CPS 470/570: Data Communications

Fall 1996
Lecture: T-Th 5:50 - 7:05, MH 213

Instructor

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Course Overview

This course will teach the fundamentals of data communications. This is a senior/graduate level course that is part of a two part series in computer communications. This first course introduces the problems and solution techniques of the communications field. It focuses primarily on the "lower-layer" protocols: physical, data-link, and network. The second course, CPS 472/572 Computer Networking, focuses on the "upper-layer" protocols.

Prerequisite

CPS 350 Data Structures and Algorithms. Also, some programming will be required for homework projects.

Materials

Text: Data Communications, Computer Networks and Open Systems by Fred Halsall, Fourth Edition

Course Objectives

My primary objectives for the students in this class are:

1. To learn the terminology of networking/communications.
2. To understand the fundamental problems and solution techniques that arise in the physical, data-link, and network layers.
3. To understand the details of some specific protocols. This includes identfying which fundamental solutions techniques are incorporated into these protocols.
4. To evaluate different protocol solutions using performance evaluation techniques.

Grading Policies

1. Grades will be computed on a 90-80-70-60 scale. The weights assigned to various items are:

Programs/Homework:	100 points
2 Mid-term Exams:	200 points
Final Exam:	200 points

2. Assignments are due at the beginning of the specified class. Late assignments will be penalized at 10% per 24-hours or fraction thereof. No assignment will be accepted for credit after it has been returned to the class.
3. *All work to be handed in must be done individually unless the instructor explicitly states otherwise.* Any assignment or portion of an assignment that is a duplicate or group result will receive a zero grade.
4. Makeup exams will only be given in the case of serious illness or emergency. You must personally contact the instructor *before* the scheduled exam. Be prepared to provide a written excuse.

Exam Schedule

All exams will be given during the class lecture period.

- First Exam: Thursday, September 26 - 5:50pm
- Second Exam: Thursday, October 31 - 5:50pm
- Final Exam: Tuesday, December 17 - 5:50pm

Topic Schedule

We will cover the following topics in this class. Related readings will be assigned during the lecture.

Topic	Lectures
Overview, terminology, standards	2
Data Transmission, Data Encoding	3
Digital Communications: Sync, Async	2
Errors and Error Control	1
Flow control: link utilization	1
Data Link Protocols: HDLC	1
Multiplexing: FDM, TDM	2
Circuit Switching Architectures: Telco	2
Packet Switching Architectures: X.25	2
LAN Technologies	1
MAC Protocols: ALOHA, CSMA/CD, Token	3
Performance Analysis	1
Integrated Digital Networks	1
Protocols for Video On Demand	1

CPS 570 Students Only

In order to obtain credit for this course at the graduate level, you will be required to complete several additional assignments using a network simulation system. The details of these assignments will be given later. These assignments will account for 10% of your grade.

Other Important Dates

Last day to add classes/change grading:	September 6
Last day to withdraw without record:	September 18
Last day to withdraw with a record of *W*:	November 15
Last day of classes:	December 5