

## SYLLABUS—GENERAL INFORMATION

- Course:** EEE 598: Wireless Networks (Spring 2012), Section 24838, Credits: 3  
Meeting time: 16:30 to 17:45 T/Th  
Meeting Location: ECGG218
- Instructor:** Dr. Yanchao Zhang  
Office: GWC 416  
Email: [yczhang@asu.edu](mailto:yczhang@asu.edu)  
Phone: 480-727-0039 (please do not leave voice messages)  
Webpage: <http://wins.lab.asu.edu/yczhang.html>  
Office Hours: TBA or by appointment via email
- Catalog Description:** Design principles of cellular networks. Multiple access control protocols for wireless systems. Wireless routing and TCP/IP. Mobile management. Call admission control and resource allocation. Wireless security. Future-generation wireless networks. A previous course in random signal theory or an equivalent class is required to be successful in this class.
- Course Objectives:** This course covers the fundamentals for the design and optimization of heterogeneous wireless networks, and is intended for graduate students interested in wireless networks. By taking this course, the students can learn wireless network design principles and also get exposed to open research problems, thus positioning themselves to do research or pursue a career in related areas.
- Prerequisite:** Engineering Graduate Student (GRES)
- Textbook:** Theodore S. Rappaport, *Wireless Communications: Principle and Practice*, Second Edition, Prentice-Hall, 2002. ISBN-10: 0130422320. ISBN-13: 978-0130422323.
- References:**
1. *Principles of Wireless Networks: A Unified Approach* by K. Pahlavan and P. Krishnamurthy, Prentice-Hall, 2002.
  2. *Wireless and Mobile Network Architecture* by Yi-Bing Lin and Imrich Chlamtac, John Wiley & Sons, 2000.
  3. Technical papers.
- Course Topics:**
- Overview of wireless communication networks and protocols
  - The cellular concept: system design fundamentals
  - Brief introduction to wireless physical layer fundamentals
  - Multiple access control protocols for wireless systems
  - Wireless networking (routing/rerouting, wireless TCP/IP)
  - Mobility management
  - Call admission control and resource allocation
  - Revolution/evolution towards future generation wireless networks
  - Overview of wireless mesh networks, mobile ad hoc networks and wireless sensor networks
  - Wireless security
  - Selected hot topics such as RFID

Online Material: A significant amount of course-related material will be put on the class blackboard. It is the responsibility of the student to be cognizant of this information; thus, the student should visit the class blackboard frequently. Additionally, important class announcements will be sent to ASU Official Student Email addresses. By university policy, it is the responsibility of the student to configure his or her Official Student Email appropriately (including any desired forwarding to other addresses), and to read email frequently. Moreover, any email correspondence with the instructor or TA should be through ASU Official Student Email addresses, and emails from non-ASU email addresses may directly go into spam folders and not be seen by the instructor or TA.

## SYLLABUS—CLASS POLICY

Expectations: The instructor expects the student to:

- Attend** each class!
- Read** the book (at least all reading assignments)!
- Work** all the homework and lab assignments!

Conduct Code: The ASU Student Code of Conduct will be upheld, and any violations will be brought to the immediate attention of the Office of Student Rights and Responsibilities. For additional information please visit: [http://www.asu.edu/studentaffairs/reslife/outreach/abor\\_code.htm](http://www.asu.edu/studentaffairs/reslife/outreach/abor_code.htm)

Homework:  Homework must be turned in at the *beginning* of the class period on the specified due date. You may submit the homework beforehand to the instructor in case you have to miss out the class. In case he is not present, you may slide the homework under his office door (GWC416).  
 No late homework will be accepted *for any reason*.

Exams:  All exams will be closed book and closed notes, unless otherwise specified.  
 Students are expected to be present for all exams. Make-up exams due to an absence will be given only under the following conditions:

- ◆ The student has informed the instructor of the absence at least 24 hours in advance of missing the exam.  
— OR —
- ◆ The student misses the exam due to some situation beyond the student's control (such as a serious illness, a death in the family, etc.) which is unexpected, unavoidable, and documented. The reason for each absence of this sort will be judged case by case by the instructor and, if it is deemed valid under the above description, a make-up exam will be given.

 After a graded exam has been returned to a student, the student may wish to dispute the exam score:

- ◆ In the case of an arithmetic error in the tallying of the exam score from the individual sections of the exam, the error will be corrected.
- ◆ In all other cases, the student may request that the exam be regraded. During exam regrading, the *entire* exam will be regraded, which may result in higher *or* lower scores on *each and every* section of the exam. Thus, if you submit your exam for regrading simply to “quibble” about a few points you “unjustly lost” on a certain exam problem, you should be aware of the possibility that you may lose any points which you had “unjustly gained” through oversight on other problems.
- ◆ In all cases, *all* requests for exam regrading must be made within *one week* following the date the graded exam was returned to the student.
- ◆ An exam will be regraded *only once*.

Term Project: Students are required to form a team of at most two to write a research or survey paper on hot topics in wireless networks which are agreed upon by the instructor and students together.

Grading: Final course grades will be based on homework, term project, one midterm, and one final exam weighted as described below.

Homework Assignments .....	10%
Project .....	20%
Midterm Exam .....	30%
Final Exam .....	40%

: The average class score  $\bar{s}$  is calculated as the average (arithmetic mean) of final course scores  $s$  for all students in the class. The class adjustment  $a$  is calculated as

$$a = \begin{cases} 0, & \bar{s} > 75, \\ 75 - \bar{s}, & \text{else.} \end{cases}$$

Your adjusted score is then

$$s' = \text{round}(s + a),$$

where  $\text{round}(\cdot)$  denotes rounding to the nearest integer. (Note: the adjustment serves to “curve” the grades up to a mean of 75, although the mean is not “curved down” if above 75). Your final grade  $g$  is determined from your adjusted score:

$$g = \begin{cases} A+, & s' > 100, \\ A, & 90 \leq s' \leq 100, \\ B+, & 85 \leq s' < 90, \\ B, & 80 \leq s' < 85, \\ C+, & 75 \leq s' < 80, \\ C, & 70 \leq s' < 75, \\ D+, & 65 \leq s' < 70, \\ D, & 60 \leq s' < 65, \\ E, & s' < 60. \end{cases}$$