

GEORGIA INSTITUTE OF TECHNOLOGY  
School of Electrical and Computer Engineering

ECE 3075A – Random Signals – Summer Semester, 2003  
Instructor: Prof. B. Juang

Tentative Course Schedule

May	12	Introduction to probability and its application in electrical & computer engineering; events, probability space, set theory	HW1 assigned
	14	Event counting, combinatorics	
	16	Conditional probability, independence, combined trials	
	19	Random variables, distributions, probability density functions	HW1 due; HW2 assigned
	21	Frequently encountered distributions	
	23	Functions of random variables, expectations, moments	
	26	School holiday	
	28	Quiz #1	HW2 due
	30	Multiple random variables, joint distributions, correlation	
	June	2	Conditional distributions, marginal distributions
4		Distribution of function of two random variables	
6		The characteristic function, covariance, joint moments	
9		Multi-dimensional Gaussian and other related distributions	HW3 due, HW4 assigned
11		Introduction to Statistics, event sampling	
13		Sampling theory, sample mean, sample variance	
16		Sampling distributions, confidence intervals & hypothesis testing	HW4 due; HW5 assigned
18		Quiz #2	
20		Linear regression models, least square curve fitting	
23		Random and deterministic processes, stationarity, ergodicity	HW5 due; HW6 assigned
July	25	Frequently encountered random processes	
	27	Correlation functions, examples and properties	
	30	Crosscorrelation functions, examples and properties	HW6 due; HW7 assigned
	2	Correlation matrices for sampled functions	
	4	Holiday	
	7	Random signals; relationship with random processes	HW7 due; HW8 assigned
	9	Quiz #3	
	11	Spectral density functions, Fourier transforms	
	14	Power spectral density of random signals, autocorrelation functions	HW8 due; HW9 assigned
	16	Spectral estimation	
18	Cross-spectral density		
21	Linear system theory; random signal inputs	HW9 due	
23	System analysis in time domain		
25	System analysis in frequency domain		
28	Final exam		