

EE379A Lectures – Winter 2026

Tu-Th TBD; Location TBD

Lecture #	Date	Topic	Reading	Hmwrk (out/in)
Data-Transmission, Channels & Fundamentals				
1	1/6	Intro: Discrete Message Encoding/Decoding	1.1	1/-
2	1/8	White Gaussian Noise (AWGN) Channels	1.2	-/-
3	1/13	Modulation Types (PAM/QAM)	1.3	2/1
4	1/15	Complex and other Channels	1.4	-/-
5	1/20	MIMO and Statistical Channels	1.5, 1.6	3/2
Codes and Decoding				
6	1/22	Coding & Dimensionality	2.1-2,	-/-
7	1/27	Binary Cyclic Codes & Decoding, BICM	7.1, 8.1, 8.4.1.1	4/3
8	1/29	Convolutional Codes & Sequence/MAP Decoding	8.2, 7.2	-/-
9	2/3	Binary-code Lattices and ML Decoding	8.1, 7.2	-/4
--	2/5	Midterm Exam (open bk)		-/-
10	2/10	Iterative Decoding	7.3.	5/-
11	2/12	Constraints, interleaving, & product codes	8.4.1, 8.7.1	-/-
12	2/17	Outer Hard-Code Concatenation	8.6	6/5
Intersymbol Interference and Equalization				
13	2/19	Intersymbol Interference, MMSE, & SNR	3.1-3,3	-/-
14	2/24	Linear Equalizers	3.4-3.5	7/6 (2/23)
15	2/26	Decision Feedback Equalizers	3.6	-/-
16	3/3	FIR Equalizer Design & Software	3.7	8/7 (3/6)
17	3/5	Precoders and Diversity	3.8-9	-/-
18	3/10	Transmit Optimization and Waterfilling	3.11-12	-/8
Synchronization and Training/Adaption				
19	3/12	Phase Locking: Timing/Carrier, Adaptive EQ	6.1-5, 3.14	-/8ext

Grading: midterm 30%, final exam 40%, homework 30%. PS8 extension is optional for students. Final is take home, ~24 hours, due Friday 3/15 at 5pm, distributed end of Lecture 19 (questions thereupon in office hours 3/14 after class).

This class will be recorded by GGOE and those recordings will be available for later use.