



Department of Electrical & Computer Engineering ECE–GY 5373: Internet Architecture & Protocols – Syllabus

Lecture: Tuesday 8:30 – 11:00 AM or 2:30 – 5:00 PM

Instructor: Prof. H. Jonathan Chao, chao@nyu.edu

Office hour: Tue 1–2 PM (Chao); Mon 10–11:59 AM (Tianshu); Thur 1–3 PM (Yingzheng)
Office and Phone (during office hour): TBD

Lab Instructor: Dr. Fraida Fund, ffund@nyu.edu

Course Assistants: Tianshu Wang, tw2119@nyu.edu, Yingzheng Wang, yw4533@nyu.edu

Overview: This course introduces basic networking technologies and protocols in a set of lectures and laboratory experiments. It covers the following topics:

- Data link layer protocols: Ethernet, PPP, IEEE 802.11.
- The Internet Protocol Suite: IP, ARP, RARP, ICMP, IGMP, UDP and TCP.
- LAN Interconnection: Bridges (spanning tree algorithm), Routers, Gateways.
- Application protocols: FTP, SMTP, HTTP, DHCP, SNMP.
- Ping and traceroute programs.

Course Prerequisites: Students must have completed UY-EE 1363 (Principles of Communication Networks) or equivalent.

Textbook

TCP/IP Essentials - A Lab Based Approach, by S. Panwar, S. Mao, J. Ryoo, and Y. Li
Cambridge Press, ISBN-10: 052160124X or ISBN-13: 978-0521601245.

- This book will also be used as a reference book for the labs.
- Each student is required to have his/her own copy of the textbook.

Laboratory Description: A telecommunication networks virtual laboratory, implemented in GENI (Global Environment for Network Innovations) environment, has been set up to provide the students with virtual networking and distributed systems such as user stations, Ethernet Local Area Networks (LANs), Ethernet hubs, Router, Bridges, etc.

Course Work: All students are required to access the [NYU Classes](#) website for course logistics and content: announcements, class notes, quizzes, solutions, etc. Note lab questions are assigned and graded by the lab instructor during each lab session.

In addition to lecture and lab assignments, there will be four sets of homework questions provided as study reference. Homework questions will not be graded, but solutions will be made available.



Grading & Exams

- Midterm exam: 25%
- Final exam: 30%
- Labs: 25%
- 8 quizzes: 20%

Exam type: Open-book with textbook, class notes, and course materials in NYU Classes.

Collaboration: Students are encouraged to discuss the labs, reports and homework with each other. However, except for team projects, your written submission, lab reports and exam papers, must be your own work. The first violation of this policy will result in zero point on that assignment and a reduction in your final grade (for example, from B+ to B). A second violation will result in an F grade. For additional information see school’s [Student Code of Conduct](#).

Equal educational opportunity and participation for students with disabilities

[NYU Moses Center for Students with Disabilities](#) provides comprehensive services and programs. Students with disabilities may get registered there for needed supports.

Class Schedule

Fall 2020 week	Lecture on Tuesdays	Lab topic	Lab report due
Week1 (9/15)	Lecture 1 - TCP/IP overview	Set up GENI account	Lab0 (9/22)
Week2 (9/22)	Lecture 2 - TCP/IP overview (cont'd)	Linux, networking utilities	Lab1 (9/29)
Week3 (9/29)	Lecture 3 - Single segment network	Single segment network	Lab2 (10/9)
Week4 (10/6)	Lecture 4 - L2 LAN	Bridges and LANs	Lab3 (10/13)
Week5 (10/13)	Lecture 5 - Routing	Routing	Lab4 (10/20)
Week6 (10/20)	Lecture 6 - UDP & applications	UDP	Lab5 (11/3)
Week7 (10/27)	Midterm exam (2:30 – 4:30 PM)		
Week8 (11/3)	Lecture 7 - TCP intro.		
Week9 (11/10)	Lecture 8 - TCP/IP applications	TCP	Lab6 (11/17)
Week10 (11/17)	Lecture 9 - Multicast, RT Applications	Multicast	Lab7 (11/24)
Week11 (11/24)	Lecture 10 - HTTP, DHCP, NAT, ...	HTTP, DHCP, NTP, NAT	Lab8 (12/4)
Week12 (12/1)	Lecture 11 - SNMP, Network Security	SNMP, security	Lab9 (12/8)
Week13 (12/8)	Lecture 12 - Supplement topics: IPv6, ...		
Week14 (12/15)	Review		
Week15 (12/17)	Final exam (2:30 – 4:30 PM)		

Dates highlighted in yellow have a quiz at the beginning of the class for 10 minutes.

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