

GEORGIA INSTITUTE OF TECHNOLOGY
 School of Electrical and Computer Engineering
 ECE 3075A – Random Signals – Fall Semester, 2003 – Professor B.H. Juang
 Tentative Course Schedule

August	18	Introduction to probability and its application in electrical & computer engineering; review of calculus	
	20	Set theory, set algebra	HW1 assigned
	22	Events, probability space, Axiomatic approach	
	25	Event counting and combinatorics	
	27	Combinatorics – more examples; Combined trials	HW1 due; HW2 assigned
September	29	Conditional probability, statistical independence	
	1	School holiday	
	3	Random variables, distributions	HW2 due; HW3 assigned
	5	Probability density functions	
	8	Frequently encountered distributions	
	10	Functions of random variables, expectations, moments	HW3 due; HW4 assigned
	12	Functions of random variables, expectations - examples	
	15	Quiz #1	
	17	Characteristic functions	HW4 due; HW5 assigned
	19	Characteristic functions and moment generating functions	
	22	Multiple random variables, joint and marginal distributions	
October	24	Correlation and covariance	HW5 due; HW6 assigned
	26	Conditional distributions	
	29	Distributions of functions of two random variables	
	1	Functions of multiple random variables - examples	HW6 due; HW7 assigned
	3	Joint characteristic function, covariance, joint moments	
	6	Multi-dimensional Gaussian and other related distributions	
	8	Introduction to Statistics, event sampling, sample statistics	HW7 due; HW8 assigned
	10	Quiz #2	
	13	Midterm Recess	
	15	Sampling distributions, confidence intervals	HW8 due; HW9 assigned
	17	Hypothesis testing	
	20	Linear regression models, least square curve fitting	
	22	Random and deterministic processes, sample functions	HW9 due; HW10 assigned
November	24	Stationarity and ergodicity	
	27	Frequently encountered random processes	
	29	Autocorrelation functions	HW10 due; HW11 assigned
	31	Autocorrelation functions, examples and properties	
	3	Cross-correlation functions, examples and properties	
	5	Correlation matrices for sampled functions	HW11 due; HW12 assigned
	7	Random signals	
	10	Quiz #3	
	12	Autocorrelation functions	HW12 due; HW13 assigned
	14	Examples of autocorrelation functions	
December	17	Power spectral density of random signals	
	19	Spectral density functions, Fourier transforms	HW13 due; HW14 assigned
	21	Cross-spectral density	
	24	Spectral estimation	
	26	Linear system theory; random signal inputs	HW14 due; HW15 assigned
	28	School Holiday	
	1	System analysis in time domain	
	3	System analysis in frequency domain	HW15 due
	5	System analysis in time & frequency domain	
	8	Final	