

University of Delaware  
CISC 450/650 – Computer Networks  
Fall 2008

## 1 Administrative Information

- Instructor: Chien-Chung Shen
- Meeting Time and Place: TuTh 9:30AM – 10:45PM Sharp Lab 122
- Contact Information: 450 Smith Hall <cshen@cis.udel.edu> 831-1951
- Course Website: <http://www.cis.udel.edu/~cshen/CN>
- Office Hours: Mon 10 am – 12 noon and by appointment  
Any changes will be posted on my office door, and will be announced in class.
- Teaching Assistant: Michael Ralston <ralston@cis.udel.edu>  
Office Hours: TBA
- Required Text: James Kurose and Keith Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*, 4th edition, Addison-Wesley, 2007, SBN: 0-321-49770-8.
- Recommended Texts:
  - Larry Peterson and Bruce Davie. *Computer Networks: A Systems Approach*, 4th ed., Morgan Kaufman, 2007
  - Andrew Tanenbaum, *Computer Networks*, 4th ed., Prentice Hall, 2003.
  - Many practical and excellent books by W. Richard Stevens at <http://www.kohala.com/start>.

## 2 Course Statement

Computer networks is an area of great practical importance. Nearly every one of us makes use of networks on a daily basis, often without a second thought about the details of operations, and the influence of computer networks on our lives is likely to continue growing over at least the next decade. Computer networks is also a very large subject, and no single course can make you an expert.

This course is an introduction to the **principles** and **practice** of computer networks. It intends to provide you with the background required for further study in the areas of networking and telecommunications, as well as practical understanding that will help you get a (good) job. The coverage is broad in scope, from physical media to internetworking and end-to-end services.

Our strategy in this course will be to decompose the subject matter into separable problems, learn general approaches to solving each problem, and learn how solutions can be composed to form comprehensive solutions. Each section of the course is motivated by considering some problem to be solved in the design and implementation of a computer network. Emphasis is on principles, using past, current, and future technology to illustrate the application of those principles.

In Fall 2008, we will also lecture **discrete event simulation** and the **QualNet** simulator. Students are required to design and conduct QualNet simulations.

### 3 Student Background

- Pre-requisites
  - Computer Architecture (CISC 360)
  - Operating Systems (CISC 361 or CISC 663)
- Knowledge of probability recommended.
- Ability to design, code, compile, and execute programs in Java and/or C/C++ on a computer running UNIX.

I expect that you are here to learn, and are willing to work hard on it.

### 4 Work Requirement

During the semester, you are responsible for completing the assigned readings, homework assignments, programming assignments, QualNet simulations, the Midterm exam, and the Final exam.

#### 1. Readings

- It is highly advised that you purchase the text book for the class. It will be supplemented with other related documents.

#### 2. Homework Assignments

- Complete bi-weekly (or so) assigned homework assignments. Homework assignments are based on readings and class discussions. They should be submitted **electronically** to the TA.
- Late homework assignments will **not** be graded.

#### 3. Programming and QualNet Simulation Assignments

- Programming and QualNet simulation assignments should be submitted **electronically** to the TA. They will be described in more detail in later handouts.
- Scores of programming assignments will be penalized by 10% per day that is late.

#### 4. Exams

- Midterm exam – TBA
- Final exam – TBA
- Exams will be based on course readings, class discussions, homework assignments, and programming assignments. All exams are **open book!**

Attendance is not obligatory. However, important administrative information (about exams, assignments, and policies) may be communicated only in the lecture. Furthermore, the lectures may contain material not contained in the text, and the exams may test material covered both in the lecture and in the text. It is therefore recommended that you attend the lectures. If you do happen to miss a session, you are responsible for finding out what material was covered and if any administrative announcements were made.

## 5 Grading

- Final scores will be determined using the following formula:

10% Homework  
38% Programming and QualNet Assignments  
23% Midterm Exam  
29% Final Exam

Final grades indicate absolute performance, and hence will be determined according to the following table.

A	A-	B+	B	B-	C+	C	C-	D+	D	D-
93%	90%	86.7%	83.3%	80%	76.7%	73.3%	70%	66.7%	63.3%	60%

Final grades for undergraduate students will be adjusted accordingly.

- I will not assign incompletes unless it is for a documented medical reason.

## 6 Schedule

The exact amount of lecture time devoted to each topic (and therefore homework assignment dates) is subject to change, though the ordering of topics will remain generally the same.

- Course Overview and Introduction
- Introduction and Application Layer
- Application Layer, Socket, and QualNet
- Transport Layer (TCP/UDP)
- Network Layer: Internetworking
- Network Layer: Routing
- Network Layer: IP
- IP subnetting, OSPF, BGP, CIDR
- Data Link Layer and Bridge
- Media Access Control (MAC) Protocols
- Wireless LAN

## 7 Academic Honesty

I don't mind if you help each other with understanding the material; in fact, I encourage it. However, **all** work turned in on homework assignments, programming assignments, and exams must be your own work. If any portions of homework assignments, programming assignments, or exams are found to be shared between two (or more) students, there will be 0 (zero) credit given to all students concerned and all students will be disciplined. We will act harshly at any sign of plagiarism or other academic misconduct. This policy is in the interest of those students who do their own work, which hopefully applies to all of you in this class. I encourage you to familiarize yourself with the University's Policy of Academic Dishonesty found in The Official Student Handbook.