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EE 506 PMP
Fundamentals of Wireless Communications (Spring 2018)
March - June 2018

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Professor: JA Ritcey EEB454 206-543-4702 jar7@uw.edu
Prof Office Hours: Mondays before and after class. Other times email for appointment
TA: Michael Carosino, mcaros@uw.edu
Office hours: Sunday 1PM - 3PM Sieg 232, Mon 5-6pm EE 431 Tues 6-8 pm EE 025.
Textbooks: *See our Course Homepage.* We will use the books by Goldsmith, Anderson, Zhang, and Proakis Salehi. I will provide the HW assignments.

Prerequisites:
An undergrad understanding of signals and systems in discrete and continuous time.
Knowledge of probability (EE 505 or equivalent is helpful. EE 518 is useful, but not required)
Some facility and interest in MATLAB or equivalent (Python)
Prior course on Digital Communications or electromagnetics is *not required.*
I understand that EE PMP come from a variety of backgrounds. To succeed on the exams, you will need to be able to successfully complete the homework assignments.

Course Syllabus: (approximate times are based on 3 hrs/week of lectures.) References are to Goldsmith and Anderson Chapters. Notes and Matlab demos will be provided,

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Tentative Topics by Week

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Week 1	3/26	Signal Processing and Matched Filtering of Signals in Noise. *Anderson 2.6.2*
Week 2	4/2	Structure of Coherent Comm Systems. *Anderson 2, 3 Goldsmith 5*
Week 3	4/9	Classical AWGN Modulations: PAM, QAM, MPSK, and MFSK. *Anderson 2,3 Goldsmith 5*
Week 4	4/16	Modulation Architectures and Performance. *Goldsmith 6*
Week 5	4/23	Fundamentals of Information Theory. *Goldsmith 4,8,9* We will be selective.
Week 5	4/30	Midterm Exam, in-class. Covering everything though Week 4.
Week 7	5/7	The Wireless Channel - Fading, Multipath, Diversity. *Anderson Chapter 5 and Goldsmith 2 3*
Week 8	5/14	Multi-Antenna Systems - Beamforming and MIMO *Goldsmith Chapter 10*
Week 9	5/21	Channel Coding. Goldsmith*Anderson Chapter 6 and Goldsmith 8*
Week 10	5/30	Holiday. Class will be video or rescheduled later. Review and Special Topics.
Final Exam		Take-Home Due on Wednesday June 2 to Canvas.

Grading: Homework assignments 30%, In-Class Midterm 30%, Take-Home Final 40%.

Homework (HW): HW is typically assigned weekly and will be due on the Tuesday evening to the course dropbox. Delayed HW submissions may be allowed only with prior consent of the instructor and TA, andmust be submitted before the HW solutions are posted. Some HW problems require MATLAB or other programming language with easy access to graphics and scientific programming. Get familiar with it.

Exams: Midterm exam is around the 5th or 6th week of the quarter. It will be in-class during our regular scheduled class period. The final exam is scheduled during Final's Week. It will be a takehome exam and due on Wednesday June 6, 2018.

Class homepage: For the most up-to-date information, please access UW Canvas at: EE 506PMP Website