



Department of Computer Science and Engineering
CS-GY 6843 / CS-UY 4793: Computer Networking – Syllabus

Lecture: Saturday, 10:00am - 12:45pm US ET

Classroom: 370 Jay Street, Room 202 (max. 38 seats)

Online lecture: announced in NYU Classes

Instructor: Dr. Z. John Zhao, zz342@nyu.edu

Online office hour: Monday 5:30-6:00pm, 10:00-10:30pm

Course Assistants: announced in NYU Classes

CA office hours: TBA

Overview: This course takes a top-down approach to computer networking. After an overview of computer networks and the Internet, the course covers the application layer, transport layer, network layer, and link layers. Topics at the application layer include client-server architectures, P2P architectures, DNS, HTTP and Web applications. Topics at the transport layer include multiplexing, connectionless transport and UDP, principles of reliable data transfer, connection-oriented transport, TCP and TCP congestion control. Topics at the network layer include packet forwarding, router architecture, the IP protocol and routing protocols including OSPF and BGP. Topics at the link layer include multiple-access protocols, ALOHA, CSMA/CD, Ethernet, CSMA/CA, wireless 802.11 networks and link-layer switches. The course includes simple quantitative delay and throughput modeling, socket programming for IP application development and Wireshark labs.

Course Prerequisites: Students must have completed CS-UY 2134 (Data Structures and Algorithms) or equivalent.

Textbook

Computer Networking: A Top-Down Approach, by J. F. Kurose and K. W. Ross
Addison-Wesley, [7th Edition](#), 2017, ISBN-13: 978-0133594140.

Course Work

All students are required to use the [NYU Classes](#) website for course logistics and content: class notes, announcements, Zoom lecture recordings, homework assignments, quiz questions, etc.

There are ten homework assignments, Wireshark labs and Python socket programming exercises, to be completed by individual student in class. Note the assignment reports must be submitted for grades to NYU Classes latest by 11:55 PM on their respective due dates. Late submissions are accepted with a 50% grading penalty within two days of the due time.

In addition to the assignment reports, there will be homework problems provided as study reference. These will not be graded, but solutions will be made available.



Grading & Exams

- Class quizzes: 15%
- Midterm exam: 30%
- Homework: 20%
- Final Exam: 35%

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

Collaboration & Communication

Students are encouraged to discuss the labs, reports and homework with each other. A class [Piazza Q&A forum](#) is set to facilitate such discussion on any of the course content outside of the class. The CAs or instructor will also try their best to respond to the posted questions there quickly. However, individual’s written submissions, lab reports and exam papers, must be his/her 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.

Tentative Schedule

Date	Lectures	Wireshark Lab	Programming	Homework*
Sept. 5 th	Chapter 1 – Computer Networks & Internet	1. Getting started		
Sept. 12 th				√
Sept. 19 th	Chapter 2 – Application Layer	2. HTTP	1. Web server	
Sept. 26 th				√
Oct. 3 rd	Chapter 3 – Transport Layer	3. TCP		√
Oct. 10 th			2. UDP Pinger	
Oct. 17 th	Midterm exam, covering Chapter 1-3			
Oct. 24 th	Chapter 4 – The Network Layer: Data Plane	4. IP		√
Oct. 31 st	Chapter 5 – The Network Layer: Control Plane			√
Nov. 7 th				
Nov. 14 th	Chapter 6 – The Link Layer and LANs	5. ICMP	3. ICMP Ping	
Nov. 21 st	Chapter 6 – Switched LANs	6. Ethernet ARP		√
Nov. 28 th	The day after Thanksgiving recess, NO class			
Dec. 5 th	Chapter 7 – Wi-Fi: 802.11 Wireless LANs section		4. Traceroute	
Dec. 12 th	Final exam, covering all lectures (Chapter 1-7 as discussed in class)			

* Homework posted online as review problems with solutions, NO submission required.

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