

CIS 678

Internetworking

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- How
- What
- When
- Why



- ❑ How am I going to grade you?
- ❑ What are **we** going to cover?
- ❑ When are **you** going to do it?
- ❑ Why you should **not** take this course?

Grading

- ❑ Quizzes (Best 2 of 3) 50%
- ❑ Class participation 10%
- ❑ Homeworks + Labs 40%

Answers to Frequently Asked Questions

- ❑ Yes, I do use “curve”. Your grade depends upon the performance of the rest of the class.
- ❑ All homeworks are due at the beginning of the next class.
- ❑ All late submissions must be preapproved.
- ❑ All quizzes are open-book and extremely time limited.
- ❑ Quizzes consist of numerical as well as multiple-choice (true-false) questions.
- ❑ There is negative grading on incorrect multiple-choice questions.
- ❑ Everyone including the graduating seniors are graded the same way.

Textbook

- ❑ Douglas E. Comer, "Computer Networks and Internets," Prentice-Hall, 1997, ISBN: 0-13-239070-1

Supplementary Texts

- ❑ Douglas E. Comer, "Internetworking with TCP/IP, Volume I: Principles, Protocols, and Architecture," 3rd Edition, Prentice-Hall, 1996, ISBN 0-13-216987-8
- ❑ S. A. Thomas, "IPng and the TCP/IP Protocols," Wiley, 1996, ISBN: 0-471-13088-5
- ❑ James Martin and Joe Leben, "TCP/IP Networking: Architecture, Administration, and Programming," Prentice Hall, 1994, ISBN: 0-13-642232-2
- ❑ U. Black, "TCP/IP & Related Protocols," 2nd Edition, McGraw-Hill, 1994, ISBN: 0-07-005560-2

Prerequisite: CIS677

- ❑ Protocol Layers: ISO/OSI reference model
- ❑ Physical Layer: Coding, Manchester
- ❑ Transmission Media: UTP, Cat 5, Microwave, Radio
- ❑ Data Communication: Asynchronous vs synchronous, Baud, bit, and Hz, Half-Duplex vs Full-duplex, Modulation/Demodulation
- ❑ Packet Transmissions: Framing, Bit stuffing, byte stuffing
- ❑ Flow Control: On-Off, Window
- ❑ Error Detection: Parity, Checksum, Cyclic Redundancy Check

Prerequisites (Cont)

- ❑ Error Recovery: Start and Stop, Go back n , Selective Reject
- ❑ LANs: Aloha, CSMA/CD, Ethernet, IEEE 802.3, Token Ring/IEEE 802.5, FDDI
- ❑ LAN Addressing: Unicast vs multicast, Local vs Global
- ❑ LAN wiring: 10Base5, 10Base2, 10Base-T, 100Base-T4, 100Base-TX, 100Base-FX
- ❑ Extended LANs: Hubs, Bridges, Routers, Switches
- ❑ Routing: Distance Vector vs Link State, Spanning tree, source routing
- ❑ Network Layer: Connectionless vs connection oriented

Tentative Schedule

1/7/97 Course Introduction

1/9/97 Trends/Review of CIS677

1/14/97 13. Internetworking

1/16/97 14. IP Addresses

1/21/97 15. Address Resolution Protocol

1/23/97 Quiz I

1/28/97 16. IP Data forwarding

1/30/97 17. IP encapsulation, fragmentation

2/4/97 18. IP next generation: IPv6

2/6/97 19. ICMP

Schedule (Cont)

2/11/97 20. TCP

2/13/97 Quiz II

2/18/97 20B. TCP Congestion Avoidance

2/20/97 24. DNS

2/25/97 30. SNMP

2/27/97 31. Network security

3/ 4/97 32. BOOTP and DHCP

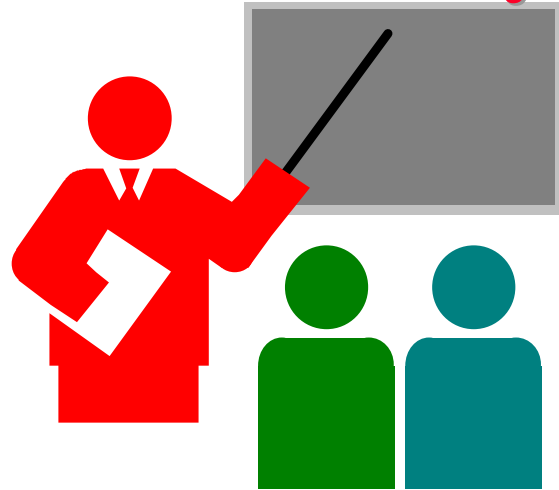
3/ 6/97 Quiz III

3/11/97 Seniors' Grades Due

Office Hours

- Tuesday: 4:30 to 5:00 PM
Thursday: 4:30 to 5:00 PM
- Office: 297 Dreesse Lab, 2015 Neil Ave

Summary



- ❑ There will be a lot of self-reading
- ❑ Goal: To prepare you for a career in networking
- ❑ Get ready to work hard

Quiz 0: Prerequisites

True or False?

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- Datalink refers to the 2nd layer in the ISO/OSI reference model
- Category 5 unshielded twisted pair cable is better than category 3 cable.
- Finding path from one node to another in a large network is a transport layer function.
- It is impossible to send 3000 bits/second through a wire which has a bandwidth of 1000 Hz.
- Bit stuffing is used so that characters used for framing do not occur in the data part of the frame.
- For long delay paths, on-off flow control is better than window flow control.
- Ethernet uses a CSMA/CD access method.
- 10Base2 runs at 2 Mbps.
- The packets sent in a connection-oriented network are called datagrams.
- Spanning tree algorithm is used to find a loop free path in a network.

Marks = Correct Answers _____ - Incorrect Answers _____ = _____

Homework 1

- ❑ Read Chapters 2-5
- ❑ Submit answers to exercises 2.8, 3.4, 4.1, and 5.5
- ❑ Due Date: Thursday, January 16th, 1997.

Homework 2

- ❑ Read Chapters 6-12
- ❑ Submit answers to exercises 6.6 (explain why), 7.7, 8.3, 9.2, 10.8, 11.6, 12.2
- ❑ Due Date: Tuesday, January 21, 1997