

CS 450: Introduction to Networking

Instructor: Balajee Vamanan **Office:** SEO 1310
<https://www.cs.uic.edu/balajee/cs450-f19>

Fall 2019

Instructor: Balajee Vamanan	Email: bvamanan@uic.edu	Office hours: TR 1-2 PM
Instructor: Hamidreza Almasi	Email: halmas3@uic.edu	Office hours: TBD

Course Description

This is an introductory course on computer networks. The course covers some of the *key* protocols in each layer of the protocol stack in a top-down fashion: application layer (HTTP, DNS, SMTP), transport layer (TCP, UDP), network layer (IP), and link layer (802.3, 802.11). This is a hands-on, programming-heavy course. The course is structured with a series of programming assignments, a mid-term exam, and a final exam.

Textbook

Computer Networking: A Top-Down Approach by Kurose and Ross, 6th or 7th edition [\[link\]](#)

Topics covered (tentative)

- TCP/IP layering model of the Internet
- Domain Name Services (DNS)
- Networking APIs for application developers
- Network performance - throughput, delay and packet loss
- TCP - Reliability and Congestion Control
- IPv4/IPv6 Addressing / Routing
- Inter/intra domain routing protocols
- Network address translation
- Mobility and the Internet
- Network Security - Botnets, DoS/DDoS, Viruses and Worms
- Multicast and Anycast mechanisms

- Physical layer: modulation and coding

Prerequisites

Prior programming experience in any language is a must. Prior experience with python is a plus. Because this is a programming-heavy course, please be prepared to write and debug a lot of code.

Grading

The course uses *relative* grading; Graduate and undergrad students are graded *separately*. The (tentative) weights of the different components are as follows:

- Programming assignments: 40%
- Mid-term exam: 25%
- Final exam: 35%

Late submission policy for programming assignments

There will be about six to eight assignments that are spread out over the semester.

- There is a 50% penalty for submissions that are late but within 24 hours of the deadline; you forfeit 100% of the grade after 24 hours.
- If there is a legitimate reason for missing a deadline, please contact the instructor.

Class participation

Class participation is *incredibly* important! There is a bonus 2% for exceptional participation based on the discretion of instructor and TA. Exceptional participation includes answering questions in Piazza, reporting errors in assignments, asking good questions in class, and contributing test-cases and scripts for the common good.

Academic Integrity

While active discussion with peers is encouraged, there is a **red** line: copying code, in any form, is plagiarism. If you don't know how your own code works, then there is a problem. Cite your sources in all your turn-ins to be safe. When in doubt, please consult with the instructor or the TA.