
TENTATIVE SYLLABUS—GENERAL INFORMATION

Course Info:	EEE 559: Wireless Networks (Spring 2023) Section 31774/31773, Credits: 3 Class time: 10:30–11:45 AM Tu/Th Physical classroom: SCOB 105
Instructor Info:	Dr. Yanchao Zhang Office: GWC 456 Email: yczhang@asu.edu Webpage: https://web.asu.edu/cnsg/zhang Office hours in GWC 456: 3:00–4:00 PM M/W or appointment by email Virtual office hours via Zoom: appointment by 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 of heterogeneous wireless networks, 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:	EE/CE/CS Graduate Students.
Textbook:	<i>Wireless Communication Networks and Systems</i> , Cory Beard and William Stallings, Pearson, first edition, 2015.
Course Topics:	<ul style="list-style-type: none"><input type="checkbox"/> Wireless networking challenges<input type="checkbox"/> Wireless communication overview<input type="checkbox"/> Wireless MAC concepts<input type="checkbox"/> Overview of cellular standards and LTE<input type="checkbox"/> Overview of wireless MAC protocols WiFi, bluetooth and personal area networks, etc.<input type="checkbox"/> Wireless in today's Internet: TCP over wireless, mobility, security, etc.<input type="checkbox"/> Selected advanced topics (a tentative list)<ul style="list-style-type: none">• Internet-of-Things• Wireless security• Mobile crowdsourcing• Cognitive radios and dynamic spectrum access• Indoor localization• RFID systems• Mobile cloud computing• Virtual light communication• Full-duplex communications• Backscatter communications

Online Material: All course-related materials will be put on Canvas. It is the responsibility of the student to be cognizant of this information; thus, the student should visit Canvas 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 grader 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 following from each student.

- ☐ **Attend/watch** each class!
- ☐ **Read** the book according to class notes!
- ☐ **Work** out all the homework assignments independently!
- ☐ **Don't** use pagers, cell phones, or recording devices in the classes.

Homework & Exams: ☐ There will be five to six homework assignments, and each student is required to do all the homework assignments. Each homework must be submitted via Canvas. No late homework will be accepted for any reason.

- ☐ There will be a midterm which will be closed-book and closed-notes. A single-side letter-size cheat sheet and a calculator are allowed.
- ☐ There will be a final exam which will be closed-book and closed-notes. A single-side letter-size cheat sheet and a calculator are allowed.
- ☐ Students are expected to attend the midterm and final during the scheduled time. A make-up exam 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. The instructor will approve each absence of this sort on a case-by-case basis. If the absence is approved, a make-up exam will be given.

— OR —

- ◆ The student misses the exam due to some situation beyond the student's control (such as a serious illness and a death in the family) 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, a make-up exam will be given.

— OR —

- ◆ Excused absences related to religious observances/practices that are in accord with ACD 304-04, "Accommodation for Religious Practices".

— OR —

- ◆ Excused absences related to university sanctioned events/activities that are in accord with ACD 304-02, "Missed Classes Due to University-Sanctioned Activities".

— OR —

- ◆ Excused absences related to missed class due to military line-of-duty activities that are in accord with ACD 304-11, "Missed Class Due to Military Line-of-Duty Activities," and SSM 201-18, "Accommodating Active Duty Military"

- ☐ After a graded homework or exam, the student may request regrading within *one week* following the date the student saw the graded homework or exam.
- ☐ To ensure proper gradings of the homework and exams, no pencil writing is accepted for the homework and exams.

Term Project: Each student must do a term project, which involves writing a survey paper or research paper.

Grading: A final course score *s* on the 100-point scale will be based on homework, midterm, final, and the term project weighted as described below.

Homework	15%
Midterm	40%
Final exam	25%
Project	20%

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

$$a = \begin{cases} 0, & \bar{s} > 80, \\ 80 - \bar{s}, & \text{else.} \end{cases}$$

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 80, although the mean is not “curved down” if above 80). Your final grade g is determined from your adjusted score:

$$g = \begin{cases} A+, & s' > 100, \\ A, & 90 \leq s' \leq 100, \\ A-, & 85 \leq s' < 90, \\ B+, & 80 \leq s' < 85, \\ B, & 75 \leq s' < 80, \\ B-, & 70 \leq s' < 75, \\ C+, & 65 \leq s' < 70, \\ C, & 60 \leq s' < 65, \\ D, & 55 \leq s' < 60, \\ E, & s' < 55. \end{cases}$$

Academic Integrity: Students in this class must adhere to ASU’s academic integrity policy, which can be found at <https://provost.asu.edu/academic-integrity/policy>). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to both the ASU Academic Integrity Honor Code and the Fulton Schools of Engineering Honor Code. All academic integrity violations will be reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains record of all violations and has access to academic integrity violations committed in all other ASU college/schools.

Copyright: Course content, including lectures, are copyrighted materials and students may not share outside the class, upload to online websites not approved by the instructor, sell, or distribute course content or notes taken during the conduct of the course (see ACD 304–06, “Commercial Note Taking Services” and ABOR Policy 5-308 F.14 for more information).

You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student’s original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Threatening behavior: Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services. Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students.

Disability Accommodations: Suitable accommodations will be made for students having disabilities. Students needing accommodations must register with the ASU disabilities resource Center and provide documentation of that registration to the instructor. Students should communicate the need for an accommodation in sufficient time for it to be properly arranged.

Harassment and Sexual Discrimination: Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

Mandated sexual harassment reporter: As an employee of the University I am considered a mandated reporter and therefore obligated to report any information regarding alleged acts of sexual discrimination that I am informed of or have a reasonable basis to believe occurred.

ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish to discuss any concerns confidentially and privately.

Possible Syllabus Changes: Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advance notice