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Networks.- The Method of Random Paths.- Transience of Percolation

Lectures on Probability Theory - Dominique Bakry - 2006-11-15

This book contains work-outs of the notes of three 15-hour courses of lectures which constitute surveys on the concerned topics given at the St. Flour Probability Summer School in July 1992. The first course, by D. Bakry, is concerned with hypercontractivity properties and their use in semi-group theory, namely Sobolev and Log Sobolev inequalities, with estimations on the density of the semi-groups. The second one, by R.D. Gill, is about statistics on survival analysis; it includes product-integral theory, Kaplan-Meier estimators, and a look at cryptography and generation of randomness. The third one, by S.A. Molchanov, covers three aspects of random media: homogenization theory, localization properties and intermittency. Each of these chapters provides an introduction to and survey of its subject.

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Lectures on Probability Theory and Statistics - J. Bertoin - 2004-09-03

Part I, Bertoin, J.: Subordinators: Examples and Applications: Foreword.- Elements on subordinators.- Regenerative property.- Asymptotic behaviour of last passage times.- Rates of growth of local time.- Geometric properties of regenerative sets.- Burgers equation with Brownian initial velocity.- Random covering.- Lévy processes.- Occupation times of a linear Brownian motion.- Part II, Martinelli, F.: Lectures on Glauber Dynamics for Discrete Spin Models: Introduction.- Gibbs Measures of Lattice Spin Models.- The Glauber Dynamics.- One Phase Region.- Boundary Phase Transitions.- Phase Coexistence.- Glauber Dynamics for the Dilute Ising Model.- Part III, Peres, Yu.: Probability on Trees: An Introductory Climb: Preface.- Basic Definitions and a Few Highlights.- Galton-Watson Trees.- General percolation on a connected graph.- The first-Moment method.- Quasi-independent Percolation.- The second Moment Method.- Electrical Networks.- Infinite Networks.- The Method of Random Paths.- Transience of Percolation Clusters.- Subperiodic Trees.- The Random Walks RW (λ) .- Capacity.- Intersection-Equivalence.- Reconstruction for the Ising Model on a Tree.- Unpredictable Paths in Z and EIT in Z^3 .- Tree-Indexed Processes.- Recurrence for Tree-Indexed Markov Chains.- Dynamical Percolation.- Stochastic Domination Between Trees.

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Lectures on Probability Theory and Statistics - M. Emery - 2007-05-06

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Lectures on Probability Theory and Mathematical Statistics - 3rd Edition - Marco Taboga - 2017-12-08

The book is a collection of 80 short and self-contained lectures covering most of the topics that are usually taught in intermediate courses in probability theory and mathematical statistics. There are hundreds of examples, solved exercises and detailed derivations of important results. The step-by-step approach makes the book easy to understand and ideal for self-study. One of the main aims of the book is to be a time saver: it contains several results and proofs, especially on probability distributions, that are hard to find in standard references and are scattered here and there in more specialistic books. The topics covered by the book are as follows. PART 1 - MATHEMATICAL TOOLS: set theory, permutations, combinations, partitions, sequences and limits, review of differentiation and integration rules, the Gamma and Beta functions. PART 2 - FUNDAMENTALS OF PROBABILITY: events, probability, independence, conditional probability, Bayes' rule, random variables and random vectors, expected value, variance, covariance, correlation, covariance matrix, conditional distributions and conditional expectation, independent variables, indicator functions. PART 3 - ADDITIONAL TOPICS IN PROBABILITY THEORY: probabilistic inequalities, construction of probability distributions, transformations of probability distributions, moments and cross-moments, moment generating functions, characteristic functions. PART 4 - PROBABILITY DISTRIBUTIONS: Bernoulli, binomial, Poisson, uniform, exponential, normal, Chi-square, Gamma, Student's t, F, multinomial, multivariate normal, multivariate Student's t, Wishart. PART 5 - MORE DETAILS ABOUT THE NORMAL DISTRIBUTION: linear combinations, quadratic forms, partitions. PART 6 - ASYMPTOTIC THEORY: sequences of random vectors and random variables, pointwise convergence, almost sure convergence, convergence in probability, mean-square convergence, convergence in distribution, relations between modes of convergence, Laws

1979: n ° 876- 1976: n ° 598- 1977: n ° 678- 1978: n ° 774- 1980: n ° 929- Slutsky's Theorem. PART 7 - FUNDAMENTALS OF STATISTICS: statistical inference, point estimation, set estimation, hypothesis testing, statistical inferences about the mean, statistical inferences about the variance.

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Probability and Real Trees - Steven N. Evans - 2007-09-26
Random trees and tree-valued stochastic processes are of particular importance in many fields. Using the framework of abstract "tree-like" metric spaces and ideas from metric geometry, Evans and his collaborators have recently pioneered an approach to studying the asymptotic behavior of such objects when the number of vertices goes to infinity. This publication surveys the relevant mathematical background and present some selected applications of the theory.

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Paris-Princeton Lectures on Mathematical Finance 2010 - Areski Cousin - 2010-10-06

The Paris-Princeton Lectures in Financial Mathematics, of which this is the fourth volume, publish cutting-edge research in self-contained, expository articles from outstanding specialists - established or on the rise! The aim is to produce a series of articles that can serve as an introductory reference source for research in the field. The articles are the result of frequent exchanges between the finance and financial mathematics groups in Paris and Princeton. The present volume sets standards with five articles by: 1. Areski Cousin, Monique Jeanblanc and Jean-Paul Laurent, 2. Stéphane Crépey, 3. Olivier Guéant, Jean-Michel Lasry and Pierre-Louis Lions, 4. David Hobson and 5. Peter Tankov.

Paris-Princeton Lectures on Mathematical Finance 2010 - Areski Cousin - 2010-10-06

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Polymer chains that interact with themselves and/or with their environment are fascinating objects, displaying a range of interesting physical and chemical phenomena. The focus in this monograph is on the mathematical description of some of these phenomena, with particular emphasis on phase transitions as a function of interaction parameters, associated critical behavior and space-time scaling. Topics include: self-repellent polymers, self-attracting polymers, polymers interacting with interfaces, charged polymers, copolymers near linear or random selective interfaces, polymers interacting with random substrate and directed polymers in random environment. Different techniques are exposed, including the method of local times, large deviations, the lace expansion, generating functions, the method of excursions, ergodic theory, partial annealing estimates, coarse-graining techniques and martingales. Thus, this monograph offers a mathematical panorama of polymer chains, which even today holds plenty of challenges.

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Combinatorial Stochastic Processes - Jim Pitman - 2006-05-11

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