Overview

- 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%
  - The division of grades between homeworks and labs will depend on the number of labs
  - Most likely it will be 20% for homeworks and 20% for labs.
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.
Text Book

Supplementary Texts

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
Schedule (Tentative)

3/30/99 Overview
4/1/99 A Review of Networking Concepts
4/6/99 Fundamentals of Telecommunications
4/8/99 X.25
4/13/99 Frame Relay
4/15/99 Quiz 1
4/20/99 Frame Relay Congestion Control
4/22/99 ISDN
4/27/99 SONET
Schedule (Cont)

4/29/99 Introduction to ATM
5/4/99 ATM Traffic Management
5/6/99 Quiz 2
5/11/99 IP Over ATM
5/13/99 PNNI: Routing in ATM Networks
5/18/99 ATM Signaling
5/20/99 Wireless Data Networking 1
5/25/99 Wireless Data Networking 2
5/27/99 Quiz 3
6/1/99 Graduating Seniors’ grades due
Office Hours

- Tuesday: 2:00 to 2:30 PM
  Thursday: 2:00 to 2:30 PM

- Office: 297 Dreese Lab, 2015 Neil Ave

- GTA: Arian Durresi, DL299
  Durresi@cse.ohio-state.edu
  MWF 11:30-12:30
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?
T  F

- 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

- From Tanenbaum’s book, review sections 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.6.1

or

- From Stallings’ book, review sections 1.4, 15.2, 15.3, 2.3, 3.1, 4.1, 6.1-6.4, 9.2

- Submit answers to exercises on the next slide

- Due Date: Tuesday, April 6, 1999.
Homework 1 (Cont)

- A system has \( n \) layer protocol hierarchy. Applications generated messages of length \( M \) bytes. At each of the layers, an \( h \)-byte header is added. What fraction of the network bandwidth is filled with headers.

- If the bit string 011101111101111110 is bit stuffed, what is the output string (on wire).

- Two stations communicate via a 1-Mbps satellite link with a propagation delay of 270 ms. Using HDLC frames of 1024 bits with 3-bit sequence numbers, what is the maximum possible data throughput (excluding the overhead bits)?
Homework 2

- From Tanenbaum’s book, review sections 4.3, 4.4, 4.5, 5.2, 5.5.1, 5.5.2, 5.5.3, 6.4
  or
- Submit answers to exercises on the next slide
- Due Date: Thursday, April 8, 1999
Homework 2 (Cont)

- Consider a baseband bus with a number of equally spaced stations with a data rate of 10 Mbps and a bus length of 1 km. What is the average time to send a frame of 1000 bits to another station, measured from the beginning of the transmission to the end of reception? Assume a propagation speed of 200 m/μs.

- A class B network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts per subnet.

- What is the maximum payload of a TCP segment?