

ECE 302 Probabilistic Methods in EE

Due to the extensive rearrangement of material in the new edition of the textbook, previous schedules will not match this semester's presentation. Here is a record of our progress.

In the table below, RV = Random Variable.

Lecture	Date	Section	Description
1	Tuesday, 1/13/15	1.1	Set Theory
		1.2	Application to Probability
2	Thursday, 1/15/15	1.3	Axioms of Probability
		1.4	Conditional Probability
3	Tuesday, 1/20/15	1.5	Law of Total Probability, Bayes' Theorem
		1.6	Independence
4	Thursday, 1/22/15	1.7	Matlab
		2.2	Counting Methods
5	Tuesday, 1/27/15	2.3	Independent Trials
		2.4	Reliability Analysis
6	Thursday, 1/29/15	3.1	Discrete Random Variables
		3.2	Probability Mass Function (PMF)
		3.3	Families of Discrete Random Variables
7	Tuesday, 2/3/15	3.5	Expected Value of a Discrete RV
		3.6	Functions of Random Variables
		3.7	Expectations of Discrete RVs, continued
8	Thursday, 2/5/15	3.8	Variance and Standard Deviation
		3.9	Matlab: Discrete Random Variables
9	Tuesday, 2/10/15	3.4	Cumulative Distribution Function (CDF)
		4.1	Continuous Sample Space
		4.2	Cumulative Distribution Function (CDF)
		4.3	Probability Density Functions (PDF)
		4.4	Expected Value of a Continuous RV

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Lecture	Date	Section	Description
10	Thursday, 2/12/15	4.5	Families of Continuous Random Variables
11	Tuesday, 2/17/15	4.6	Gaussian Random Variables
12	Thursday, 2/19/15	4.7 4.8 8.1 5.1	Mixed Random Variables Matlab Random Vector Notation Joint CDF for Discrete RVs
13	Tuesday, 2/24/15	5.2 5.3 5.4	Joint Probability Mass Function Marginal Probability Mass Function Joint Probability Density Function
14	Thursday, 2/26/15	5.4 5.5	Joint CDF for Continuous RVs Marginal Probability Density Function
15	Tuesday, 3/03/15	5.6 8.2 5.10	Review for Exam 1 Independent Random Variables Independent Random Vectors Multivariate Probability Models
16	Thursday, 3/05/15		Exam 1 Covering Chapters 1 through 3
17	Tuesday, 3/10/15	8.3 8.4 5.7	Functions of Random Vectors Expected Value and Correlation Expected Value of Functions of RVs
18	Thursday, 3/12/15	5.8 8.5 5.9	Auto- and Cross-correlation, Covariance Gaussian Random Vectors Gaussian Random Vectors
19	Tuesday, 3/24/15	9.1	Sums of Random Variables
20	Thursday, 3/26/15	9.2 9.3	Moment Generating Functions (MGFs) MGFs of Sums of Random Variables

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Lecture	Date	Section	Description
21	Tuesday, 3/31/15	9.4 9.5 7.1	Random Sums of Random Variables Central Limit Theorem Conditioning on Events
22	Thursday, 4/02/15	7.2 7.4	Conditional (on an Event) Expected Value Conditioning on Random Variables
23	Tuesday, 4/07/15	7.5 10.1	Conditional (on a Variable) Expected Value Sample Mean and Sample Variance
24	Thursday, 4/09/15	10.2	Upper Bounds on Probability of Deviation from Expected Value (Markov, Chebyshev, Chernoff)
25	Tuesday, 4/14/15	10.3 10.4 10.5	Weak Laws of Large Numbers Point Estimates of Expected Value (Sample Mean) and Variance (Sample Variance) Confidence Intervals for the Sample Mean
26	Thursday, 4/16/15	11.1 11.2	Hypothesis Testing Maximum <i>A Posteriori</i> (MAP) Tests
27	Tuesday, 4/21/15	Exam 2 Covering Chapters 4, 5, 7, 8, and 9	
28	Thursday, 4/23/15	11.2 13.1 13.2	Maximum <i>A Posteriori</i> (MAP) Tests Introduction to Stochastic Processes Random Variables and Stochastic Processes
29	Tuesday, 4/28/15	13.3 13.4 13.5 13.7	Independent Identically Distributed (iid) Random Sequences Bernoulli, Counting, and Poisson Random Processes Sums of Poisson Processes Expected Value and Autocovariance or Random Processes
30	Thursday, 4/30/15	13.8 13.9 13.10	Stationary Processes Wide-Sense Stationary Processes Cross-Correlation
	Tuesday, 5/05/15	Final Exam Covering Chapters 10, 11, and 13 (Topics as indicated above.)	