

Contents

<i>Preface</i>	vii
1. Random Systems with Covariance Inequalities	1
1 Basic definitions and simple examples	1
2 Classes of associated and related systems	17
3 Random measures	37
4 Association and probability measures on lattices	64
5 Further extensions of dependence notions	88
2. Moment and Maximal Inequalities	107
1 Bounds for partial sums in the L^p space	108
2 Results based on supermodular order	134
3 Rosenthal-type inequalities	143
4 Estimates for the distribution functions of partial maxima	160
3. Central Limit Theorem	169
1 Sufficient conditions for normal approximation	170
2 The Newman conjecture	197
3 Sharp rates of normal approximation	215
4. Almost Sure Convergence	229
1 Strong law of large numbers	229
2 Rate of convergence in the LLN	233
3 Almost sure Gaussian approximation	246
5. Invariance Principles	251
1 Weak invariance principle	251
2 Strong invariance principle	263

6.	Law of the Iterated Logarithm	283
1	Extensions of the classical LIL	283
2	Functional LIL	298
3	Law of a single logarithm	310
7.	Statistical Applications	319
1	Statistics involving random normalization	319
2	Kernel density estimation	338
3	Empirical processes	348
8.	Integral Functionals	353
1	Stationary associated measures	353
2	PDE with random initial data	366
3	Asymptotical behavior of transformed solutions of the Burgers equation	374
Appendix A	Auxiliary Statements	383
A.1	Extensions of the Hoeffding lemma	383
A.2	Markov processes. Background	385
A.3	Poisson spatial process	389
A.4	Electric currents	392
A.5	The Móricz theorem	395
A.6	Gaussian approximation	400
	<i>Bibliography</i>	411
	<i>Notation Index</i>	431
	<i>Subject Index</i>	433