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Introduction To Stochastic Calculus With Applications (2nd Edition)
Stochastic Calculus for Fractional Brownian Motion and Applications
Stochastic Calculus and Financial Applications
Risk and Asset Allocation
Stochastic Calculus of Variations in Mathematical Finance
Stochastic Processes, Finance And Control: A Festschrift In Honor Of Robert J Elliott
Introduction to Stochastic Calculus with Applications
Stochastic Calculus

HOWARD PIERRE

Stochastic Optimization Models in Finance World Scientific Publishing Company
This book introduces key results essential for financial practitioners by means of concrete examples and a fully rigorous exposition.
Continuous Stochastic Calculus with Applications to Finance Elsevier
Stochastic Simulation and Applications in Finance with MATLAB Programs explains the fundamentals of Monte Carlo simulation techniques, their use in the numerical resolution of stochastic differential equations and their current applications in finance. Building on an integrated approach, it provides a pedagogical treatment of the need-to-know materials in risk management and financial engineering. The book takes readers through the basic concepts, covering the most recent research and problems in the area, including: the quadratic re-sampling technique, the Least Squared Method, the dynamic programming and Stratified State Aggregation technique to price American options, the extreme value simulation technique to price exotic options and the retrieval of volatility method to estimate Greeks. The authors also present modern term structure of interest rate models and pricing swaptions with the BGM market model, and give a full explanation of corporate securities valuation and credit risk based on the structural approach of Merton. Case studies on financial guarantees illustrate how to implement the simulation techniques in pricing and hedging. NOTE TO READER: The CD has been converted to URL. Go to the following website www.wiley.com/go/huyhnstochastic which provides MATLAB programs for the practical examples and case studies, which will give the reader confidence in using and adapting specific ways to solve problems involving stochastic processes in finance.
Stochastic Analysis for Finance with Simulations John Wiley & Sons
A reprint of one of the classic volumes on portfolio theory and investment, this book has been used by the leading professors at universities such as Stanford, Berkeley, and Carnegie-Mellon. It contains five parts, each with a review of the literature and about 150 pages of computational and review exercises and further in-depth, challenging problems.Frequently referenced and highly usable, the material remains as fresh and relevant for a portfolio theory course as ever.
Stochastic Calculus and Applications World Scientific
The prolonged boom in the US and European stock markets has led to increased interest in the mathematics of security markets, most notably in the theory of stochastic integration. This text gives a rigorous development of the theory of stochastic integration as it applies to the valuation of derivative securities. It includes all the tools necessar
Methods of Mathematical Finance Springer Science & Business Media
This book introduces the theory of stochastic processes with applications taken from physics and finance. Fundamental concepts like the random walk or Brownian motion but also Levy-stable distributions are discussed. Applications are selected to show the interdisciplinary character of the concepts and methods. In the second edition of the book a discussion of extreme events ranging from their mathematical definition to their importance for financial crashes was included. The exposition of basic notions of probability theory and the Brownian motion problem as well as the relation between conservative diffusion processes and quantum mechanics is expanded. The second edition also enlarges the treatment of financial markets. Beyond a presentation of geometric Brownian motion and the Black-Scholes approach to option pricing as well as the econophysics analysis of the stylized facts of financial markets, an introduction to agent based modeling approaches is given.
Stochastic Dominance and Applications to Finance, Risk and Economics Springer Science & Business Media
This monograph is a sequel to Brownian Motion and Stochastic Calculus by the same authors. Within the context of Brownian-motion- driven asset prices, it develops contingent claim pricing and optimal consumption/investment in both complete and incomplete markets. The latter topic is extended to a study of equilibrium, providing conditions for the existence and uniqueness of market prices which support trading by several heterogeneous agents. Although much of the incomplete-market material is available in research papers, these topics are treated for the first time in a unified manner. The book contains an extensive set of references and notes describing the field, including topics not treated in the text. This monograph should be of interest to researchers wishing to see advanced mathematics applied to finance. The material on optimal consumption and investment, leading to equilibrium, is addressed to the theoretical finance community. The chapters on contingent claim valuation present techniques of practical importance, especially for pricing exotic options. Also available by Ioannis Karatzas and Steven E. Shreve, Brownian Motion and Stochastic Calculus, Second Edition, Springer-Verlag New York, Inc., 1991, 470 pp., ISBN 0-387-97655-8.
Stochastic Analysis and Applications to Finance Cambridge University Press
Stochastic Finance: An Introduction with Market Examples presents an introduction to pricing and hedging in discrete and continuous time financial models without friction, emphasizing the complementarity of analytical and probabilistic methods. It demonstrates both the power and limitations of mathematical models in finance, covering the basics of finance and stochastic calculus, and builds up to special topics, such as options, derivatives, and credit default and jump processes. It details the techniques required to model the time evolution of risky assets. The book discusses a wide range of classical topics including Black–Scholes pricing, exotic and American options, term structure modeling and change of numéraire, as well as models with jumps. The author takes the approach adopted by mainstream mathematical finance in which the computation of fair prices is based on the absence of arbitrage hypothesis, therefore excluding riskless profit based on arbitrage opportunities and basic (buying low/selling high) trading. With 104 figures and simulations, along with about 20 examples based on actual market data, the book is targeted at the advanced undergraduate and graduate level, either as a course text or for self-study, in applied mathematics, financial engineering, and economics.

Stochastic Processes and Applications to Mathematical Finance World Scientific
Introduction to Stochastic Calculus with ApplicationsImperial College Press
Option Theory with Stochastic Analysis Springer
Taking continuous-time stochastic processes allowing for jumps as its starting and focal point, this book provides an accessible introduction to the stochastic calculus and control of semimartingales and explains the basic concepts of Mathematical Finance such as arbitrage theory, hedging, valuation principles, portfolio choice, and term structure modelling. It bridges thegap between introductory texts and the advanced literature in the field. Most textbooks on the subject are limited to diffusion-type models which cannot easily account for sudden price movements. Such abrupt changes, however, can often be observed in real markets. At the same time, purely discontinuous processes lead to a much wider variety of flexible and tractable models. This explains why processes with jumps have become an established tool in the statistics and mathematics of finance. Graduate students, researchers as well as practitioners will benefit from this monograph.
Backward Stochastic Differential Equations with Jumps and Their Actuarial and Financial Applications World Scientific
This book presents a concise treatment of stochastic calculus and its applications. It gives a simple but rigorous treatment of the subject including a range of advanced topics, it is useful for practitioners who use advanced theoretical results. It covers advanced applications, such as models in mathematical finance, biology and engineering.Self-contained and unified in presentation, the book contains many solved examples and exercises. It may be used as a textbook by advanced undergraduates and graduate students in stochastic calculus and financial mathematics. It is also suitable for practitioners who wish to gain an understanding or working knowledge of the subject. For mathematicians, this book could be a first text on stochastic calculus; it is good companion to more advanced texts by a way of examples and exercises. For people from other fields, it provides a way to gain a working knowledge of stochastic calculus. It shows all readers the applications of stochastic calculus methods and takes readers to the technical level required in research and sophisticated modelling.This second edition contains a new chapter on bonds, interest rates and their options. New materials include more worked out examples in all chapters, best estimators, more results on change of time, change of measure, random measures, new results on exotic options, FX options, stochastic and implied volatility, models of the age-dependent branching process and the stochastic Lotka-Volterra model in biology, non-linear filtering in engineering and five new figures.Instructors can obtain slides of the text from the author.
Lévy Processes and Stochastic Calculus Springer Science & Business Media
Pt. I. Stochastic analysis and systems. 1. Multidimensional Wick-Ito formula for Gaussian processes / D. Nualart and S. Ortiz-Latorre. 2. Fractional white noise multiplication / A.H. Tsoi. 3. Invariance principle of regime-switching diffusions / C. Zhu and G. Yin -- pt. II. Finance and stochastics. 4. Real options and competition / A. Bensoussan, J.D. Diltz and S.R. Hoe. 5. Finding expectations of monotone functions of binary random variables by simulation, with applications to reliability, finance, and round robin tournaments / M. Brown, E.A. Pekoz and S.M. Ross. 6. Filtering with counting process observations and other factors : applications to bond price tick data / X. Hu, D.R. Kuipers and Y. Zeng. 7. Jump bond markets some steps towards general models in applications to hedging and utility problems / M. Kohlmann and D. Xiong. 8. Recombining tree for regime-switching model : algorithm and weak convergence / R.H. Liu. 9. Optimal reinsurance under a jump diffusion model / S. Luo. 10. Applications of counting processes and martingales in survival analysis / J. Sun. 11. Stochastic algorithms and numerics for mean-reverting asset trading / Q. Zhang, C. Zhuang and G. Yin
Stochastic Calculus for Finance I American Mathematical Soc.
This book contains 17 articles on stochastic processes (stochastic calculus and Malliavin calculus, functionals of Brownian motions and Lévy processes, stochastic control and optimization problems, stochastic numerics, and so on) and their applications to problems in mathematical finance.The proceedings have been selected for coverage in:• Index to Scientific & Technical Proceedings® (ISTP® / ISI Proceedings)• Index to Scientific & Technical Proceedings (ISTP CDROM version / ISI Proceedings)• Index to Social Sciences & Humanities Proceedings® (ISSHP® / ISI Proceedings)• Index to Social Sciences & Humanities Proceedings (ISSHP CDROM version / ISI Proceedings)• CC Proceedings — Engineering & Physical Sciences
Mathematical Finance World Scientific
This volume contains the contributions to a conference that is among the most important meetings in financial mathematics. Serving as a bridge between probabilists in Japan (called the Ito School and known for its highly sophisticated mathematics) and mathematical finance and financial engineering, the conference elicits the very highest quality papers in the field of financial mathematics.
Stochastic Processes CRC Press
Drawing from many sources in the literature, Stochastic Dominance and Applications to Finance, Risk and Economics illustrates how stochastic dominance (SD) can be used as a method for risk assessment in decision making. It provides basic background on SD for various areas of applications. Useful Concepts and Techniques for Economics ApplicationsThe
Stochastic Finance John Wiley & Sons
Stochastic optimization problems arise in decision-making problems under uncertainty, and find various applications in economics and finance. On the other hand, problems in finance have recently led to new developments in the theory of stochastic control. This volume provides a systematic treatment of stochastic optimization problems applied to finance by presenting the different existing methods: dynamic programming, viscosity solutions, backward stochastic differential equations, and martingale duality methods. The theory is discussed in the context of recent developments in this field, with complete and detailed proofs, and is illustrated by means of concrete examples from the world of finance: portfolio allocation, option hedging, real options, optimal investment, etc. This book is directed towards graduate students and researchers in mathematical finance, and will also benefit applied mathematicians interested in financial applications and practitioners wishing to know more about the use of stochastic optimization methods in finance.
Continuous-time Stochastic Control and Optimization with Financial Applications Introduction to Stochastic Calculus with Applications
Stochastic calculus has important applications to mathematical finance. This book will appeal to practitioners and students who

want an elementary introduction to these areas. From the reviews: "As the preface says, ‘This is a text with an attitude, and it is designed to reflect, wherever possible and appropriate, a prejudice for the concrete over the abstract’. This is also reflected in the style of writing which is unusually lively for a mathematics book." --ZENTRALBLATT MATH

Elementary Stochastic Calculus with Finance in View Springer

This book contains articles on stochastic processes (stochastic calculus and Malliavin calculus, functionals of Brownian motions and Levy processes, stochastic control and optimization problems, stochastic numerics, and so on) and their applications to problems in mathematical finance. Examples of topics are applications of Malliavin calculus and numerical analysis to a new simulation scheme for calculating the price of financial derivatives, applications of the asymptotic expansion method in Malliavin calculus to financial problems, semimartingale decompositions under an enlargement of filtrations in connection with insider problems, and the problem of transaction costs in connection with stochastic control and optimization problems.

Brownian Motion and Stochastic Calculus Springer Science & Business Media

This book provides a comprehensive account of stochastic filtering as a modeling tool in finance and economics. It aims to present this very important tool with a view to making it more popular among researchers in the disciplines of finance and economics. It is not intended to give a complete mathematical treatment of different stochastic filtering approaches, but rather to describe them in simple terms and illustrate their application with real historical data for problems normally encountered in these disciplines. Beyond laying out the steps to be implemented, the steps are demonstrated in the context of different market segments. Although no prior knowledge in this area is required, the reader is expected to have knowledge of probability theory as well as a general mathematical aptitude. Its simple presentation of complex algorithms required to solve modeling problems in increasingly sophisticated financial markets makes this book particularly valuable as a reference for graduate students and researchers interested in the field. Furthermore, it analyses the model estimation results in the context of the market and contrasts these with contemporary research publications. It is also suitable for use as a text for graduate level courses on stochastic modeling.

Stochastic Processes with Applications to Finance Springer Science & Business Media

This book provides a comprehensive introduction to the theory of stochastic calculus and some of its applications. It is the only textbook on the subject to include more than two hundred exercises with complete solutions. After explaining the basic elements of probability, the author introduces more advanced topics such as Brownian motion, martingales and Markov processes. The core of the book covers stochastic calculus, including stochastic differential equations, the relationship to partial differential equations, numerical methods and simulation, as well as applications of stochastic processes to finance. The final chapter provides detailed solutions to all exercises, in some cases presenting various solution techniques together with a discussion of advantages and drawbacks of the methods used. Stochastic Calculus will be particularly useful to advanced undergraduate and graduate students wishing to acquire a solid understanding of the subject through the theory and exercises. Including full mathematical statements and rigorous proofs, this book is completely self-contained and suitable for lecture courses as well as self-study.

Mathematical Modeling in Economics and Finance: Probability, Stochastic Processes, and Differential Equations World Scientific

This book gives a systematic introduction to the basic theory of financial mathematics, with an emphasis on applications of martingale methods in pricing and hedging of contingent claims, interest rate term structure models, and expected utility maximization problems. The general theory of static risk measures, basic concepts and results on markets of semimartingale model, and a numeraire-free and original probability based framework for financial markets are also included. The basic theory of probability and Ito's theory of stochastic analysis, as preliminary knowledge, are presented.