

Class #	Date	Main topics	Class topic	Suggested reading	Assignments	Tests, comments
1	8/17 Mon	Signals and systems	Introduction & review; CT & DT signals	OW 1.0–1.1		Recordings: class1a, class1b (Zoom; links on Moodle)
2	8/19 Wed		Power vs. energy signals; signal types overview	OW 1.2–1.3		Recording: class2 (Zoom; link on Moodle)
3	8/24 Mon		Exponential signals; introduction to impulse and step functions	OW 1.3–1.4		
4	8/26 Wed		DT step function; DT impulse function (delta)	OW 1.4		
5	8/31 Mon		CT step and delta functions; systems overview	OW 1.5		
6	9/2 Wed		System properties (cont'd): linearity, time-invariance, stability	OW 1.5–1.6	HW1 due Sep 4	
	9/7 Mon	Labor Day				No class
7	9/9 Wed	LTI systems	Impulse response; DT convolution	OW 2.1–2.2	HW2 due Sep 11	
8	9/14 Mon		DT convolution (cont'd); CT convolution	OW 2.2		Recordings: class 8a, class8b (Zoom; links on Moodle)
9	9/16 Wed		CT convolution (cont'd)	OW 2.2		Recordings: class 9a, class9b (Zoom; links on Moodle)
10	9/21 Mon		LTI system properties: commutative, distributive, associative; causal, stable, invertible	OW 2.3		
11	9/23 Wed	Linear algebra & ML	Linear algebra review; vector spaces	VT Ch5–6; Scheffe App. 1	HW3 due Sep 25	Slides ML. End of material for Test 1 (OW Ch. 1–2)
12	9/28 Mon		Eigenanalysis: eigenvalues, eigenvectors, diagonalization	ISLR 10.2; Murphy 12.2		
13	9/30 Wed		Principal component analysis (PCA)	Scheffe Ch1		Matlab code and yalefaces dataset posted for HW4
14	10/5 Mon		Linear regression; least squares			
	10/7 Wed		Test 1		HW4 due Oct 9 (PCA / eigenfaces & linear regression; Matlab)	In class, paper-based. Covers OW Ch. 1–2
15	10/12 Mon		Convolutional neural network (CNN)	DL Ch9		
16	10/14 Wed	Fourier analysis	CNN (cont'd); CT Fourier series; sinusoids as eigenfunctions	OW 3.2–3.4		Slides CTFT
	10/19 Mon	Fall Break				No class
17	10/21 Wed		Fourier series (cont'd); CT Fourier transform	OW 3.2–3.4; 4.1–4.2	HW5 due Oct 23	
18	10/26 Mon		CT Fourier transform (cont'd)	OW 4.2–4.3; 4.4–4.5		
19	10/28 Wed		CT Fourier transform properties & tables	OW 4.3, 4.6		
20	11/2 Mon		Sinc and rect; convolution and multiplication properties	OW 4.4–4.5		
21	11/4 Wed	DT Fourier	DTFT and its properties	OW 5.1–5.6	HW6 due Nov 6	Slides DTFT
22	11/9 Mon		DFT; relations among CTFT, DTFT, and DFT			Slides DFT. End of material for Test 2
23	11/11 Wed	Sampling	Sampling theorem, Nyquist frequency, aliasing	OW 7.1–7.3		Not covered on Test 2
24	11/16 Mon	Laplace transform	Sampling theorem (cont'd); bilateral Laplace transform, pole-zero plots, ROC	OW 9.1–9.3		Slides Laplace. Not covered on Test 2
	11/18 Wed		Test 2		HW7 due Nov 20	In class, paper-based. Covers linear algebra & ML through the DFT (material through 11/9)
25	11/23 Mon		CT LTI system characterization; connections to frequency response	OW 9.4, 9.7–9.8		
	11/25 Wed	Thanksgiving break				No class
26	11/30 Mon	z-transform	Bilateral z-transform, pole-zero plots, ROC; DT LTI system characterization, connections to frequency response	OW 10.1–10.2, 10.4–10.5		
	12/7 Mon	Final Exam	Final exam			12:00–14:30, in class, paper-based. Comprehensive