Fall Reading Assignments

- Lecture 1: Introduction to Course and Cyberspace
- Lecture 2: Internet History, Concepts and Protocols
- Lecture 3: Overview of Digital Technology and Computing Devices
- Lecture 4: Security Fundamentals – part I
- Lecture 5: Security Fundamentals – part II
- Lecture 6: Network Technology
- Lecture 7: Software - Simple Software
- Lecture 8: Internet and Enterprise Middleware
- Lecture 9: Software - Distributed Software Systems
- Lecture 10: Enterprise and ISP Routing
- Lecture 11: Security Tools
- Lecture 12: Designing and Building the Infrastructure
- Lecture 13: Managing the Infrastructure
- Lecture 14: Internet Regulation, Technology Standards, and Course Lessons

Lecture 1: Introduction to Course and Cyberspace

Required Reading

RFC 825 - Request for Comments on Requests for Comments - John Postel (1982)


A statement of principle - Bruce Sterling, EFF (1992)


Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips - Sparrow et al (2011)

Notre-dame de Paris Victor Hugo (1831) - Book V, Chapter II

Kevin Spacey: Give Users Control, What They Want, When They Want It, At A Fair Price, And Stop Worrying About Piracy - video (2013)

Optional Reading

Hacker Manifesto - The Mentor (1986)

NPR's coverage of “Who controls the Internet?” (2006)

The NSA is commandeering the Internet - The Atlantic - Bruce Shneier (2013)

NSA secrets kill our trust - CNN - Bruce Shneier (2013)

Lecture 2: Internet History, Concepts and Protocols

Required Reading


On Distributed Communications: Introduction to Distributed Communications Network - Baran (1964)

Tragedy of the Commons - Hardin (1968)

The Design Philosophy of the DARPA Internet Protocols - Clark (1988)

The Rise of the Stupid Network - Isenberg (1997)
The stupid network: Essential yet unattainable - Odlyzko (1999)
Internet Protocol RFC 791 - Postel (1981) - Sec 1, 2, 3.1 & 3.2
Transmission Control Protocol RFC 793 - Postel (1981) - Section 1, 2, 3, 3.7
Congestion Avoidance and Control - Jacobson (1988) - Sections 1 - 4
OSI protocols - Wikipedia
What The Internet Is, and Should Continue To Be Reed 2013

Optional Reading

Treaty of Westphalia (1648)
other papers by Paul Baran
other papers by Andrew Odlyzko
The ARPA Network Design Decisions - McQuillan and Walden (1977)
SIGCOM 25th Anniversary Issue reprints of many very important Internet research papers (1995)
Verizon’s peering policy
How the 'Net works: an introduction to peering and transit - ars technical (2008)
Address Allocation for Private Internets RFC 1918 - Rekhter (1996)

Lecture 3: Overview of Digital Technology and Computing Devices

Required Reading

Personal Computing - Alan Kay - In: Meeting on 20 Years of Computing Science.. Instituto di Elaborazione della Informazione, Pisa, Italy, (1975)
Man-computer symbiosis - J.C.R. Licklider (1960)
Cramming more components onto integrated circuits - Moore (1965)
Interop - Introduction - Palfrey, Gasser (2012)
ACM Queue - The reincarnation of virtual machines - Rozenblum (2004)
Timeline of computing hardware 2400 BC to 1949 - Wikipedia
Timeline of computing 1950 to 1979 - Wikipedia

Optional Reading

A Turing machine - Mike Davey (2010)
Lecture 4: Security Fundamentals – part I

**Required Reading**

RFC 1948 - Defending Against Sequence Number Attacks - Bellovin (1996)

RFC 4301 - Security Architecture for the Internet Protocol - sections 1-3 - Kent/Seo (2005)


10 Ways We Get The Odds Wrong - Psychology Today (2008)

The two man rule - FCW, Chiu (2013)

Attack Trees - Schneier (1999)


Cybersecurity Framework - NIST (2013)


**Optional Reading**

Lecture 5: Security Fundamentals – part II

**Required Reading**


RFC 5280 - Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile - Cooper et al, (2008) - Sections 1, 2, 3 & 8

RFC 4086 - Randomness Requirements for Security - Eastlake, Schiller & Crocker (2005) - Sections 1, 2 & 8


Why Cryptography Is Harder Than It Looks - Schneier (1997)

White House statement on comprehensive inter-agency review of encryption technology (includes rationale for Clipper chip) - Office of the Press Secretary (1994)


Export Administration Regulation - category 5, part 2 - U.S. Department of Commerce (2014)

Nine Epic Failures Of Regulating Cryptography - Cindy Cohn, EFF (2014)

Rainbow tables - Wikipedia

**Optional Reading**

Lecture 6: Network Technology

**Required Reading**

IEEE 802.3™ 'Standard for Ethernet' Marks 30 Years of Innovation and Global Market Growth - IEEE (2013)
Optional Reading

*The Lighthouse at the End of the World* - Jules Verne (1905)
*A lighthouse as a metaphor* - Bradner (1998)

Lecture 7: Software - Simple Software

Required Reading

*Countering “Trusting Trust”* - Schneier (2006)
*Dartmouth BASIC version 2 Manual* - Kemeny, John G. & Kurtz, Thomas E. (1964) - Chapter I Introduction
*The Hypercard Legacy* - Jer Thorp (2009)
*The early history of Smalltalk* - Alan Kay (1993) - Introduction
*Buffer overflow* - Wikipedia
*Principles of lean thinking* - Mary Poppendieck (2002)

Optional Reading

Lecture 8: Internet and Enterprise Middleware

Required Reading


Optional Reading

Lecture 9: Software - Distributed Software Systems

Required Reading

*DCE Overview TOG-DCE-PD-1296* (1996)
Optional Reading

Lecture 10: Enterprise and ISP Routing

Required Reading

RFC 1787 - Routing in a Multi-provider Internet
RFC 1923 - RIPv1 Applicability Statement for Historic Status
RFC 2453 - RIP Version 2 - Section 3.1 through Section 3.5
RFC 2328 - OSPF Version 2 - Section 1.2 and Section 1.3
RFC 4271 A Border Gateway Protocol 4 (BGP-4) - Sections 1 & 3
RFC 4984 - Report from the IAB Workshop on Routing and Addressing

Verizon Business Peering Policy
How Secure are Secure Interdomain Routing Protocols? - Goldberg et al, abstract & Introduction

Optional Reading

RFC 1102 - Policy routing in Internet protocols
RFC 2332 - NBMA Next Hop Resolution Protocol (NHRP)
RFC 2386 - A Framework for QoS-based Routing in the Internet

Lecture 11: Security Tools

Required Reading

Understand the evolution of firewalls - Smith (2002)
Firewall - Wikipedia
Antivirus - Wikipedia
Sandbox - Wikipedia
Intrusion Detection FAQ - SANS - skim basics
Sniffing FAQ - Graham (2000)
The AIDE manual - Haber - sections 3 & 8
Optional Reading

Lecture 12: Designing and Building the Infrastructure

Required Reading

The NIST definition of cloud computing - NIST (2011)
Overview of Amazon Web Services - Amazon (2013)

Optional Reading

Lecture 13: Managing the Infrastructure

Required Reading

RFC 3635 - Definitions of Managed Objects for the Ethernet-like Interface Types - Flick (2003)
Preparedness 101: Zombie Apocalypse - CDC (2011)

Optional Reading

Lecture 14: Internet Regulation, Technology Standards, and Course Lessons

Required Reading

Tunis Agenda for the Information Society - WSIS (2005)
Committed to connecting the world - ITU
Griswold v. Connecticut - U.S. Supreme Court (1965)
Katz v. U.S. - U.S. Supreme Court (1967)
The Internet Standards Process - Revision 3 - RFC 2026 - Bradner (1996) - not section 10

IETF Rights in Contributions - RFC 3978 - Bradner (2005)


ISOC WCIT web site

Tunis Agenda for the Information Society

Eyes in their ankles: The congressional view of network neutrality

Optional Reading