

ECE 416: Advanced Topics in Networking

Winter 2015

Instructor: Prof. Catherine Rosenberg

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Lecture Schedule: Tuesday and Thursday 8:30am to 9:50pm in RCH 205

This course has no labs.

Academic Terms: 4BE, 4BQ

Course Description: This course introduces advanced topics in networking with a focus on applications and wireless technologies. Topics include: Cellular networks (2G, 3G, 4G and beyond), applications (DNS, SMTP, POP, IMAP, HTTP) and socket programming, Content-centric networks (content delivery networks, peer-to-peer protocols, data centers, etc.), protocols for multimedia applications (SIP, RTP, RTCP), emerging technologies (Internet of Things, sensors, software defined networks), policy issues (network neutrality, who controls the Internet?).

Prereq: ECE 358; Level at least 4A Computer Engineering or Electrical Engineering.

Antireqs: CS 456

Tutorial Description: Question and answer on material covered in lectures.

Project Description: Each student will select a topic in advanced networking, obtain consent from the instructor and prepare a short white paper (2 pages) on the topic.

Outline:

1. Introduction and review of ECE 358 (3hrs)
2. Cellular networks (2G, 3G, 4G and beyond) (6hrs)
3. Applications (DNS, SMTP, POP, IMAP, HTTP) and socket programming (6hrs)
4. Content-centric networks (content delivery networks, peer-to-peer protocols, data centers, etc.) (4hrs)
5. Protocols for multimedia support (RTP, RTCP, SIP and Voice over IP) (6hrs)
6. Emerging technologies (Internet of Things, sensors, software defined networks) (6hrs)
7. Policy issues: network neutrality, who controls the Internet? (4hrs)