60-XX Probability theory and stochastic processes

For additional applications, see 05Cxx, 11Kxx, 34-XX, 35-XX, 62-XX, 76-XX, 81-XX, 82-XX, 90-XX, 91-XX, 92-XX, 93-XX, 94-XX

60-00. General reference works (handbooks, dictionaries, bibliographies, etc.) from probability theory.
60-01. Introductory exposition (textbooks, tutorial papers, etc.) from probability theory.
60-02. Research exposition (monographs, survey articles) from probability theory.
60-03. History of probability theory *Consider also classification numbers from Section 01-XX.*
60-04. Software, source code, etc. for problems from probability theory.
60-06. Proceedings, conferences, collections, etc. from probability theory.
60-08. Computational methods for problems from probability theory.
60-11. Research data for problems from probability theory.

60Axx Foundations of probability theory

60A05. Axioms; other general questions in probability.
60A10. Probabilistic measure theory *For ergodic theory, see 28Dxx, 60Fxx.*
60A86. Fuzzy probability.
60A99. None of the above, but in this section.

60Bxx Probability theory on algebraic and topological structures

60B05. Probability measures on topological spaces.
60B10. Convergence of probability measures.
60B11. Probability theory on linear topological spaces *See also 28C20.*
60B12. Limit theorems for vector-valued random variables (infinite-dimensional case).
60B15. Probability measures on groups or semigroups, Fourier transforms, factorization.
60B20. Random matrices (probabilistic aspects) *For algebraic aspects, see 15B52.*
60B99. None of the above, but in this section.

60Cxx Combinatorial probability

60C05. Combinatorial probability.
60C99. None of the above, but in this section.

60Dxx Geometric probability and stochastic geometry

See also 52A22, 53C65.
60D05. Geometric probability and stochastic geometry.
60D99. None of the above, but in this section.

60Exx Distribution theory

See also 62Exx, 62Hxx.
60E05. Probability distributions: general theory.
60E07. Infinitely divisible distributions; stable distributions.
60E10. Characteristic functions; other transforms.
60E15. Inequalities; stochastic orderings.
60E99. None of the above, but in this section.

60Fxx Limit theorems in probability theory

See also 28Dxx, 60B12
60F05. Central limit and other weak theorems.
60F10. Large deviations.
60F15. Strong limit theorems.
60F17. Functional limit theorems; invariance principles.
60F20. Zero-one laws.
60F25. Lp-limit theorems.
60F99. None of the above, but in this section.

60Gxx Stochastic processes

60G05. Foundations of stochastic processes.
60G07. General theory of stochastic processes.
60G09. Exchangeability for stochastic processes.
60G10. Stationary stochastic processes.
60G12. General second-order stochastic processes.
60G15. Gaussian processes.
60G17. Sample path properties.
60G18. Self-similar stochastic processes.
60G20. Generalized stochastic processes.
60G22. Fractional processes, including fractional Brownian motion.
60G25. Prediction theory (aspects of stochastic processes) *See also 62M20.*
60G30. Continuity and singularity of induced measures.
60G35. Signal detection and filtering (aspects of stochastic processes) *See also 62M20, 93E10, 93E11, 94Axx.*
60G40. Stopping times; optimal stopping problems; gambling theory *See also 62L15, 91A60.*
60G42. Martingales with discrete parameter.
60G44. Martingales with continuous parameter.
60G46. Martingales and classical analysis.
60G48. Generalizations of martingales.
60G50. Sums of independent random variables; random walks.
60G51. Processes with independent increments; Lévy processes.
60G52. Stable stochastic processes.

60G53. Feller processes.
60G55. Point processes (e.g., Poisson, Cox, Hawkes processes).
60G57. Random measures.
60G60. Random fields.
60G65. Nonlinear processes (e.g., G-Brownian motion, G-Lévy processes).
60G70. Extreme value theory; extremal stochastic processes.
60G99. None of the above, but in this section.

60Hxx Stochastic analysis

See also 58J65

60H05. Stochastic integrals.
60H07. Stochastic calculus of variations and the Malliavin calculus.
60H10. Stochastic ordinary differential equations (aspects of stochastic analysis) *See also 34F05.*
60H15. Stochastic partial differential equations (aspects of stochastic analysis) *See also 35R60.*
60H17. Singular stochastic partial differential equations.
60H20. Stochastic integral equations.
60H25. Random operators and equations (aspects of stochastic analysis) *See also 47B80.*
60H30. Applications of stochastic analysis (to PDEs, etc.).
60H35. Computational methods for stochastic equations (aspects of stochastic analysis) *See also 65C30.*
60H40. White noise theory.
60H50. Regularization by noise.
60H99. None of the above, but in this section.

60Jxx Markov processes

60J05. Discrete-time Markov processes on general state spaces.
60J10. Markov chains (discrete-time Markov processes on discrete state spaces).
60J20. Applications of Markov chains and discrete-time Markov processes on general state spaces (social mobility, learning theory, industrial processes, etc.). *See also 90B30, 91D10, 91E40.*
60J22. Computational methods in Markov chains *See also 65C40.*
60J25. Continuous-time Markov processes on general state spaces.
60J27. Continuous-time Markov processes on discrete state spaces.
60J28. Applications of continuous-time Markov processes on discrete state spaces.
60J35. Transition functions, generators and resolvents *See also 47D03, 47D07.*
60J40. Right processes.
60J45. Probabilistic potential theory *See also 31Cxx, 31D05.*
60J46. Dirichlet form methods in Markov processes.
60J50. Boundary theory for Markov processes.
60J55. Local time and additive functionals.
60J57. Multiplicative functionals and Markov processes.
60J60. Diffusion processes *See also 58J65.*
60J65. Brownian motion *See also 58J65.*
60J67. Stochastic (Schramm-)Loewner evolution (SLE).
60J68. Superprocesses.
60J70. Applications of Brownian motions and diffusion theory (population genetics, absorption problems, etc.) *See also 92Dxx.*
60J75. Jump processes on discrete state spaces.
60J76. Jump processes on general state spaces.
60J80. Branching processes (Galton-Watson, birth-and-death, etc.).
60J85. Applications of branching processes *See also 92Dxx.*
60J90. Coalescent processes.
60J95. Applications of coalescent processes *See also 92Dxx.*
60J99. None of the above, but in this section.

60Kxx Special processes

60K05. Renewal theory.
60K10. Applications of renewal theory (reliability, demand theory, etc.).
60K15. Markov renewal processes, semi-Markov processes.
60K20. Applications of Markov renewal processes (reliability, queueing networks, etc.) *See also 90Bxx.*
60K25. Queueing theory (aspects of probability theory) *See also 68M20, 90B22.*
60K30. Applications of queueing theory (congestion, allocation, storage, traffic, etc.) *See also 90Bxx.*
60K35. Interacting random processes; statistical mechanics type models; percolation theory *See also 82B43, 82C43.*
60K37. Processes in random environments.
60K40. Other physical applications of random processes.
60K50. Anomalous diffusion models (subdiffusion, superdiffusion, continuous-time random walks, etc.) *See also 60G22, 60G55, 60J75. For applications to physics and the sciences, see 76-XX, 82Cxx, 92-XX.*
60K99. None of the above, but in this section.

60Lxx Rough analysis

60L10. Signatures and data streams.
60L20. Rough paths.
60L30. Regularity structures.
60L40. Paracontrolled distributions and alternative approaches.
60L50. Rough partial differential equations.
60L70. Algebraic structures and computation.
60L90. Applications of rough analysis.
60L99. None of the above, but in this section.