

CS 331 Lecture Notes

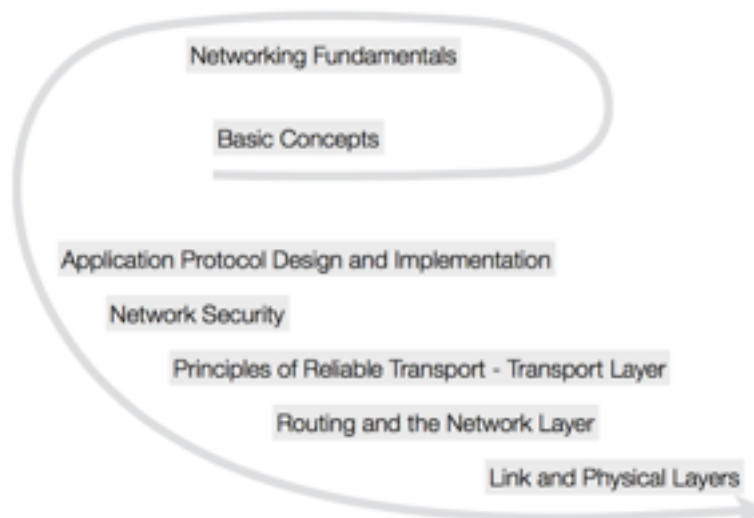
COURSE OVERVIEW

Coursework & Evaluation

- Five projects: **55%**
 - Bi-weekly project
 - Two parts: a problem set, a programming assignment
 - Purposes: review the contents covered in class, learn network tools and explore new knowledge by yourself, help will be provided if you let me know your questions
 - **Two deadlines:** one for problem set, one for programming assignment, to help you start projects early so that I can help you better
- Two midterms: **20%**
 - two one hour exams: **10/13, 11/15**
 - sample exams will be provided before the exams
 - one letter size cheatsheet
- Final Exam: **20%**
 - two hour exam: **12/18**
 - review course will be given, but no sample exam
 - one letter size cheatsheet
- Participation: **5%**
 - attendance
 - ask and answer questions

Course Outline

- We will visit some topics several times!



NETWORK OVERVIEW

What are the questions?

- “Faster” networks
 - Higher transmission rate
 - Lower latency
 - Lower error rate (bit error rate, packet loss probability)
 - Higher availability (reliability)
 - Ubiquity
 - Lower monetary cost
 - Improved user experience (low complexity)
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Categories of Networks

- Wide Area Network (WAN)
- Local Area Network (LAN)
- Access Network
- Cellular Data Networks
- Datacenter Networks
- Storage Networks (SAN & NAS)
- Personal Area Network (PAN)
- ...

BASIC CONCEPTS: PART I

Basic Terms

- Protocol
 - Packet (message, segment, datagram, frame, ...)
 - ?-cast
 - unicast, multicast, broadcast, anycast, ...
 - Single hop vs. multi-hop
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Characters of a Network

- Point to point
- Broadcast and select