

**San José State University**  
**Department of Electrical Engineering**  
**EE 255, Mobile/Wireless Communications, Section 01**  
**Spring 2017**

<b>Instructor:</b>	Jalil Kamali, PhD
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<b>Office Hours:</b>	TR 19:00-19:30
<b>Class Days/Time:</b>	TR 19:30-20:45
<b>Classroom:</b>	CL310
<b>Prerequisites:</b>	Basic knowledge of communication theory, signal processing, and probability & random processes is required. MATLAB will be used in the homework and project.

### **Faculty Web Page**

Copies of some of the course materials such as homework assignments will be posted on the following web-site.

<http://www.sjsu.edu/people/jalil.kamali/>

### **Course Description**

The goal of this course is to introduce fundamental ideas and techniques in wireless communications to the graduate students at a level accessible to them. The challenges in wireless environments, their models and the methods to handle these challenges will be covered. In particular, propagation models, multi-path propagation effects, noise and interference, digital modulation techniques, cellular radio systems, digital modulation techniques and their performance in the fading environment, and diversity techniques are discussed. Modern wireless systems and standards are also briefly discussed.

### **Course Content Learning Outcomes**

Upon successful completion of this course, students will be able to:

- **LO1** Analyze the signal propagation in wireless channel
- **LO2** Describe and compare wireless channel models
- **LO3** Specify the challenges of wireless communication and tools to deal with them
- **LO4** Describe and implement various modulation schemes including OFDM
- **LO5** Identify, formulate and solve engineering problems that arise in wireless networks such as cellular system

- **LO6** Diversity and MIMO techniques to improve the performance of wireless systems
- **LO7** Compare modern wireless systems and standards

## **Required Texts/Readings**

### **Textbooks**

Wireless Communications by A. Goldsmith, Cambridge University Press, Aug. 2005.

### **Supplemental Reading:**

- Wireless Communication: Principles and Practice (2nd ed.) by T.S. Rappaport, Prentice Hall, 2001.
- Fundamentals of Wireless Communication, by D. Tse and P. Viswanath, Cambridge University Press, May 2005
- Modern Wireless Communication by S. Haykin and M. Moher, Pearson Prentice Hall, 2005.

## **Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. [Information on add/drops are available at http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html](http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html). [Information about late drop is available at http://www.sjsu.edu/sac/advising/latedrops/policy/](http://www.sjsu.edu/sac/advising/latedrops/policy/). Students should be aware of the current deadlines and penalties for adding and dropping classes.

## **Assignments and Grading Policy**

There will be a midterm and a final exam. Homework assignments will be given regularly. While the students are not asked to hand in the solution and it will not be part of the grading, it is an essential part of learning. Thus students are urged to try to solve these problems on their own. Solutions to these problem sets will also be distributed. A project in wireless communications is another assignment whose details will be discussed in the class.

### Grades

Midterm 1: Thursday March 23<sup>rd</sup> (30%) class time

Project (20%)

Final Exam: Thursday May 18<sup>th</sup> (50%) 19:45-22:00

## University Policies

### Academic integrity

Students should know that the University's [Academic Integrity Policy is available at http://www.sa.sjsu.edu/download/judicial\\_affairs/Academic\\_Integrity\\_Policy\\_S07-2.pdf](http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf).

Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for [Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial\\_affairs/index.html](http://www.sa.sjsu.edu/judicial_affairs/index.html).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

### Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

## EE Department Honor Code

The Electrical Engineering Department will enforce the following Honor Code that must be read and accepted by all students.

"I have read the Honor Code and agree with its provisions. My continued enrollment in this course constitutes full acceptance of this code. I will NOT:

- Take an exam in place of someone else, or have someone take an exam in my place
- Give information or receive information from another person during an exam
- Use more reference material during an exam than is allowed by the instructor
- Obtain a copy of an exam prior to the time it is given
- Alter an exam after it has been graded and then return it to the instructor for re-grading
- Leave the exam room without returning the exam to the instructor."

### Measures Dealing with Occurrences of Cheating

- Department policy mandates that the student or students involved in cheating will receive an "F" on that evaluation instrument (paper, exam, project, homework, etc.) and will be reported to the Department and the University.
- A student's second offense in any course will result in a Department recommendation of suspension from the University.