. *Essential Guide to Computing*
pp. 389-413 (*Client/Server Concepts*)
pp. 415-450 (*Internet and Network Security*)

Molyneux. *Internet Under the Hood.*
pp. 27-36 (*History and Governance of the Internet*)
pp. 109-146(*OSI and Internet chapters*)
pp. 157-213 (*Applications*)
Much of Molyneux is a review, to lock in the concepts.

How WiFi Works. Jeff Tyson
<http://computer.howstuffworks.com/wireless-network.htm>

Building Secure Wireless LANs. CheckPoint
http://www.checkpoint.com/products/downloads/wireless_lans_whitepaper.pdf

Supplemental readings

Network Computing. Network Design Manual. IP101
<http://www.networkcomputing.com/netdesign/ip101.html>

Symantic Security Response.
<http://www.symantec.com/avcenter/>

Kazaa Media Desktop.
<http://www.kazaa.com>

Internet Engineering Task Force
<http://www.ietf.org>

GNU's not UNIX
<http://www.gnu.org/>

World Wide Web Consortium
<http://www.w3.org>

Internet Society
<http://www.isoc.org/>

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, November 13, 2004, 09:15 am – 12:15 pm
Topics

Questions

Workshop – network diagnostics

Internet2

VPNs

Intranets

Security, firewalls, DMZ, IDS, and other topologies

Proxy servers

Required Readings

Molyneux. *Internet Under the Hood*.

pp. 269-299 (*Glossary and Keeping Up*)

Walters. *Essential Guide to Computing*

pp. 451-463 (*Conclusion*)

Cain, Mark. 2003. "Cybertheft, Network Security, and the Library Without Walls." *Journal of Academic Librarianship*. (July) 29(4).

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Bruhn, Mark; Gettes, Michael; and West, Ann. 2003. "Identity and Access Management and Security in Higher Education. *EDUCAUSE Quarterly*. 4: 12-16.

<http://www.educause.edu/ir/library/pdf/eqm0342.pdf>

WebCT

Margulius, David L. 2003. "Trouble on the Net." *InfoWorld* (November 24): 40-48.

WebCT

Checkpoint.com. *Stateful Inspection Technology*.

http://www.checkpoint.com/products/downloads/firewall-1_statefulinspection.pdf

WebCT

Checkpoint.com. *Why Choose Integrated VPN/Firewall Solutions over Stand-alone VPNs*.

http://www.checkpoint.com/products/downloads/why_choose_integration.pdf

WebCT

Supplemental readings

Internet2.org

<http://www.internet2.org/>

Thawte. *Cryptography FAQs. Digital Certificate*.

<http://www.thawte.com/html/SUPPORT/index.html>

Verisign. "Introduction to Public Key Cryptography."

<http://www.verisign.com/repository/crptintr.html>

EZProxy

<http://www.ezproxy.com/>

SANS Institute.

<http://www.sans.org>

Computer Emergency Response Team Coordination Center (CERT/CC)

<http://www.cert.org>

Do not read in their entirety. Just look over to get the flavor.

RFC 3439. 2002. *Some Internet Architectural Guidelines and Philosophy*.

RFC 3631. 2003. *Security Mechanisms for the Internet*.

RFC 3160. 2001. *The Tao of IETF - A Novice's Guide to the Internet Engineering Task Force*.

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, November 20, 2004, 09:15 am – 12:15 pm

Topics

Database models and design
How library catalogs work
How web databases work

Required Readings

Walters. *Essential Guide to Computing*
pp. 238-251 (*Databases*)

Library Technology Reports. Jan/Feb 2004. 40(1)

<http://0-search.epnet.com.library.simmons.edu:80/direct.asp?AuthType=cookie.ip,url,uid&db=aph&an=12550355>

Especially “Functional and Technical Comparisons”

Supplemental readings

Ex Libris ALEPH

<http://www.exlibrisgroup.com/aleph.htm>

Innovative Interfaces, Inc.

<http://www.iii.com/>

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, November 27, 2004, Holiday

Happy Thanksgiving!

Saturday, December 4, 2004, 09:15 am – 12:15 pm

Topics

Questions
XML
Information retrieval

Required Readings

Kasdorf. *Columbia Guide to Digital Publishing*.

Chapter 3: Markup: XML & Related Technologies

Supplemental readings

Extensible Markup Language (XML)

<http://www.w3.org/XML/>

Assignment

Post question or response by 6:00 pm on Friday evening.

Memo: Secure Wireless Network

Issue from EDUCAUSE Security Discussion Group Listserv

Improve a Digital Publishing Site

Saturday, December 11, 2004, 09:15 am – 12:15 pm

Topics

Questions
Putting it all together – digital libraries, archives and repositories

Digital library development
Problems, issues and challenges of digital collections

Required Readings

Kasdorf. Columbia Guide to Digital Publishing.
Chapter 10: Content Management & Web Publishing
Chapter 12: Archiving

Schwartz, Candy. (2000). "Digital libraries: An Overview." Journal of Academic Librarianship, 26, 385-394.

Smith, McKenzie and others. (2003). DSpace: and Open Source Dynamic Digital Repository. D-Lib Magazine. 9(1): <http://www.dlib.org/dlib/january03/smith/01smith.html>
WebCT

Supplemental readings

Assignment

Post question or response by 6:00 pm on Friday evening.

Saturday, December 18, 2004, 09:15 am – 12:15 pm

Topics

Review Quiz #2

Panel discussion of IT experts

Required Readings

Supplemental readings

Assignment

Due: Review quiz #2

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