



## Department of Computer Science and Engineering

### CS-GY 6843 / CS-UY 4793: Computer Networking – Syllabus

Lecture:

Classroom:

Online lecture: use Zoom

**Instructor:** Dr. Z. John Zhao

Online office hours: use Zoom

**Course Assistants:** TBA

CA office hours: use Zoom

**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: announcements, lecture notes, Zoom recordings, 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 by 11:55 PM on respective due dates. Late submissions are accepted with a 50% grading penalty in 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% | • Homework:   | 20% |
| • Midterm exam:  | 30% | • Final Exam: | 35% |

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

If you are experiencing an illness or any other situation that might affect your academic performance in the class, please email Ms. Deanna Rayment, Coordinator of Student Advocacy, Compliance and [Student Affairs](#), who can reach out to me on your behalf when warranted.



**Collaboration & Communication**

Students are encouraged to discuss the labs, reports and homework with each other. A class Piazza Q&A forum will be 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*
Jan. 30 <sup>th</sup>	Chapter 1 – Computer Networks & Internet	1. Getting started*		
Feb. 6 <sup>th</sup>				√
Feb. 13 <sup>th</sup>	Ch. 2-1 - <b>via Zoom only</b>	2. HTTP	1. Web server	
Feb. 20 <sup>th</sup>	Ch. 2-2 – Application Layer			√
Feb. 27 <sup>th</sup>	Chapter 3 – Transport Layer		2. UDP Pinger	√
March 6 <sup>th</sup>		3. TCP		
March 13 <sup>th</sup>	Midterm exam, covering Chapter 1-3			
March 20 <sup>th</sup>	Spring Break, NO classes			
March 27 <sup>th</sup>	Chapter 4 – The Network Layer: Control Plane	4. IP		√
April 3 <sup>rd</sup>	Chapter 5 – The Network Layer: Data Plane			√
April 10 <sup>th</sup>	Ch. 6-1 – The Link Layer	5. ICMP	3. ICMP Ping	
April 17 <sup>th</sup>	Spring Break, NO classes			
April 24 <sup>rd</sup>	Ch. 6-2 – Switched LANs	6. Ethernet ARP		√
May 1 <sup>st</sup>	Chapter 7 – Wi-Fi: 802.11 Wireless LANs section		4. Traceroute	
May 8 <sup>th</sup>	Final exam, covering all lectures (Chapter 1-6)			
* All Homework assignments and the Getting Started Wireshark lab will NOT be graded.				

**Inclusion Statement:** The NYU Tandon School values an inclusive and equitable environment for all our students. the course instructor hope to foster a sense of community in this class and consider it a place where individuals of all backgrounds, beliefs, ethnicities, national origins, gender identities, sexual orientations, religious and political affiliations, and abilities will be treated with respect. It is my intent that all students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. If this standard is not being upheld, please feel free to speak with me.

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