Instructor: Nihar Jindal, 6-119 EE/CS, nihar@umn.edu, 625-6306
Class Time and Location: Tu/Th, 11:15 AM - 12:30 PM, ME 108
Office Hours: Mon 2-3, Thurs 1:30 - 2:30, 6-119 EE/CS
TA: Peng Wu, ultra.pengwu@gmail.com
TA Office Hours: Wed, 1-2:30, 2-127 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) or an equivalent graduate digital communications course is recommended. Familiarity with MATLAB will be useful.
Homework: Approximately weekly.
Exams: One midterm exam (date TBD) and a final exam (Tuesday, May 11, 8-10 AM).
Project: A project is a required portion of this course. The project will either be on a wireless communication standard (e.g., IEEE 802.11n) or on a research topic. The project will be due towards the end of the semester, and detailed will be provided later.
Grading Policy: Final grade will be 10% project, 20% midterm, 35% homework, and 35% final.

Course Topics

1. Wireless Channel Models
   Path Loss, Shadowing, Statistical Models for Narrowband and Wideband Fading

2. Digital Communication in Wireless Channels
   Performance of Digital Modulation in Fading Channels, Channel Coding & Capacity, Adaptive Modulation & Coding, Diversity, ARQ

3. Digital Communication in Wideband Fading
   Equalization, OFDM, Spread Spectrum

4. Multi-User Systems
   Multiple Access, Scheduling, Multi-User Capacity Limits

5. Multiple Antenna Communication