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

Fall 2018
Saturday, 10:00 am – 1:00 pm

Instructor: Dr. Z. John Zhao

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Office: 2MTC 10.032, office hours: Monday 4:00 – 5:00 PM, Saturday 2:00 – 3:00 PM

Teaching Assistants: Yan Zhu (yan.zhu@nyu.edu), Yujie Hao (yh2486@nyu.edu), Xinhe Feng (xf459@nyu.edu).

Office hours: Thursday 3:00 – 4:00 PM in 2MTC 10.098D

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 or 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 have access to the NYU Classes website for course logistics and content: class notes, announcements, assignments, quiz questions, etc.

There are Wireshark and Python socket programming assignments to be completed by each individual student in class. Note the assignment reports must be submitted for grades on 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.

Collaboration

Students are encouraged to discuss course works with each other. However, except for

team projects (if specifically assigned), the written solutions must be each student's 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.

Grading & Exams

- Midterm exam: 35%
- Final exam: 40%
- Wireshark lab & Python socket programming assignments: 20%
- Class quiz: 5%

Exam type: close-book, one letter-size, double-sided reference sheet is allowed.

<u>Tentative Schedule</u>

Note: all homework, Wireshark labs, and programming projects will be assigned with specific due dates through NYU Classes.

Date	Lectures	Wireshark Lab	Programming	Homework*
Sept. 8th	Chapter 1 – Computer Networks & Internet	Getting started		
Sept. 15th				√
Sept. 22nd	Chapter 2 – Application Layer	HTTP	Web server	
Sept. 29th				√
Oct. 6th	Chapter 3 – Transport Layer	TCP		
Oct. 13th			UDP Pinger	
Oct. 20th	Midterm exam, covering Chapter 1-3			
Oct. 27th	Chapter 4 – The Network Layer: Data Plane	IP		
Nov. 3rd	Chapter 5 – The Network Layer: Control Plane		Traceroute	√
Nov. 10th				
	Chapter 6 – The Link Layer and LANs	Ethernet ARP		
Nov. 17th				√
Nov. 24th	The day after Thanksgiving recess … …			
Dec. 1st	Chapter 6 – Switched LANs	ICMP	ICMP Ping	
Dec. 8th	Chapter 7 – Wi-Fi: 802.11 Wireless LANs section			√
Dec. 15th	Final exam, covering all lectures (Chapter 1-6)			
*Homework posted as review problems online with solutions, NO submission required.				