CS 286 Topics in Mobile Wireless Networking

Instructor: Melody Moh
Semester: Fall 2008

Overview:
This course will first cover the fundamental, main technology and latest industrial development of mobile wireless networking. We will then study the support of media streaming over wireless networks. Finally, we will cover security issues in mobile wireless networks. It will include a hands-on term project.

Course Details:

- Wireless networking and communications: digital communication, channel capacity, MIMO.
- Application models and performance issues: real-time media streaming, QoS requirements.
- Cellular networks: FDM-TDMA, CDMA, OFDMA.
- Wireless LAN: IEEE 802.11 WiFi, service-differentiation and 802.11e WLAN.
- Wireless mesh networks: routing and scheduling in IEEE 802.16 WiMAX, 802.11s.
- Adhoc and sensor networks: IEEE 802.15.4 Zigbee, RFID, 802.15.1 Bluetooth.
- Media streaming support over mobile wireless networks: Encoding, compression, real-time network protocols
- Security of mobile wireless networking: vulnerabilities, attacks, security schemes.
- Additional advance topics may include: wireless networking for healthcare, power-grid networking and management.

Textbook:
A. Kumar, D. Manjunath, and J. Kuri, "*Wireless Networking*," Morgan Kaufmann, 2008.

Course Prerequisite:
CS 158A or instructor's consent.

Materials assumed from prerequisite course:
Fundamental of computer networks.