

# Networks and Data Communications

## CS 447 - Spring 2024

### Textbook Reading Requirements

The followings are the textbook sections (in “Computer Networking: A Top-Down Approach” by James F. Kurose and Keith W. Ross, (Sixth/Seventh Edition) that are required to be read before each lecture.

#### Week 1:

- Local-area-network (LAN) and Wide-Area-Network (WAN): Section 1.2
- The Internet and intra-net: Section 1.2
- Circuit-switching and packet-switching networks: Section 1.3

#### Week 2:

- Socket programming: Section 2.1 and 2.7

#### Week 3:

- Stop-and-Wait ARQ: Section 3.4
- Selective-Reject & GBN ARQs: Section 3.4

#### Week 4:

- Domain address, host address, CIDR-IP address: Section 4.4.2

#### Week 5:

- Bus, ring and star LAN, Repeaters, bridges and routers: Section 4.3 and 5.4
- MAC address, IP address, and host name translation (DNS and ARP): Section 2.5

#### Week 6:

- Dijkstra and Bellman-ford algorithms, distance-vector routing protocol: Section 4.5

#### Week 7:

- TCP-slow start linear-growth flow-control: Section 3.7
- CSMA/CD and binary back-off, one-persistent, and p-persistent: Section 5.3

#### Week 8:

- TDM switch, cross-bar switch and knockout switches: Section 4.3
- concept of blocking and non-blocking switches: Section 4.3
- Internet routing: Section 4.6

#### Week 9:

- HTTP protocol and web server design: Section 2.2

#### Week 10:

- QoS Control and DiffServ: Section 7.5

#### Week 11:

- Wireless and cellular networks: Section 6.1 and 6.4

**Week 12:**

- Cloud computing and CDN:

Section 5.6 and 7.2.4

**Week 13:**

- Network security:

Section 8.1

**Week 15:**

- Synchronous and asynchronous signal transmissions:
- time-division and frequency-division multiplexing:

Section 5.1 and 5.2

Section 5.3