Course Syllabus	**EECS 4390 – Wireless and Mobile Networks**
Credits & Contact hours	3 credit hours & two 75-minute lecture contact hours per week
Coordinator	Dr. Junghwan Kim
Textbook	D. P. Agrawal and Qing-An Zeng, "Introduction to Wireless & Mobile Systems," 4th Ed., Cengage Learning, 2014. Extra supplemental materials for spread spectrum
Course Information	Mobile radio propagation; the cellular concept; multiple radio access; multiple division technique; channel allocation; mobile communication system; existing wireless systems; network protocols; Ad-hoc and sensor network; wireless LANs and PANs; recent advances. Prerequisites: EECS 3210 and either EECS 3300 or MIME 4000 Elective course
Students Learning Objectives	Student will be able to 1. Describe the characteristics of modern wireless and cellular systems and networks. 2. Utilize the knowledge of probability and random variables to analyze and estimate the user traffic behaviors. 3. Characterize and analyze the radio propagation mechanisms of mobile and wireless environments. 4. Design the basic forward error correcting (FEC) codes for the error detection and correction. 5. Design the efficient cellular communication systems by using the fundamental knowledge of cell design concept under the constraint of co-channel interferences. 6. Evaluate the performances of digital modulation schemes towards effective transmission of user data in different multiple access scenarios.
Topics	1. Introduction and Overview 2. Probability, Statistics, and Traffic Theories 3. Mobile Radio Propagation 4. Channel Coding and Error Control 5. Cellular Concepts 6. Multiple Radio Access 7. Multiple Division Techniques for Traffic Channels 8. Spread Spectrum* (*Extra material*) 9. Satellite Systems