CMPE 150: Introduction to Computer Networks

Katia Obraczka
Computer Engineering
UCSC Baskin Engineering
Final Exam Highlights

- Final exam:
  - March 22nd, 12pm-3pm.

- Comprehensive.
  - Look at midterm exam highlights.

- Closed book/notes.
Material covered after midterm:

- TCP RTT and RTO estimation.
- TCP reliable data transfer:
  - TCP mechanisms for error recovery.
  - Different types of ACKs.
- TCP flow control.
  - Sliding window.
- TCP congestion control.
  - Slow start.
  - Congestion avoidance.
- Interaction between flow and congestion control.
Material covered after midterm (cont’d):

- Network layer:
  - Key functions: routing and forwarding.
  - Interaction between routing and forwarding.
  - Routing/forwarding table.
  - Network service models:
    - Virtual circuit networks.
    - Datagram networks.
  - Longest prefix matching.
Material covered after midterm (cont’d):

- Internet network layer:
  - IP datagram.
  - IP fragmentation and reassembly.
  - IPv4 addressing.
    - Hierarchical addressing versus flat addressing.
  - Subnets and subnet masks.
  - CIDR.
  - DHCP.
  - NAT.
  - IPv6.
  - Tunneling.
Material covered after midterm (cont’d):

- Routing:
  - Graph abstraction of network.
  - Routing algorithm classification.
  - Link State routing.
  - Distance Vector routing.
  - Routing protocol.
    - Routing algorithm + routing update exchange.
  - Link state versus distance vector.
  - Hierarchical routing:
    - Intra- and inter AS routing.
Material covered after midterm (cont’d):

- Data link layer:
  - Main functions.
  - Error detection and correction.
  - MAC protocols.
    - Taxonomy.
    - Channel partitioning protocols.
    - Random access protocols.
      - Aloha and slotted aloha.
      - CSMA, CSMA/CD, and CSMA/CA.
      - Polling and token passing protocols.
    - Taking turns protocols.
  - MAC addresses.
Material covered after midterm (cont’d):

- “A day in the life of a Web request.”