

# Outline for a CS123

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## 1 PHILOSOPHY

- *Give students a complete understanding of 1 network system.*
- *Extract the Unifying Systems Ideas: Multiplexing, resource allocation, naming and addressing, security.*
- *Give students insight into designing a Protocol:*
- *Give Students Insight into Real World Constraints:*
- *Give Relevant Homework:*
- Understand what's going on currently in the networking world.

## 2 ROUGH COURSE OUTLINE

- INTRODUCTION: Philosophy, Course Outline. Hat Transfer Metaphor. Layering. (2 lectures)
- PHYSICAL LAYER: Nyquist and Shannon Theorems, Sampling and Clock Recovery and Eye Patterns. Types of media. (3 lectures).
- DATA LINK PROTOCOLS: Data Link intro, framing. (1) Error Detection and CRCs (1). Error recovery, flow control, and initialization (1). Ethernets (1). Data link bridges (1). (5 lectures).
- Midterm, 1 lecture

- ROUTING PROTOCOLS (IP): Addressing, Endnode protocols and ARP, Routing Protocols, Fragmentation & Formats & Virtual Circuit Protocols, IP Multicast (if time) (5 lectures)
- TRANSPORT PROTOCOLS: Connection Management, TCP/IP and OSI Transport Solution. TCP Congestion Control. (2 lectures)
- CONCLUSION: What the course was all about. (1 lecture).