Course Webpage

- Canvas: http://canvas.psu.edu

Course Material


Course Outline

1. A Review of probability and random processes (Appendix A)
2. Modulation (Chapter 2)
3. Demodulation (Chapter 3)
4. Synchronization and noncoherent communication (Chapter 4)
5. Channel equalization (Chapter 5)
6. Wireless communication (Chapter 8)

The above schedule is subject to change without prior notice.

Grading

- Homework (40%), Test 1 (40%), Final project (20%).

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<thead>
<tr>
<th>Score</th>
<th>0, 60)</th>
<th>(60, 70)</th>
<th>(70, 77)</th>
<th>(77, 80)</th>
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<th>(87, 90)</th>
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<td>D</td>
<td>C</td>
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<td>B-</td>
<td>B</td>
<td>B+</td>
<td>A-</td>
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Project Requirement

The course project is expected to be a research project related to any topic in the wireless communications area. Some suggested topics/papers will be provided, but you are by no means limited to these topics/papers. You are expected to select one topic/paper, do an in-depth reading and understand its merits, and repeat its theoretical or experimental results.

Each team may have 1 or 2 students. No more than 2 students are allowed in the project team. However, the case of 2 students collaboratively working on the project must satisfy the following three criteria:

- The project is of sufficient scope to merit collaboration by two people. For example, the paper you choose is very long, or has too many technical materials. It is expected that the amount of work on the collaborative project be approximately double that of a project undertaken by just one student.
• The joint project cannot be separated into two effectively separate projects. In other words, there must be some reason why the work is done as a joint project rather than two separate projects.

• The work can be delineated between the collaborators so that I can grade you separately.

Each project team (1 or 2 students) will make a 25 minutes presentation before the final project report due. I have reserved three lecture slots for this purpose. You are presenting to the entire class as if you are presenting in a research conference. If 2 students are in the same team, each is expected to present for roughly half of the presentation. The grading of the project presentation will be based on the presentation quality and Q&A.

The project report is due by on December 9, 2022 (hard deadline), and must be uploaded to Canvas by then. No extensions will be granted except for documented emergencies. Your final report should be around 8-10 pages (single column, single-spacing, 12 font).

Proper citation of published work: Be aware that the project report does not mean repeating verbatim what has been published in the referenced papers (in fact this is plagiarism and will receive zero credit and will also be reported as an honor code violation): it means summarizing, comparing, and contrasting the main ideas, concepts, and results presented by other authors in your own words. You may certainly give results derived by other authors and include theorems, tables and figures from published papers, but only if you cite the exact reference each time you use such a figure, table, or proof. Exact quotes taken from published papers without reference are not acceptable and your report will receive no credit if such quotes are included.

Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University’s Code of Conduct states that all students should act with personal integrity, respect other students’ dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts. Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

Accommodating Students with Disabilities

Penn State welcomes students with disabilities into the University’s educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) website provides contact information for every Penn State campus. For further information, please visit Student Disability Resources website. In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: See documentation guidelines. If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

Counseling and Psychological Services

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome
all students and embrace a philosophy respectful of clients’ cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS): 814-863-0395
Counseling and Psychological Services at Commonwealth Campuses
Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

Educational Equity/Reporting Bias

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the Report Bias webpage.