

# CS 372 Introduction to Computer Networks

## Course Calendar Winter 2021

Notes: Weeks are shown Monday through Monday, Assignments are due Monday nights, unless otherwise noted, schedule tentative

New Assignments in **BLACK**. Due Assignments in **RED**

| Module   | Topics  |
|--|---|
| #0: Before week 1  | Get familiar, look ahead  |
| #1: 04 January – 11 January<br><b>Syllabus Quiz</b><br><b>Module 1 Summary Exercises</b><br><b>Discussion: Introduce Yourself</b><br><b>Lab #1</b><br><br><b>Syllabus Quiz</b><br><b>Module 1 Summary Exercises</b><br><b>Discussion: Self Intro, Video due Friday</b> | Basic concepts<br>Networking metrics<br>Network protocols<br>Network edge/core<br>Circuit-switching / Packet-switching<br><br><b>Read K&amp;R Chapter 1.1 – 1.4</b>   |
| #2: 11 January – 18 January<br><b>Module 2 Summary Exercises</b><br><b>Project #1</b><br><br><b>Module 2 Summary Exercises</b><br><b>Lab #1</b>  | Physical media<br>Layering models<br>Security issues<br>Application layer<br><br><b>Read K&amp;R Chapter 1.5 – 1.8, 2.1</b>   |
| #3: 18 January – 25 January<br><b>Module 3 Summary Exercises</b><br><b>Lab #2</b><br><br><b>Module 3 Summary Exercises</b><br><b>Project #1</b>  | Application layer protocols: <ul style="list-style-type: none"> <li>• Hypertext Transfer Protocol (HTTP)</li> <li>• File Transfer Protocol (FTP)</li> <li>• Mail (SMTP, POP3, IMAP)</li> <li>• Domain Name Services (DNS)</li> </ul> Network byte order<br><br><b>Read K&amp;R Chapter 2.2 – 2.4, 2.7 (2.6 optional)</b>  |
| #4: 25 January – 01 February<br><b>Module 4 Summary Exercises</b><br><b>Project #2</b><br><br><b>Module 4 Summary Exercises</b><br><b>Lab #2</b>   | Transport Layer <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Multiplexing/Demultiplexing</li> </ul> Socket programming primer<br>Transport Layer <ul style="list-style-type: none"> <li>• Connectionless transport</li> <li>• Connection-oriented transport</li> <li>• Reliable Data Transfer</li> </ul> <b>Read K&amp;R Chapter 3.1 – 3.3, 3.5.4</b> |
| #5: 01 February – 08 February<br><b>Module 5 Summary Exercises</b><br><b>Lab #3</b><br><b>Discussion: Modules 1-5, Video Demo #1</b><br><br><b>Module 5 Summary Exercises</b><br><b>Lab #3</b><br><b>Discussion: Modules 1-5, Video Demo #1 due Friday</b>             | Transport Layer <ul style="list-style-type: none"> <li>• Transmission Control Protocol (TCP)</li> <li>• User Datagram Protocol (UDP)</li> <li>• Flow control</li> <li>• Sliding window</li> </ul> <b>Read K&amp;R Chapter 3.4 – 3.5 (Re-read 3.5.4)</b>   |

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|--|---|
| Midterm: 08 February – 15 February<br><b>Midterm Exam Dates</b>  | <b>Midterm Exam (covers weeks 1-5)</b>  |
| #6: 08 February – 15 February<br><b>Module 6 Summary Exercises</b><br><br><b>Module 6 Summary Exercises</b>  | Transport Layer <ul style="list-style-type: none"> <li>• Congestion control</li> <li>• TCP Connections Setup &amp; Teardown</li> <li>• TCP Fairness</li> </ul> <b>Read K&amp;R Chapter 3.6 – 3.8</b>  |
| #7: 15 February – 22 February<br><b>Module 7 Summary Exercises</b><br><b>Lab #4</b><br><br><b>Module 7 Summary Exercises</b>   | Network Layer <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Internet protocols</li> <li>• Datagram Routing &amp; Forwarding</li> <li>• Internet Protocol (IPv4) Header</li> <li>• Routing vs. Forwarding</li> <li>• Classless Inter-Domain Routing (CIDR)</li> <li>• Dynamic Host Configuration Protocol (DHCP)</li> </ul> <b>Read K&amp;R Chapter 4.1 – 4.3</b>   |
| #8: 22 February – 01 March<br><b>Module 8 Summary Exercises</b><br><br><b>Module 8 Summary Exercises</b><br><b>Lab #4</b>  | Network Layer <ul style="list-style-type: none"> <li>• Routing algorithms</li> <li>• Fragmentation</li> <li>• Internet Control Message Protocol (ICMP)</li> <li>• Network Address Translation (NAT, NAPT)</li> </ul> <b>Read K&amp;R Chapter 5.1 – 5.3, 5.6</b>   |
| #9: 01 March – 08 March<br><b>Module 9 Summary Exercises</b><br><b>Lab #5</b><br><b>Project #4</b><br><br><b>Module 9 Summary Exercises</b>  | Network Layer <ul style="list-style-type: none"> <li>• Internet Protocol (Ipv6)</li> </ul> Link Layer <ul style="list-style-type: none"> <li>• Network interfaces</li> <li>• Multiple Access protocols</li> <li>• MAC addresses</li> <li>• Address Resolution Protocol (ARP)</li> <li>• Local Area Networks (LAN) <ul style="list-style-type: none"> <li>○ Ethernet</li> </ul> </li> </ul> <b>Read K&amp;R Chapter 6.1 – 6.4, 6.7</b> |
| #10: 08 March – 15 March<br><b>Module 10 Summary Exercises</b><br><b>Discussion: Modules 6-10, Video Demo #2</b><br><b>Discussion: Modules 6-10, Video Demo #2 due FRIDAY</b><br><b>Lab #5 due FRIDAY</b><br><b>Module 10 Summary Exercises</b><br><b>Project #4</b> | Link Layer <ul style="list-style-type: none"> <li>• Ethernet Frame and Multiple Access</li> <li>• Wireless networks</li> <li>• Networking Mobility</li> </ul> Network security<br>Cryptography<br><br><b>Read K&amp;R Chapter 7.1 – 7.3, 8.1 – 8.3</b>  |
| <b>Final 13 March – 17 March</b><br><b>Final Exam</b>  | <b>Final Exam (covers weeks 6-10)</b><br><b>(Available Saturday – Wednesday)</b>  |