CIS 4319: Computer Networks and Communications
2011 Fall

CRN: 780   Credits: 4

Prerequisite: CIS 3207 (OS) and CIS 3223 (Data Structures and Algorithms)

Instructor: Dr. Du

Email: dux@temple.edu   Phone: 1-8888   Office: 1037 Wachman

Dr. Du Office Hours: 3 - 4pm Thursday.

Lectures: 11:00 am - 12:20 pm, Tuesday and Thursday   **Location:** 0001A Tuttleman

Laboratory: 9 - 10:50 am, Friday, 200 Wachman Hall.

TA: Ms. Xiaoguang Li, tuc14235@temple.edu   **Office hours:** 2 - 4pm Monday, 1015E Wachman

All course materials will be distributed in Blackboard.

Textbook: Andrew S. Tanenbaum, Computer Networks, 5th Edition, Prentice Hall, 2011, ISBN-10: 0132126958, ISBN-13: 978-0132126953.

Reference: Kurose and Ross, Computer Networking: A Top-Down Approach, 5th Edition, Pearson, ISBN-10: 0136079679, ISBN-13: 978-0136079675, Publication Date: March 31, 2009.

Course Description: This course introduces the fundamental issues of computer networks and communications.

Topics:

1. Introduction (LAN, MAN, WAN, Wireless Networks, Network Software, OSI and TCP/IP Reference Models, Example Networks).
2. The Physical Layer (Transmission Media, Wireless Transmission, Satellite Communications, Public Switched Telephone Network, Mobile Telephone System, Cable).
3. The Data Link Layer (Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Example Data Link Protocols).
4. The Medium Access Control Sub-layer (Channel Allocation, Multiple Access Protocols, Ethernet, Broadband Wireless, Bluetooth, Data Link Layer Switching).
5. The Network Layer (Network Layer Design Issues, Routing Algorithms, Congestion Control, Quality of Service, Internetworking, Network Layer in the Internet).
6. The Transport Layer (The Transport Service, Transport Protocols, UDP, TCP).
7. The Application Layer (DNS, E- Mail, World Wide Web (WWW), Multimedia, Voice over IP).
8. Optional: Cloud Computing; Network Security

Grading Policy

Item	Weight
Homework	5 %
In-Class Exercise (No make-up exercise will be allowed)	15 %
Labs	20 %
Technical Paper Reading & Presentation	20 %
Midterm Exam	20 %
Final Project	20 %

Technical Paper Reading & Presentation

You are required to read a recent research paper in the areas of computer networks or wireless networks. The paper list will be given later. The papers are from top networking conferences (like IEEE Infocom, ACM MobiCom, ACM MobiHoc, etc). The purpose of the Technical Paper Reading is to let students know the up-to-date research frontier in networking area. You need to prepare slides and talk about the main content of the paper.

Final Project

Each student is required do a final project in the area of computer networks or wireless networks. Each student should find some possible topics and then discuss with the instructor to finalize the topic. The final project includes: finding a good topic, proposing a new research idea, designing a scheme based on the idea, implementing the scheme in software, and evaluating the performance of the scheme.

Course Policy

- Students are expected to attend all classes. If a class is missed for any reason, the student is responsible for finding out the material covered, any assignment and handouts given, and any other announcements made in the class (e.g., exam date).

- Homework and other assignments should be submitted at the beginning of the class on the corresponding due date. Late work will be penalized at 5% of its full credit per day. You may discuss homework assignments with classmates but all solutions must be original and individually prepared.

- No make-up exam will be allowed except in cases of emergencies for which prior permission of the instructor must be taken.

- Cheating in an exam or an assignment (e.g., homework, project) may result in a grade of F in the course.