CSE 3231 Midterm Exam Topics - Exam Date: March 1, 2022

This list shows the possible topics for the Midterm Exam – while the exam will not have questions on every one of the topics, the exam questions will be selected from this list of topics.

Be able to explain the following:

- what is the purpose of framing at the Data Link layer
- explain the differences between the Stop-and-Wait protocol and the Sliding Window protocol at the Data Link layer
- explain the "hidden node" problem for wireless links and how IEEE 802.11 solves it
- explain the difference between virtual circuit switching and the Datagram, or connectionless, approach
- describe how fragmentation is used to deal with different Maximum Transmission Unit (MTU) sizes
- describe the benefits and limitations of a best-effort, connectionless network model (IP) and be familiar with the format and fields in an IP packet header

Topics to be covered in the lectures from Tuesday, February 15 through Thursday, February 24.

- describe the IP address format, including classes and subnets, and be able to explain the differences between the standard classes (A, B, C) and Classless Inter-Domain Routing (CIDR)
- explain the purpose of the Address Resolution Protocol (ARP), the Dynamic Host Configuration Protocol (DHCP) and the Internet Control Message Protocol (ICMP)
- explain how congestion can occur in the Internet and how the Internet Protocol reduces congestion
- explain the difference between distance vector routing and link state routing
- explain how Network Address Translation allows multiple nodes within a LAN to share one Internet-facing IP address when interacting with computers outside the LAN
- explain the DNS name resolution process that allows a node in one network to get the IP address associated with the hostname of a computer in another network

The exam will have no questions on the material from the following lectures, however material in those lectures may assist in understanding the topics covered in other lectures.

- Networks_01_Introduction-Syllabus
- Networks_02_Overview
- Networks_03_Physical Layer
- Networks_05_Data Link-part 2