Course Information

Instructor: Nihar Jindal, 6-119 EE/CS, nihar@umn.edu, 625-6306
Class Time and Location: Tu/Th, 2:30 - 3:45 PM, EE/CS 3-111
Office Hours: Tu 4:00 - 5:00 PM, Th 10:30 AM - 12:00 PM, 6-119 EE/CS
TA: Hakim Alhussien, 6-158 EE/CS, hakimh@umn.edu, 626-7178
TA Office Hours: Mon/W ed, 11-12, 6-158 EE/CS
Class Webpage: http://www.ece.umn.edu/class/ee5505/
Prerequisite: EE 4501 or an equivalent undergraduate communications course is required, EE 5501 (Digital Communication) is recommended.
Homework: Weekly.
Exams: Two midterm exams (Feb. 23 and April. 13, in class) and a final exam (Thursday, May 11, 8-10 AM)
Project: A research project is a required portion of this course. The project can either be a literature survey of a few wireless communication papers, or an original research idea. The project will be due towards the end of the semester.
Grading Policy: Final grade will be 15% project, 15% homework, 20% each midterm, and 30% final.

Tentative Course Outline

1. Wireless Channel Models (3 weeks)
   Path Loss, Shadowing, Statistical Models for Narrowband and Wideband Fading

2. Cellular Systems (1 week)
   Frequency Reuse, Sectorization

3. Narrowband Fading (5 weeks)
   Digital Modulation over Fading Channels, Diversity, Channel Capacity, Channel Coding, Adaptive Modulation & Coding

4. Wideband Fading/Multi-User Systems (4 weeks)
   Equalization, Multi-Carrier, Spread Spectrum

5. Multiple Antenna Communication (2 weeks)