

Rensselaer at Hartford

ECSE-4670 Computer Communication Networks **Spring 2007** **Thurs 5:30 - 8:30 pm**

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Text: Stallings, William
Data and Computer Communications, 8th Edition
Prentice Hall, 2007, ISBN 0-13-243310-9

<u>Lecture</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
1	1/11	Introduction to Computer Networks OSI Reference Model: A Layered Approach Intro to TCP/IP Protocol Suite	Chapters 1 & 2
2	1/18	Transmission Media and Digital Signaling UTP, STP, Coax, fiber, Wireless Noise and Attenuation (Decibels) Analog vs. Digital Transmission Digital Signaling (Encoding) NRZ, NRZI, AMI 4B5B, 8B10B, 8B6T Asynchronous and Synchronous Transmission	Chapters 3, 4, & 5.1
3	1/25	Physical Interfaces and Analog Signaling Analog Signal Modulation, Modems Full-duplex and half-duplex Bandwidth Requirements: Nyquist and Shannon Limits Fourier Analysis EIA-232D/RS-232C/V.24, RS-449 X.21, USARTs,	Chapters 5 & 6
4	2/1	Data Link Control Error Detection and CRC Polynomial Codes Stop & Wait, Sliding Window ARQ Go-back-N, Selective Reject	Chapter 6 & 7
5	2/8	Data Link Layer Protocols and Multiplexing HDLC, LAP-B, ARPANET DLC Frequency and Time Division Multiplexing ADSL, xDSL, Cable Modems	Chapter 7 & 8
6	2/15	Circuit Switching and Packet Switching Digital Switching Concepts Packet Switching Principles Virtual Circuits and Datagrams, X.25	Chapter 10
7	2/22	Mid-Term	
8	3/1	Routing and Traffic Control Dijkstra, Bellman-Ford Algorithms Link State vs Distance Vector Methods Flow and Congestion Control	Chapter 12 & 13

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9	3/8	Frame and Cell Relay, ATM and ISDN Frame Relay Call Control and Data Transfer Frame Relay Congestion Control ATM Cells & Logical Connections	Chapter 10 & 11
10	3/15	Local Area Networks (LAN) Topologies, Media, Medium Access Control MAC Layer, IEEE 802.3, 802.5 Standards Ethernet, Fast Ethernet, Gigabit Ethernet	Chapter 15 & 16
11	3/22	Layer 2 Switches & Bridges Spanning Tree Algorithm Virtual LANs	Chapters 15 & 16 Appendix 14B
12	3/29	Internetworking Routers and Gateways Internet IP	Chapter 18 & 19
13	4/5	Transport Protocols OSI TCP, Credit Allocation, TCP/IP and TP4/CLNP Host to Host Flow Control	Chapter 20
14	4/12	Network Applications and Review	
15	4/19	FINAL EXAM	

Homework

Homework will normally be assigned following each lecture and due at the next lecture. Students who must miss a class (e.g. company business trip) may submit their completed homework using the US postal service (postmarked by the due date). Late homework will NOT be graded - no exceptions. You can expect 10 to 12 homework sets. Your total homework score will be based on the 8 to 10 highest homework scores. I will throw out (forgive) the two lowest scores.

Exams

There will be a mid-term and final exam:

2/22 In-class Mid-Term Exam

Open Text Book, open notes & handouts.

Covers all material presented in Lectures 1-6, assigned reading, and associated handouts.

4/19 In-Class Final Exam

Open Text Book, open notes & handouts.

Covers all material presented in Lectures 1 - 14 (with more emphasis on lectures 8- 14, assigned reading, and associated handouts.

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Final Course Grade Determination

The course grade is based on a weighted sum of the computed Z-scores for the homework sets and the mid-term and final exams:

$$\text{Grade} = 20\% (\text{Homework Avg.}) + 40\% (\text{Mid-Term Exam}) + 40\% (\text{Final Exam})$$

A Z-score is computed as follows:

$$\text{Exam Z-score} = [(\text{your test score}) - (\text{mean or median test score})] / \text{Std. Deviation}$$

Note: A mean score is normally used. However, a median score will be used if there exists an abnormally high or low score.

Z-scores greater than +1.00 =A; less than -1.00 =C; $-1.00 < Z < +1 = B$ (at least)

Academic Integrity

All members of the Rensselaer at Hartford community are expected to assume responsibility for honor, honesty, and integrity in their academic work. Violators of a proper code of behavior are subject to the Grievance and Hearing Procedure described in the Student Handbook. Definitions of academic dishonesty can be found in the Student Handbook.