

CS 408 - Computer Networks Fall 2009, 3 credits

This is a 3-credit introductory computer networks course specializing on data-link and upper layer. Physical layer will not be examined in detail. Applications and protocols will be emphasized.

Prerequisite: CS 201 – Introduction to Computing, however sophomores are not recommended to take this course. Although Math 203 is not a formal prerequisite of this course, probability knowledge is partially needed.

Instructor: Albert Levi, FENS 1091, x9563, levi@sabanciuniv.edu

TAs: İsmail Fatih Yıldırım, Office Hour: TBD, ismailfatih@su.sabanciuniv.edu

Oya Şimşek, Office Hour: TBD, oyasimsek@su.sabanciuniv.edu

Lect. Schedule: T 16:40 - 17:30, FENS G035 Th 13:40 - 15:30, FENS G035

Lab Schedule: Section A: W 15:40 – 18:30, Section B: M 8:40 – 11:30, all in FENS L058 (although schedule may say someplace different)

Text: Computer Networking with Internet Protocols and Technologies, William Stallings, ISBN: 0-13-141098-9

Reference: Computer Networks, 4th edition, Andrew Tanenbaum, ISBN: 0-13-038488-7

Reference: Computer Networks and Internets, Douglas Comer, 5th ed., ISBN:0-13-504583-5

Reference: Computer Networking: A top-down approach featuring the Internet, Kurose & Ross, 3rd ed., ISBN: 0321269764

Tentative Outline

- Introduction
 - Circuit Switching, Packet Switching, Basic delay concepts
 - The Internet, Intranets/Extranets
 - The protocol concept, OSI Model, TCP/IP Architecture
- Applications
 - traditional apps (telnet, SMTP, FTP)
 - modern apps (HTTP, DNS, Sockets)
- Data Transmission Basics
- Local Area Networks (LANs) and Ethernet
 - Architecture, Topologies and Technologies
- Data Link Control and Protocols
 - Flow control
 - Error detection and correction
 - Sliding Window Protocols
- Internet Protocol (IP) and Internetworking
- Routing
- Transport Protocols (TCP)
- Congestion Control
- TCP Traffic Control
- Network Security (as time permits but time generally does not permit)

Student responsibilities and grading (tentative)

There will be 4 labs. During these labs you will have hands-on experience and/or practical lectures on Internet protocols (via packet capturing and analysis), DNS and various server installations and configurations, LAN design and implementation, IP subnetting. More information on lab sessions will be posted on the lab web site in time.

There will be 4 - 5 homework assignments and a term project. Homework assignments will mostly be related labs. However there may be a few assignments about lecture material as well. Some homework may require programming. Homework assignments are to be done individually. Moreover there will be term project. Project will be about implementing/simulating computer network features and/or development of applications that run on networks (this may also require an application layer protocol design). Students may work in teams for the term project.

Make-up Policy: No make-up! If you miss something, you miss it whatever the reason is!

Tentative Grading

Midterm exam 30% (closed everything)

Final exam 35% (closed everything)

Homework, project and labs 35%

Important Dates

Midterm Exam: week 9 or 10, at class time or after hours.

Final Exam: as scheduled by SR

Homework, project and lab deadlines will be specified separately

Class Website: <http://people.sabanciuniv.edu/levi/cs408>

Plagiarism will not be tolerated