

CSE 475 Wireless and Mobile Networks

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Office: 651 **Office hours:** TBA

Course Description: Introduction to Wireless and Mobile Networks, Wireless Transmission, MAC Layer, Cellular networks, Satellite Networks, Wireless LAN, Broadband Wireless Access, WiMax: Architectures and topologies, Mobile Network Layer, Mobile Transport Layer, Support for Mobility, Wireless Sensor and Ad Hoc Networks, Game Theory for Wireless Networks.

Lecture hours: Monday 13:00 – 15:00 (MB 455), Wednesday 12:00 – 13:00 (MB 455)

Textbook: J. Schiller, Mobile Communications, 2nd edition, Addison Wesley.

Reference: Wireless Communications and Networks, William Stallings, 2nd edition, Prentice Hall.

Grading (tentative):

Midterm: 30%

Homeworks and Assignment(s): 30%

Final: 40%

Academic Integrity: Any kind of cheating and plagiarism will be severely penalized. Write everything in your own words and sentences (your own English, even if it is broken!).

Course Outline (tentative):

1. Introduction to Wireless and Mobile Networks
2. Wireless Transmission: Signals, Antennas, Signal Propagation, Multiplexing, Modulation, Spread Spectrum
3. Wireless Medium Access Control: Common Problems, SDMA, FDMA, TDMA, CDMA
4. Wireless Telecommunications Systems: GSM, DECT, TETRA, UMTS, IMT-2000, LTE
5. Satellite Systems: Introduction, Deficiencies of existing GEO/MEO/LEO Satellite Systems, Satellite Architectures, Satellite Routing, Satellite Channel Access, Satellite Handover, High Altitude Platforms, Applications.
6. Wireless LAN: IEEE 802.11, Bluetooth, RFID, Security issues.
7. Mobile Network Layer I: Problems of IP in Wireless, Principles behind Mobile IP, Problems, Security issues, DHCP.
8. Mobile Network Layer II: Routing in Ad-hoc Networks, Wireless Sensor Networks
9. Mobile Transport Layer
10. Support for Mobility: File Systems, databases, WWW and Mobility, WAP
11. Game Theory for Wireless Networks
12. Student Presentations I
13. Student Presentations II
14. Student Presentations III