

ECE 8708, Wireless Communications, Fall 2020
Course Information Sheet

Instructor: Moeness Amin

Tol. 119

Phone: 610 519 4263; Fax: 610 519 6118; E-mail: moeness.amin@villanova.edu

Office Hours: Mondays and Wednesdays 11 am – 1 pm or by appointments

Prerequisites: Undergrad level probability; undergrad level signals/systems; some linear algebra

Text Book:

Wireless Communications: Principles and Practice (2nd Edition) 2nd Edition, by Theodore S. Rappaport, Prentice Hall

Grading Policy:

- Homework and Computer Projects -70%
- Final Exam - 30%

Course Description and Outline: Principles of cellular and wireless communication system, including frequency reuse, hand-off, interference and capacity; modulation techniques; propagation; channel modeling and equalization; diversity; multiple access techniques including FDMA, TDMA and CDMA; wireless standards (AMPS, IS-54, IS-95); digital cordless standards, channel coding methods, MIMO systems.

Course outline:

- Introduction to Wireless Systems
- Modern Wireless Systems
- Frequency Reuse
- Handoff Strategies
- Trunked Systems
- Interference and System Capacity
- Diversity and System Capacity
- Channel Fading and Pathloss
- Outdoor propagation Models
- Doppler Shift
- Rayleigh and Ricean channel models
- Development of Wireless Networks
- Wireless Standards
- Multiple Access Techniques
- Channel Coding Techniques
- MIMO Communications

Attendance: Strongly encouraged

Villanova Disabilities Statement:

It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities. If you are a person with a disability (non-physical) please register with the Learning Support Office by contacting Learning.support.services@villanova.edu or 610-519-5176 as soon as possible. Registration is needed in order to receive accommodations.

The Office of Disability Services collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The ODS provides Villanova University students with physical disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact Gregory Hannah, advisor to students with disabilities at 610-519-3209 or visit the office on the second floor of the Connelly Center.

Academic Integrity

The College of Engineering is committed to creating an environment of academic integrity and ethical decision-making that we hope is reflected in the actions of our students and graduates. As Villanova students, integrity is central to the University mission. As engineers, our code of conduct requires us to place honor and integrity at the forefront of everything we do. As engineering students, it is expected that you will begin to adopt these values and instill them into your work habits. Students violating the academic integrity policy will receive a zero on that assignment or exam and the violation will be reported to the Associate Dean for Academic Affairs.

The University's academic integrity policy can be found here: <https://www1.villanova.edu/villanova/provost/resources/student/policies/integrity.html>.

The College of Engineering has adopted the following exam guidelines:

- Students must arrive before the start of the exam. Under exceptional circumstances a student may need to arrive late, but he/she can enter the exam no later than 5 minutes after the start of the exam.
- All cell phones must be turned off and stored away until the student exits the exam room.
- The official Villanova class attendance policy must be followed when requesting excuses for absences or lateness to an exam.
- Each student must write and sign the following statement, *“I have neither given nor received any unauthorized assistance in the completion of this exam.”*