

Mathematics Of Investment Credit Solutions Manual

This textbook provides an introduction to financial mathematics and financial engineering for undergraduate students who have completed a three- or four-semester sequence of calculus courses. It introduces the Theory of Interest, discrete and continuous random variables and probability, stochastic processes, linear programming, the Fundamental Theorem of Finance, option pricing, hedging, and portfolio optimization. The reader progresses from a solid grounding in multi-variable calculus through a derivation of the Black–Scholes equation, its solution, properties, and applications. This book introduces readers to the financial markets, derivatives, structured products and how the products are modelled and implemented by practitioners. In addition, it equips readers with the necessary knowledge of financial markets needed in order to work as product structurers, traders, sales or risk managers. As the book seeks to unify the derivatives modelling and the financial engineering practice in the market, it will be of interest to financial practitioners and academic researchers alike. Further, it takes a different route from the existing financial mathematics books, and will appeal to students and practitioners with or without a scientific background. The book can also be used as a textbook for the following courses:

- Financial Mathematics (undergraduate level)
- Stochastic Modelling in Finance (postgraduate level)
- Financial Markets and Derivatives

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(undergraduate level) • Structured Products and Solutions (undergraduate/postgraduate level)

Principles of Financial Engineering, Third Edition, is a highly acclaimed text on the fast-paced and complex subject of financial engineering. This updated edition describes the "engineering" elements of financial engineering instead of the mathematics underlying it. It shows how to use financial tools to accomplish a goal rather than describing the tools themselves. It lays emphasis on the engineering aspects of derivatives (how to create them) rather than their pricing (how they act) in relation to other instruments, the financial markets, and financial market practices. This volume explains ways to create financial tools and how the tools work together to achieve specific goals. Applications are illustrated using real-world examples. It presents three new chapters on financial engineering in topics ranging from commodity markets to financial engineering applications in hedge fund strategies, correlation swaps, structural models of default, capital structure arbitrage, contingent convertibles, and how to incorporate counterparty risk into derivatives pricing. Poised midway between intuition, actual events, and financial mathematics, this book can be used to solve problems in risk management, taxation, regulation, and above all, pricing. A solutions manual enhances the text by presenting additional cases and solutions to exercises. This latest edition of Principles of Financial Engineering is ideal for financial engineers, quantitative analysts in banks and investment houses, and other financial industry professionals. It is also highly recommended to graduate students in financial

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engineering and financial mathematics programs. The Third Edition presents three new chapters on financial engineering in commodity markets, financial engineering applications in hedge fund strategies, correlation swaps, structural models of default, capital structure arbitrage, contingent convertibles and how to incorporate counterparty risk into derivatives pricing, among other topics. Additions, clarifications, and illustrations throughout the volume show these instruments at work instead of explaining how they should act. The solutions manual enhances the text by presenting additional cases and solutions to exercises.

NEW YORK TIMES BESTSELLER Shortlisted for the Financial Times/McKinsey Business Book of the Year Award. The unbelievable story of a secretive mathematician who pioneered the era of the algorithm--and made \$23 billion doing it. Jim Simons is the greatest money maker in modern financial history. No other investor--Warren Buffett, Peter Lynch, Ray Dalio, Steve Cohen, or George Soros--can touch his record. Since 1988, Renaissance's signature Medallion fund has generated average annual returns of 66 percent. The firm has earned profits of more than \$100 billion; Simons is worth twenty-three billion dollars. Drawing on unprecedented access to Simons and dozens of current and former employees, Zuckerman, a veteran Wall Street Journal investigative reporter, tells the gripping story of how a world-class mathematician and former code breaker mastered the market. Simons pioneered a data-driven, algorithmic approach that's sweeping the world. As Renaissance became a market

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force, its executives began influencing the world beyond finance. Simons became a major figure in scientific research, education, and liberal politics. Senior executive Robert Mercer is more responsible than anyone else for the Trump presidency, placing Steve Bannon in the campaign and funding Trump's victorious 2016 effort. Mercer also impacted the campaign behind Brexit. *The Man Who Solved the Market* is a portrait of a modern-day Midas who remade markets in his own image, but failed to anticipate how his success would impact his firm and his country. It's also a story of what Simons's revolution means for the rest of us.

The First Collection That Covers This Field at the Dynamic Strategic and One-Period Tactical Levels Addressing the imbalance between research and practice, *Quantitative Fund Management* presents leading-edge theory and methods, along with their application in practical problems encountered in the fund management industry. *A Current Snapshot of State-of-the-Art Applications of Dynamic Stochastic Optimization Techniques to Long-Term Financial Planning* The first part of the book initially looks at how the quantitative techniques of the equity industry are shifting from basic Markowitz mean-variance portfolio optimization to risk management and trading applications. This section also explores novel aspects of lifetime individual consumption investment problems, fixed-mix portfolio rebalancing allocation strategies, debt management for funding mortgages and national debt, and guaranteed return fund construction. *Up-to-Date Overview of Tactical Financial Planning and Risk Management* The second

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section covers nontrivial computational approaches to tactical fund management. This part focuses on portfolio construction and risk management at the individual security or fund manager level over the period up to the next portfolio rebalance. It discusses non-Gaussian returns, new risk-return tradeoffs, and the robustness of benchmarks and portfolio decisions. The Future Use of Quantitative Techniques in Fund Management With contributions from well-known academics and practitioners, this volume will undoubtedly foster the recognition and wider acceptance of stochastic optimization techniques in financial practice.

Using a variety of theoretical frameworks drawn from the social sciences, the contributions in this edited collection offer a critical perspective on the dominant paradigms used in contemporary financial activities. Through a detailed study of the organisation and functioning of financial intermediaries and institutions, the contributors to this volume analyse 'finance in the making', by shedding light on the structuring of banking and financial systems, on their capacity to prescribe action and control, on their modes of regulation and, more generally, on the process of financialisation.

Contributions presented in this volume have been written by authors working within the 'social studies of finance' tradition, a research programme that emerged twenty years ago, with the aim of addressing a diversity of financial fieldworks and related theoretical questions. This book, therefore, sheds light on different areas that are representative of contemporary financial realities. Specifically, it first studies the work of financial

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employees: traders, salespeople, investment managers, financial analysts, investment consultants, etc. but also provides an analysis of a range of financial instruments: financial schemes and contracts, financial derivatives, socially responsible investment funds, as well as market rules and regulations. Finally, it puts into perspective the organisations contributing to this financial reality: those developing and selling financial services (retail banks, brokerage houses, asset management firms, private equity firms, etc.), and also those contributing to the regulation of such activities (banking regulators, financial market authorities, credit rating agencies, the State, to name a few). Each text can be read without any specific knowledge of finance; the book is thus addressed to anyone willing to better understand the intricacies of contemporary financial realities.

Mathematics of Investment and Credit is a leading textbook covering the topic of interest theory. It is the required or recommended text in many college and university courses on this topic, as well as for Exam FM. This text provides a thorough treatment of the theory of interest, and its application to a wide variety of financial instruments. It emphasizes a direct-calculation approach to reaching numerical results, and uses a gentle, thorough pedagogic style. This text includes detailed treatments of the term structure of interest rates, forward contracts of various types, interest rate swaps, financial options, and option strategies. Key formulas and definitions are highlighted. Real world current events are included to demonstrate key concepts. The text contains a large number of worked examples and end-of-chapter

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exercises. The New Sixth Edition includes updates driven by the upcoming changes for the learning objectives for Exam FM, updated examples and exercises and some exposition improvements. The topic of duration has been revamped in Chapter 7 and expanded treatment of determinants of interest rates in Chapter 8.

A comprehensive text and reference, first published in 2002, on the theory of financial engineering with numerous algorithms for pricing, risk management, and portfolio management.

This book's primary objective is to educate aspiring finance professionals about mathematics and computation in the context of financial derivatives. The authors offer a balance of traditional coverage and technology to fill the void between highly mathematical books and broad finance books. The focus of this book is twofold: To partner mathematics with corresponding intuition rather than diving so deeply into the mathematics that the material is inaccessible to many readers. To build reader intuition, understanding and confidence through three types of computer applications that help the reader understand the mathematics of the models. Unlike many books on financial derivatives requiring stochastic calculus, this book presents the fundamental theories based on only undergraduate probability knowledge. A key feature of this book is its focus on applying models in three programming languages -R, Mathematica and EXCEL. Each of the three approaches offers unique advantages. The computer applications are carefully introduced and

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require little prior programming background. The financial derivative models that are included in this book are virtually identical to those covered in the top financial professional certificate programs in finance. The overlap of financial models between these programs and this book is broad and deep.

Written by the Founder and CEO of the prestigious New York School of Finance, this book schools you in the fundamental tools for accurately assessing the soundness of a stock investment. Built around a full-length case study of Wal-Mart, it shows you how to perform an in-depth analysis of that company's financial standing, walking you through all the steps of developing a sophisticated financial model as done by professional Wall Street analysts. You will construct a full scale financial model and valuation step-by-step as you page through the book. When we ran this analysis in January of 2012, we estimated the stock was undervalued. Since the first run of the analysis, the stock has increased 35 percent. Re-evaluating Wal-Mart 9 months later, we will step through the techniques utilized by Wall Street analysts to build models on and properly value business entities. Step-by-step financial modeling - taught using downloadable Wall Street models, you will construct the model step by step as you page through the book. Hot keys and explicit Excel instructions aid even the novice excel modeler. Model built complete with Income Statement, Cash Flow Statement, Balance Sheet, Balance Sheet Balancing Techniques, Depreciation Schedule (complete with accelerating depreciation and deferring taxes), working capital schedule, debt

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schedule, handling circular references, and automatic debt pay downs. Illustrative concepts including detailing model flows help aid in conceptual understanding. Concepts are reiterated and honed, perfect for a novice yet detailed enough for a professional. Model built direct from Wal-Mart public filings, searching through notes, performing research, and illustrating techniques to formulate projections. Includes in-depth coverage of valuation techniques commonly used by Wall Street professionals. Illustrative comparable company analyses - built the right way, direct from historical financials, calculating LTM (Last Twelve Month) data, calendarization, and properly smoothing EBITDA and Net Income. Precedent transactions analysis - detailing how to extract proper metrics from relevant proxy statements Discounted cash flow analysis - simplifying and illustrating how a DCF is utilized, how unlevered free cash flow is derived, and the meaning of weighted average cost of capital (WACC) Step-by-step we will come up with a valuation on Wal-Mart Chapter end questions, practice models, additional case studies and common interview questions (found in the companion website) help solidify the techniques honed in the book; ideal for universities or business students looking to break into the investment banking field. Quantitative equity portfolio management combines theories and advanced techniques from several disciplines, including financial economics, accounting, mathematics, and operational research. While many texts are devoted to these disciplines, few deal with quantitative equity investing in a systematic and

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mathematical framework that is suitable for quantitative investment students. Providing a solid foundation in the subject, *Quantitative Equity Portfolio Management: Modern Techniques and Applications* presents a self-contained overview and a detailed mathematical treatment of various topics. From the theoretical basis of behavior finance to recently developed techniques, the authors review quantitative investment strategies and factors that are commonly used in practice, including value, momentum, and quality, accompanied by their academic origins. They present advanced techniques and applications in return forecasting models, risk management, portfolio construction, and portfolio implementation that include examples such as optimal multi-factor models, contextual and nonlinear models, factor timing techniques, portfolio turnover control, Monte Carlo valuation of firm values, and optimal trading. In many cases, the text frames related problems in mathematical terms and illustrates the mathematical concepts and solutions with numerical and empirical examples. Ideal for students in computational and quantitative finance programs, *Quantitative Equity Portfolio Management* serves as a guide to combat many common modeling issues and provides a rich understanding of portfolio management using mathematical analysis.

This book provides a comprehensive introduction to actuarial mathematics, covering both deterministic and stochastic models of life contingencies, as well as more advanced topics such as risk theory, credibility theory and multi-state models. This new edition includes

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additional material on credibility theory, continuous time multi-state models, more complex types of contingent insurances, flexible contracts such as universal life, the risk measures VaR and TVaR. Key Features: Covers much of the syllabus material on the modeling examinations of the Society of Actuaries, Canadian Institute of Actuaries and the Casualty Actuarial Society. (SOA-CIA exams MLC and C, CSA exams 3L and 4.) Extensively revised and updated with new material. Orders the topics specifically to facilitate learning. Provides a streamlined approach to actuarial notation. Employs modern computational methods. Contains a variety of exercises, both computational and theoretical, together with answers, enabling use for self-study. An ideal text for students planning for a professional career as actuaries, providing a solid preparation for the modeling examinations of the major North American actuarial associations. Furthermore, this book is highly suitable reference for those wanting a sound introduction to the subject, and for those working in insurance, annuities and pensions.

By combining algebraic and graphical approaches with practical business and personal finance applications, South-Western's FINANCIAL ALGEBRA, motivates high school students to explore algebraic thinking patterns and functions in a financial context. FINANCIAL ALGEBRA will help your students achieve success by offering an applications based learning approach incorporating Algebra I, Algebra II, and Geometry topics. Authors Gerver and Sgroi have spent more than 25 years working with students of all ability levels and they

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have found the most success when connecting math to the real world. FINANCIAL ALGEBRA encourages students to be actively involved in applying mathematical ideas to their everyday lives. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. This is an undergraduate textbook on the basic aspects of personal savings and investing with a balanced mix of mathematical rigor and economic intuition. It uses routine financial calculations as the motivation and basis for tools of elementary real analysis rather than taking the latter as given. Proofs using induction, recurrence relations and proofs by contradiction are covered. Inequalities such as the Arithmetic-Geometric Mean Inequality and the Cauchy-Schwarz Inequality are used. Basic topics in probability and statistics are presented. The student is introduced to elements of saving and investing that are of life-long practical use. These include savings and checking accounts, certificates of deposit, student loans, credit cards, mortgages, buying and selling bonds, and buying and selling stocks. The book is self contained and accessible. The authors follow a systematic pattern for each chapter including a variety of examples and exercises ensuring that the student deals with realities, rather than theoretical idealizations. It is suitable for courses in mathematics, investing, banking, financial engineering, and related topics. With the immediacy of today's NASDAQ close and the timeless power of a Greek tragedy, *The Quants* is at once a masterpiece of explanatory journalism, a gripping tale of ambition and hubris, and an ominous warning

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about Wall Street's future. In March of 2006, four of the world's richest men sipped champagne in an opulent New York hotel. They were preparing to compete in a poker tournament with million-dollar stakes, but those numbers meant nothing to them. They were accustomed to risking billions. On that night, these four men and their cohorts were the new kings of Wall Street. Muller, Griffin, Asness, and Weinstein were among the best and brightest of a new breed, the quants. Over the prior twenty years, this species of math whiz--technocrats who make billions not with gut calls or fundamental analysis but with formulas and high-speed computers--had usurped the testosterone-fueled, kill-or-be-killed risk-takers who'd long been the alpha males the world's largest casino. The quants helped create a digitized money-trading machine that could shift billions around the globe with the click of a mouse. Few realized, though, that in creating this unprecedented machine, men like Muller, Griffin, Asness and Weinstein had sowed the seeds for history's greatest financial disaster. Drawing on unprecedented access to these four number-crunching titans, *The Quants* tells the inside story of what they thought and felt in the days and weeks when they helplessly watched much of their net worth vaporize--and wondered just how their mind-bending formulas and genius-level IQ's had led them so wrong, so fast.

Praise for *How I Became a Quant* "Led by two top-notch quants, Richard R. Lindsey and Barry Schachter, *How I Became a Quant* details the quirky world of quantitative analysis through stories told by some of today's most

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successful quants. For anyone who might have thought otherwise, there are engaging personalities behind all that number crunching!" --Ira Kawaller, Kawaller & Co. and the Kawaller Fund "A fun and fascinating read. This book tells the story of how academics, physicists, mathematicians, and other scientists became professional investors managing billions." --David A. Krell, President and CEO, International Securities Exchange "How I Became a Quant should be must reading for all students with a quantitative aptitude. It provides fascinating examples of the dynamic career opportunities potentially open to anyone with the skills and passion for quantitative analysis." --Roy D. Henriksson, Chief Investment Officer, Advanced Portfolio Management "Quants"--those who design and implement mathematical models for the pricing of derivatives, assessment of risk, or prediction of market movements--are the backbone of today's investment industry. As the greater volatility of current financial markets has driven investors to seek shelter from increasing uncertainty, the quant revolution has given people the opportunity to avoid unwanted financial risk by literally trading it away, or more specifically, paying someone else to take on the unwanted risk. How I Became a Quant reveals the faces behind the quant revolution, offering you the chance to learn firsthand what it's like to be a quant today. In this fascinating collection of Wall Street war stories, more than two dozen quants detail their roots, roles, and contributions, explaining what they do and how they do it, as well as outlining the sometimes unexpected paths they have

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followed from the halls of academia to the front lines of an investment revolution.

Although portfolio management didn't change much during the 40 years after the seminal works of Markowitz and Sharpe, the development of risk budgeting techniques marked an important milestone in the deepening of the relationship between risk and asset management. Risk parity then became a popular financial model of investment after the global financial crisis in 2008. Today, pension funds and institutional investors are using this approach in the development of smart indexing and the redefinition of long-term investment policies. Written by a well-known expert of asset management and risk parity, *Introduction to Risk Parity and Budgeting* provides an up-to-date treatment of this alternative method to Markowitz optimization. It builds financial exposure to equities and commodities, considers credit risk in the management of bond portfolios, and designs long-term investment policy. The first part of the book gives a theoretical account of portfolio optimization and risk parity. The author discusses modern portfolio theory and offers a comprehensive guide to risk budgeting. Each chapter in the second part presents an application of risk parity to a specific asset class. The text covers risk-based equity indexation (also called smart beta) and shows how to use risk budgeting techniques to manage bond portfolios. It also explores alternative investments, such as commodities and hedge funds, and applies risk parity techniques to multi-asset classes. The book's first appendix provides technical materials on optimization

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problems, copula functions, and dynamic asset allocation. The second appendix contains 30 tutorial exercises. Solutions to the exercises, slides for instructors, and Gauss computer programs to reproduce the book's examples, tables, and figures are available on the author's website.

Glencoe Mathematics for Business and Personal Finance: The Latest in Technology! Relevant - Convenient - Adaptable!

Everything you need to know in order to manage risk effectively within your organization You cannot afford to ignore the explosion in mathematical finance in your quest to remain competitive. This exciting branch of mathematics has very direct practical implications: when a new model is tested and implemented it can have an immediate impact on the financial environment. With risk management top of the agenda for many organizations, this book is essential reading for getting to grips with the mathematical story behind the subject of financial risk management. It will take you on a journey—from the early ideas of risk quantification up to today's sophisticated models and approaches to business risk management. To help you investigate the most up-to-date, pioneering developments in modern risk management, the book presents statistical theories and shows you how to put statistical tools into action to investigate areas such as the design of mathematical models for financial volatility or calculating the value at risk for an investment portfolio. Respected academic author Simon Hubbert is the youngest director of a financial engineering program in the U.K. He brings his industry experience to his

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practical approach to risk analysis Captures the essential mathematical tools needed to explore many common risk management problems Website with model simulations and source code enables you to put models of risk management into practice Plunges into the world of high-risk finance and examines the crucial relationship between the risk and the potential reward of holding a portfolio of risky financial assets This book is your one-stop-shop for effective risk management.

This book provides a thorough understanding of the fundamental concepts of financial mathematics essential for the evaluation of any financial product and instrument. Mastering concepts of present and future values of streams of cash flows under different interest rate environments is core for actuaries and financial economists. This book covers the body of knowledge required by the Society of Actuaries (SOA) for its Financial Mathematics (FM) Exam. The third edition includes major changes such as an addition of an 'R Laboratory' section in each chapter, except for Chapter 9. These sections provide R codes to do various computations, which will facilitate students to apply conceptual knowledge. Additionally, key definitions have been revised and the theme structure has been altered. Students studying undergraduate courses on financial mathematics for actuaries will find this book useful. This book offers numerous examples and exercises, some of which are adapted from previous SOA FM Exams. It is also useful for students preparing for the actuarial professional exams through self-study.

Optimization models play an increasingly important role

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in financial decisions. This is the first textbook devoted to explaining how recent advances in optimization models, methods and software can be applied to solve problems in computational finance more efficiently and accurately. Chapters discussing the theory and efficient solution methods for all major classes of optimization problems alternate with chapters illustrating their use in modeling problems of mathematical finance. The reader is guided through topics such as volatility estimation, portfolio optimization problems and constructing an index fund, using techniques such as nonlinear optimization models, quadratic programming formulations and integer programming models respectively. The book is based on Master's courses in financial engineering and comes with worked examples, exercises and case studies. It will be welcomed by applied mathematicians, operational researchers and others who work in mathematical and computational finance and who are seeking a text for self-learning or for use with courses.

An introduction to computational complexity theory, its connections and interactions with mathematics, and its central role in the natural and social sciences, technology, and philosophy *Mathematics and Computation* provides a broad, conceptual overview of computational complexity theory—the mathematical study of efficient computation. With important practical applications to computer science and industry, computational complexity theory has evolved into a highly interdisciplinary field, with strong links to most mathematical areas and to a growing number of scientific endeavors. Avi Wigderson takes a sweeping survey of complexity theory, emphasizing the field's insights and challenges. He explains the ideas and motivations leading to

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key models, notions, and results. In particular, he looks at algorithms and complexity, computations and proofs, randomness and interaction, quantum and arithmetic computation, and cryptography and learning, all as parts of a cohesive whole with numerous cross-influences. Wigderson illustrates the immense breadth of the field, its beauty and richness, and its diverse and growing interactions with other areas of mathematics. He ends with a comprehensive look at the theory of computation, its methodology and aspirations, and the unique and fundamental ways in which it has shaped and will further shape science, technology, and society. For further reading, an extensive bibliography is provided for all topics covered. Mathematics and Computation is useful for undergraduate and graduate students in mathematics, computer science, and related fields, as well as researchers and teachers in these fields. Many parts require little background, and serve as an invitation to newcomers seeking an introduction to the theory of computation. Comprehensive coverage of computational complexity theory, and beyond High-level, intuitive exposition, which brings conceptual clarity to this central and dynamic scientific discipline Historical accounts of the evolution and motivations of central concepts and models A broad view of the theory of computation's influence on science, technology, and society Extensive bibliography

This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality

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reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Longlisted for the National Book Award New York Times Bestseller A former Wall Street quant sounds an alarm on the mathematical models that pervade modern life -- and threaten to rip apart our social fabric We live in the age of the algorithm. Increasingly, the decisions that affect our lives--where we go to school, whether we get a car loan, how much we pay for health insurance--are being made not by humans, but by mathematical models. In theory, this should lead to greater fairness: Everyone is judged according to the same rules, and bias is eliminated. But as Cathy O'Neil reveals in this urgent and necessary book, the opposite is true. The models being used today are opaque, unregulated, and uncontestable, even when they're wrong. Most troubling, they reinforce discrimination: If a poor student can't get a loan because a lending model deems him too risky (by virtue of his zip code), he's then cut off from the kind of education that could pull him out of poverty, and a vicious spiral ensues. Models are propping up the lucky and punishing the downtrodden, creating a "toxic cocktail for democracy." Welcome to the dark side of Big Data. Tracing the arc of a person's life, O'Neil exposes the black box models that shape our future, both as individuals and as a society. These "weapons of math destruction" score teachers and students, sort r sum s, grant (or deny) loans, evaluate workers, target voters, set parole, and monitor our health. O'Neil calls on modelers to take more responsibility for their algorithms and on policy makers to regulate their use. But in the end, it's up to us to become more savvy about the models that govern

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our lives. This important book empowers us to ask the tough questions, uncover the truth, and demand change. -- Longlist for National Book Award (Non-Fiction) -- Goodreads, semi-finalist for the 2016 Goodreads Choice Awards (Science and Technology) -- Kirkus, Best Books of 2016 -- New York Times, 100 Notable Books of 2016 (Non-Fiction) -- The Guardian, Best Books of 2016 -- WBUR's "On Point," Best Books of 2016: Staff Picks -- Boston Globe, Best Books of 2016, Non-Fiction

Quantitative Methods for Finance and Investments ensures that readers come away from reading it with a reasonable degree of comfort and proficiency in applying elementary mathematics to several types of financial analysis. All of the methodology in this book is geared toward the development, implementation, and analysis of financial models to solve financial problems.

This master's-level introduction to mainstream credit risk modelling balances rigorous theory with real-world, post-credit crisis examples.

International Finance presents the corporate uses of international financial markets to upper undergraduate and graduate students of business finance and financial economics. Combining practical knowledge, up-to-date theories, and real-world applications, this textbook explores issues of valuation, funding, and risk management.

International Finance shows how theoretical applications can be brought into managerial practice. The text includes an extensive introduction followed by three main sections: currency markets; exchange risk, exposure, and risk management; and long-term international funding and direct investment. Each section begins with a short case study, and each of the sections' chapters concludes with a CFO summary, examining how a hypothetical chief financial officer might apply topics to a managerial setting. The book also

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contains end-of-chapter questions to help students grasp the material presented. Focusing on international markets and multinational corporate finance, International Finance is the go-to resource for students seeking a complete understanding of the field. Rigorous focus on international financial markets and corporate finance concepts An up-to-date and practice-oriented approach Strong real-world examples and applications Comprehensive look at valuation, funding, and risk management Introductory case studies and "CFO summaries," and end-of-chapter quiz questions Solutions to the quiz questions are available online This book has been named as a reference for the Society of Actuaries Exam FM and the Casualty Actuarial Society Exam 2. It is also listed in the Course of Reading for the EA-1 examination of the Joint Board for the Enrollment of Actuaries. Mathematics of Investment and Credit is a leading textbook covering the topic of interest theory. It is the required or recommended text in many college and university courses on this topic, as well as for Exam FM/2. This text provides a thorough treatment of the theory of interest, and its application to a wide variety of financial instruments. It emphasizes a direct-calculation approach to reaching numerical results, and uses a gentle, thorough pedagogic style. This text includes detailed treatments of the term structure of interest rates, forward contracts of various types, interest rate swaps and financial options and option strategies. Key formulas and definitions are highlighted. Real world current events are included to demonstrate key concepts. The text contains a large number of worked examples and end-of-chapter exercises. The Fifth Edition includes expanded coverage of forwards, futures, swaps and options in order to address the Learning Objectives for the financial mathematics component of Exam FM/2.

This textbook aims to fill the gap between those that offer a

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theoretical treatment without many applications and those that present and apply formulas without appropriately deriving them. The balance achieved will give readers a fundamental understanding of key financial ideas and tools that form the basis for building realistic models, including those that may become proprietary. Numerous carefully chosen examples and exercises reinforce the student's conceptual understanding and facility with applications. The exercises are divided into conceptual, application-based, and theoretical problems, which probe the material deeper. The book is aimed toward advanced undergraduates and first-year graduate students who are new to finance or want a more rigorous treatment of the mathematical models used within. While no background in finance is assumed, prerequisite math courses include multivariable calculus, probability, and linear algebra. The authors introduce additional mathematical tools as needed. The entire textbook is appropriate for a single year-long course on introductory mathematical finance. The self-contained design of the text allows for instructor flexibility in topics courses and those focusing on financial derivatives. Moreover, the text is useful for mathematicians, physicists, and engineers who want to learn finance via an approach that builds their financial intuition and is explicit about model building, as well as business school students who want a treatment of finance that is deeper but not overly theoretical.

From the reviews: "Paul Glasserman has written an astonishingly good book that bridges financial engineering and the Monte Carlo method. The book will appeal to graduate students, researchers, and most of all, practicing financial engineers [...] So often, financial engineering texts are very theoretical. This book is not." --Glyn Holton, Contingency Analysis

Machine learning (ML) is progressively reshaping the fields of

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quantitative finance and algorithmic trading. ML tools are increasingly adopted by hedge funds and asset managers, notably for alpha signal generation and stocks selection. The technicality of the subject can make it hard for non-specialists to join the bandwagon, as the jargon and coding requirements may seem out of reach. Machine Learning for Factor Investing: R Version bridges this gap. It provides a comprehensive tour of modern ML-based investment strategies that rely on firm characteristics. The book covers a wide array of subjects which range from economic rationales to rigorous portfolio back-testing and encompass both data processing and model interpretability. Common supervised learning algorithms such as tree models and neural networks are explained in the context of style investing and the reader can also dig into more complex techniques like autoencoder asset returns, Bayesian additive trees, and causal models. All topics are illustrated with self-contained R code samples and snippets that are applied to a large public dataset that contains over 90 predictors. The material, along with the content of the book, is available online so that readers can reproduce and enhance the examples at their convenience. If you have even a basic knowledge of quantitative finance, this combination of theoretical concepts and practical illustrations will help you learn quickly and deepen your financial and technical expertise.

Mathematics and Statistics for Financial Risk Management is a practical guide to modern financial risk management for both practitioners and academics. Now in its second edition with more topics, more sample problems and more real world examples, this popular guide to financial risk management introduces readers to practical quantitative techniques for analyzing and managing financial risk. In a concise and easy-to-read style, each chapter introduces a different topic in mathematics or statistics. As different techniques are

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introduced, sample problems and application sections demonstrate how these techniques can be applied to actual risk management problems. Exercises at the end of each chapter and the accompanying solutions at the end of the book allow readers to practice the techniques they are learning and monitor their progress. A companion Web site includes interactive Excel spreadsheet examples and templates. Mathematics and Statistics for Financial Risk Management is an indispensable reference for today's financial risk professional.

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