

CSCI 39554 Networking/ CSCI 77300 Contemporary Telecommunications & Networking Technologies

Syllabus

Class Hours:

Th 5:35 – 8:15 PM, Room: HN C109

Instructor:

Saptarshi Debroy, Email: saptarshi.debroy@hunter.cuny.edu,
Office hours: Th: 3:30 – 5:30 PM or by appointment, Room: HN 1090I

Lab assistant:

Minh Nguyen, Email: minh.nguyen@hunter.cuny.edu

Prerequisite:

CSCI 33500 and CSCI 34000, all with a C or better.

Textbook:

Data Communications and Networking, Behrouz A. Forouzan, McGraw-Hill, 5th Edition.

Reference book:

Computer Networks: A Systems Approach, Larry L. Paterson and Bruce S. Davis, Morgan Kaufmann, 5th Edition

Course Outline:

Topics covered include:

- Network basics (4 lectures)
 - Introduction: Basic concepts, architecture, protocols, performance
 - Physical communication: Digital/Analog, multiplexing
- Data link network (5 lectures)
 - Encoding, framing, error detection, reliable transmission
 - P2P and shared access, Ethernet, MAC, random access
- Packet switching (2 lectures)
 - Switching: Datagram, virtual circuits
- Internetworking (6 lectures)
 - Addressing: IPv4, IPv6, Subnets, ARP, DHCP, NAT, VPN
 - Routing: Distance vector routing, link state routing, OSPF, CIDR, BGP
- End-to-end networking (5 lectures)
 - Transmission: UDP, TCP
 - Congestion control
- Applications (3 lectures)
 - HTTP, email, DNS, Overlay networks, CDN, P2P
- Network security (2 lectures)

Lectures: The lectures will involve both slides and blackboard discussions. Attending all the lectures will be very important for the students to develop the concepts and skills, and also to be able to perform well in the exams, assignments, and quizzes.

Homework: Five written homeworks will be assigned throughout the semester. Assignments will be due at the beginning of the lecture on the dates announced. It is your responsibility to keep track of assignments and their due dates.

Labs: There will be five labs (using CloudLab environment) with different percentage weights. Lab reports will be due via Blackboard on the dates announced. Submission after the due date will not be allowed.

Project: A final project will be assigned two-third into the course. The project grades will depend on final presentation and project report.

Quizzes: There will also be five unannounced pop quizzes during class hours containing around 10 multiple choice questions. There will be no retake of the quizzes.

Exams: There will be one midterm exams and one final exam.

- Midterm – March 19th (Tentative)
- Final exam – May 21st (Tentative)

Grading:

CSCI 39554:

Homeworks -----> 20%
Pop quizzes -----> 10%
Laboratory Assignments ----> 20%
Project -----> 15%
Midterm -----> 15%
Final -----> 20%

CSCI 77300:

Homeworks -----> 15%
Pop quizzes -----> 10%
Laboratory Assignments ----> 20%
Project -----> 20%
Midterm -----> 15%
Final -----> 20%

Makeup Exams:

For those having verified reasons to be absent during an exam, makeup exams will be arranged on an individual basis. Please contact the instructor at least 1 week prior to the scheduled test date, as it will not be possible to schedule a makeup "after the fact".

Incompletes:

A grade of 'I' will be given only for cases in which there are documented medical problems or family emergencies.

Abuse of Trust:

Duplicate homework written in collaboration with others is NOT acceptable. Although it is permissible to discuss the homework with others, these discussions should be of a general nature. All work at a detailed level must be done on your own. Students submitting the same or similar solutions to the homework or a student who submits a lab downloaded off the Internet (or obtained from other sources including a compiler) will be considered as having cheated. Any evidence of cheating, copying or collusion, plagiarism, etc., will be graded as zero for all students involved and an

automatic F for the course along with sanctions in accordance with Hunter College procedure. The official college statement is:

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212-772-4857)/TTY (212-650-3230).

This course partially meets the department's learning goals 1A, 1B, 1D, 3A, and 3C.