

Chances Are Adventures In Probability Michael Kaplan

Examines a letter written by Blaise Pascal to Pierre de Fermat in 1654 that speaks of probability and numerical values that have had an impact on the modern world with regard to calculating insurance rates, the housing markets, and car safety.

The hazards of feeling lucky in gambling Why do so many gamblers risk it all when they know the odds of winning are against them? Why do they believe dice are "hot" in a winning streak? Why do we expect heads on a coin toss after several flips have turned up tails? What's Luck Got to Do with It? takes a lively and eye-opening look at the mathematics, history, and psychology of gambling to reveal the most widely held misconceptions about luck. It exposes the hazards of feeling lucky, and uses the mathematics of predictable outcomes to show when our chances of winning are actually good. Mathematician Joseph Mazur traces the history of gambling from the earliest known archaeological evidence of dice playing among Neolithic peoples to the first systematic mathematical studies of games of chance during the Renaissance, from government-administered lotteries to the glittering seductions of grand casinos, and on to the global economic crisis brought on by financiers' trillion-dollar bets. Using plenty of engaging anecdotes, Mazur explains the mathematics behind gambling—including the laws of probability, statistics, betting against expectations, and the law of large numbers—and describes the psychological and emotional factors that entice people to put their faith in winning that ever-elusive jackpot despite its mathematical improbability. As entertaining as it is informative, What's Luck Got to Do with It? demonstrates the pervasive nature of our belief in luck and the deceptive psychology of winning and losing. Some images inside the book are unavailable due to digital copyright restrictions.

WILEY-INTERSCIENCE PAPERBACK SERIES The Wiley-Interscience Paperback Series consists of selected books that have been made more accessible to consumers in an effort to increase global appeal and general circulation. With these new unabridged softcover volumes, Wiley hopes to extend the lives of these works by making them available to future generations of statisticians, mathematicians, and scientists. From the Reviews of History of Probability and Statistics and Their Applications before 1750 "This is a marvelous book . . . Anyone with the slightest interest in the history of statistics, or in understanding how modern ideas have developed, will find this an invaluable resource." -Short Book Reviews of ISI

Waking up one morning to find a talking cat on his head, Ethan is informed that the cat will not leave until he - Ethan - wins a game of probability.

The Nothing that is
Surprises in Probability

Chance, Logic And Intuition: An Introduction To The Counter-intuitive Logic Of Chance
Voodoo Deaths, Office Gossip, and Other Adventures in Probability

That's a Possibility!

Thinking in Bets

Seventeen Short Stories

Fooled by Randomness is a standalone book in Nassim Nicholas Taleb's landmark Incerto series, an investigation of opacity, luck, uncertainty, probability, human error, risk, and decision-making in a world we don't understand. The other books in the series are The Black Swan, Antifragile, Skin in the Game, and The Bed of Procrustes. Fooled by Randomness is the word-of-mouth sensation that will change the way you think about business and the world. Nassim Nicholas Taleb—veteran trader, renowned risk expert, polymathic scholar, erudite raconteur, and New York Times bestselling author of The Black Swan—has written a modern classic that turns on its head what we believe about luck and skill. This book is about luck—or more precisely, about how we perceive and deal with luck in life and business. Set against the backdrop of the most conspicuous forum in which luck is mistaken for skill—the world of trading—Fooled by Randomness provides captivating insight into one of the least understood factors in all our lives. Writing in an entertaining narrative style, the author tackles major intellectual issues related to the underestimation of the influence of happenstance on our lives. The book is populated with an array of characters, some of whom have grasped, in their own way, the significance of chance: the baseball legend Yogi Berra; the philosopher of knowledge Karl Popper; the ancient world's wisest man, Solon; the modern financier George Soros; and the Greek voyager Odysseus. We also meet the fictional Nero, who seems to understand the role of randomness in his professional life but falls victim to his own superstitious foolishness. However, the most recognizable character of all remains unnamed—the lucky fool who happens to be in the right place at the right time—he embodies the “survival of the least fit.” Such individuals attract devoted followers who believe in their guru's insights and methods. But no one can replicate what is obtained by chance. Are we capable of distinguishing the fortunate charlatan from the genuine visionary? Must we always try to uncover nonexistent messages in random events? It may be impossible to guard ourselves against the vagaries of the goddess Fortuna, but after reading Fooled by Randomness we can be a little better prepared. Named by Fortune One of the Smartest Books of All Time A Financial Times Best Business Book of the Year

The Harvard mathematician authors of The Art of the Infinite present a history of the famous relation "A squared plus B squared equals C squared" that assesses its contributors from da Vinci to the Freemasons while analyzing its numerous proofs and applications.

“In this sparkling narrative, mathematics is indeed set free.” -Michael Shermer, author of The Believing Brain In classrooms

around the world, Robert and Ellen Kaplan's pioneering Math Circle program, begun at Harvard, has introduced students ages six to sixty to the pleasures of mathematics, exploring topics that range from Roman numerals to quantum mechanics. In Out of the Labyrinth, the Kaplans reveal the secrets of their highly successful approach, which embraces the exhilarating joy of math's "accessible mysteries." Stocked with puzzles, colorful anecdotes, and insights from the authors' own teaching experience, Out of the Labyrinth is both an engaging and practical guide for parents and educators, and a treasure chest of mathematical discoveries. For any reader who has felt the excitement of mathematical discovery-or tried to convey it to someone else-this volume will be a delightful and valued companion.

What are the chances? Find out in this entertaining exploration of probabilities in our everyday lives "If there is anything you want to know, or remind yourself, about probabilities, then look no further than this comprehensive, yet wittily written and enjoyable, compendium of how to apply probability calculations in real-world situations." — Keith Devlin, Stanford University, National Public Radio's "Math Guy" and author of The Math Gene and The Math Instinct "A delightful guide to the sometimes counterintuitive discipline of probability. Olofsson points out major ideas here, explains classic puzzles there, and everywhere makes free use of witty vignettes to instruct and amuse." — John Allen Paulos, Temple University, author of Innumeracy and A Mathematician Reads the Newspaper "Beautifully written, with fascinating examples and tidbits of information. Olofsson gently and persuasively shows us how to think clearly about the uncertainty that governs our lives." — John Haigh, University of Sussex, author of Taking Chances: Winning with Probability From probable improbabilities to regular irregularities, Probabilities: The Little Numbers That Rule Our Lives investigates the often-surprising effects of risk and chance in our everyday lives. With examples ranging from WWII espionage to the O.J. Simpson trial, from bridge to blackjack, from Julius Caesar to Jerry Seinfeld, the reader is taught how to think straight in a world of randomness and uncertainty. Throughout the book, readers learn: Why it is not that surprising for someone to win the lottery twice How a faulty probability calculation forced an innocent woman to spend three years in prison How to place bets if you absolutely insist on gambling How a newspaper turned an opinion poll into one of the greatest election blunders in history Educational, eloquent, and entertaining, Probabilities: The Little Numbers That Rule Our Lives is the ideal companion for anyone who wants to obtain a better understanding of the mathematics of chance.

Arabists

Fun with Math and Games

Fooled by Randomness

Chances Are . . .

A Thought Experiment

A Very Improbable Story

Patterns, Proofs, and the Search for the Ultimate Equation

A tight-knit group closely linked by intermarriage as well as class and old school ties, the "Arabists" were men and women who spent much of their lives living and working in the Arab world as diplomats, military attaches, intelligence agents, scholar-adventurers, and teachers. As such, the Arabists exerted considerable influence both as career diplomats and as bureaucrats within the State Department from the early nineteenth century to the present. But over time, as this work shows, the group increasingly lost touch with a rapidly changing American society, growing both more insular and headstrong and showing a marked tendency to assert the Arab point of view. Drawing on interviews, memoirs, and other official and private sources, Kaplan reconstructs the 100-year history of the Arabist elite, demonstrating their profound influence on American attitudes toward the Middle East, and tracing their decline as an influx of ethnic and regional specialists has transformed the State Department and challenged the power of the old elite.

In this must-have for anyone who wants to better understand their love life, a mathematician pulls back the curtain and reveals the hidden patterns—from dating sites to divorce, sex to marriage—behind the rituals of love. The roller coaster of romance is hard to quantify; defining how lovers might feel from a set of simple equations is impossible. But that doesn't mean that mathematics isn't a crucial tool for understanding love. Love, like most things in life, is full of patterns. And mathematics is ultimately the study of patterns—from predicting the weather to the fluctuations of the stock market, the movement of planets or the growth of cities. These patterns twist and turn and warp and evolve just as the rituals of love do. In *The Mathematics of Love*, Dr. Hannah Fry takes the reader on a fascinating journey through the patterns that define our love lives, applying mathematical formulas to the most common yet complex questions pertaining to love: What's the chance of finding love? What's the probability that it will last? How do online dating algorithms work, exactly? Can game theory help us decide who to approach in a bar? At what point in your dating life should you settle down? From evaluating the best strategies for online dating to defining the nebulous concept of beauty, Dr. Fry proves—with great insight, wit, and fun—that math is a surprisingly

useful tool to negotiate the complicated, often baffling, sometimes infuriating, always interesting, mysteries of love.

Two veteran math educators demonstrate how some "magnificent mistakes" had profound consequences for our understanding of mathematics' key concepts. In the nineteenth century, English mathematician William Shanks spent fifteen years calculating the value of pi, setting a record for the number of decimal places. Later, his calculation was reproduced using large wooden numerals to decorate the cupola of a hall in the Palais de la Découverte in Paris. However, in 1946, with the aid of a mechanical desk calculator that ran for seventy hours, it was discovered that there was a mistake in the 528th decimal place. Today, supercomputers have determined the value of pi to trillions of decimal places. This is just one of the amusing and intriguing stories about mistakes in mathematics in this layperson's guide to mathematical principles. In another example, the authors show that when we "prove" that every triangle is isosceles, we are violating a concept not even known to Euclid - that of "betweenness." And if we disregard the time-honored Pythagorean theorem, this is a misuse of the concept of infinity. Even using correct procedures can sometimes lead to absurd - but enlightening - results. Requiring no more than high-school-level math competency, this playful excursion through the nuances of math will give you a better grasp of this fundamental, all-important science. Lisa and her class learn about probability.

Magnificent Mistakes in Mathematics

Why to Err is Human

It's Probably Penny

Lotteries, Blackjack, Zero-sum Games, and More

A Novel About the History of Philosophy

What are the Chances of That?

Errors, Blunders and Lies

One day Sophie comes home from school to find two questions in her mail: "Who are you?" and "Where does the world come from?" Because she is enrolled in a correspondence course with a mysterious philosopher. Thus begins Jostein Gaarder's unique novel, which is not only also a complete and entertaining history of philosophy.

The pigs are raring to go to the county fair to play games and win prizes. But no matter how many times Mr. Pig tries to win, the odds are against him. Will his luck ever change, or will the Pigs cry "Wah wah wah" all the way home?

Laureth Peak's father has taught her to look for recurring events, patterns, and numbers--a skill at which she's remarkably talented. He is blind. But when her father goes missing, Laureth and her 7-year-old brother Benjamin are thrust into a mystery that takes them to New York City. Surviving will take all her skill at spotting the amazing, shocking, and sometimes dangerous connections in a world full of darkness. *Man Is Not Invisible* is an intricate puzzle of a novel that sheds a light on the delicate ties that bind people to each other. This title has *Common Sense* connections.

We live in a world that is not quite "right." The central tenet of statistical inquiry is that $Observation = Truth + Error$ because even the most rigorous scientific investigations have always been bedeviled by uncertainty. Our attempts to measure things are plagued with small errors. Our attempts to understand our world are blocked by blunders. And, unfortunately, in some cases, people have been known to lie. In this long-awaited follow-up to the highly regarded bestseller, *The Lady Tasting Tea*, David Salsburg opens a door to the amazing widespread use of statistical methods by looking at numerous examples of errors, blunders and lies from areas as diverse as archeology, law, economics, medicine, psychology, sociology, Biblical studies, and even war-time espionage. In doing so, he shows how, upon closer statistical investigation, errors and blunders often lead to useful information. In fact, statistical methods have been used to uncover falsified data. Beginning with Edmund Halley's examination of the Transit of Venus and ending with a discussion of how many tanks Rommel had during the Second World War, the author invites the reader to come along on this easily accessible and fascinating journey of how to identify the nature of errors, minimize the effects of blunders, and figure out who the liars are.

The Hidden Role of Chance in Life and in the Markets

The Mathematics of Love

A History of Probability and Statistics and Their Applications before 1750

What's Luck Got to Do with It?

How Numbers Get Used and Abused in the Courtroom

A First Course in Probability

The Power of Mathematical Thinking

This market-leading introduction to probability features exceptionally clear explanations of the mathematics of probability theory and explores its many diverse applications through numerous interesting and motivational examples. The outstanding problem sets are a hallmark feature of this book. Provides clear, complete explanations to fully explain mathematical concepts. Features subsections on the probabilistic method and the maximum-minimums identity. Includes many new examples relating to DNA matching, utility, finance, and applications of the probabilistic method. Features an intuitive treatment of probability—intuitive explanations follow many examples. The Probability Models Disk included with each copy of the book, contains six probability models that are referenced in the book and allow readers to quickly and easily perform calculations and simulations.

God's Debris is the first non-Dilbert, non-humor book by best-selling author Scott Adams. Adams describes *God's Debris* as a thought experiment wrapped in a story. It's designed to make your brain spin around inside your skull. Imagine that you meet a very old man who—you eventually realize—knows literally everything. Imagine that he explains for you the great mysteries of life: quantum physics, evolution, God, gravity, light psychic phenomenon, and probability—in a way so simple, so novel, and so

compelling that it all fits together and makes perfect sense. What does it feel like to suddenly understand everything? You may not find the final answer to the big question, but God's Debris might provide the most compelling vision of reality you will ever read. The thought experiment is this: Try to figure out what's wrong with the old man's explanation of reality. Share the book with your smart friends, then discuss it later while enjoying a beverage. It has no violence or sex, but the ideas are powerful and not appropriate for readers under fourteen.

Building upon the previous editions, this textbook is a first course in stochastic processes taken by undergraduate and graduate students (MS and PhD students from math, statistics, economics, computer science, engineering, and finance departments) who have had a course in probability theory. It covers Markov chains in discrete and continuous time, Poisson processes, renewal processes, martingales, and option pricing. One can only learn a subject by seeing it in action, so there are a large number of examples and more than 300 carefully chosen exercises to deepen the reader's understanding. Drawing from teaching experience and student feedback, there are many new examples and problems with solutions that use TI-83 to eliminate the tedious details of solving linear equations by hand, and the collection of exercises is much improved, with many more biological examples.

Originally included in previous editions, material too advanced for this first course in stochastic processes has been eliminated while treatment of other topics useful for applications has been expanded. In addition, the ordering of topics has been improved; for example, the difficult subject of martingales is delayed until its usefulness can be applied in the treatment of mathematical finance.

"What are the odds against winning the Lotto, The Weakest Link, or Who Wants to be a Millionaire? The answer lies in the science of probability, yet many of us are unaware of how this science works. Every day, people make judgements on a wide variety of situations where chance plays a role, including buying insurance, betting on horse-racing, following medical advice - even carrying an umbrella. In Taking Chances, John Haigh guides the reader round common pitfalls, demonstrates how to make better-informed decisions, and shows where the odds can be unexpectedly in your favour. This new edition has been fully updated, and includes information on top television shows, plus a new chapter on Probability for Lawyers."--BOOK JACKET.

God's Debris

Chance, Luck, and Statistics

Bozo Sapiens

How Not to Be Wrong

How to Tell the Difference

The Taming of Chance

The Pleasures of Mathematics

Traces the development of mathematical thinking and describes the characteristics of the "republic of numbers" in terms of humankind's fascination with, and growing knowledge of, infinity.

Olivia and Eloise, make room for Betty Bunny, a loveable handful nobunny can resist. From the creator of Disney's Dog with a Blog, this funny book in the Betty Bunny series shows the value of honesty from a preschooler's special point of view. When Betty Bunny breaks a lamp, she has a brand-new idea: Blame it

on someone else (like the Tooth Fairy)! Then a vase gets broken and Betty Bunny really didn't do it. But now no one in her family believes her. Honest lies, white lies, crying wolf—how can one four-year-old figure out the right thing to do?

Chance rules our daily lives in many different ways. From the outcomes of the lottery to the outcomes of medical tests, from the basketball court to the court of law. The ways of chance are capricious. Bizarre things happen all the time. Nevertheless, chance has a logic of its own. It obeys the rules of probability. But if you open a standard book on probability, you may very well feel far removed from everyday life. Abstract formulas and mathematical symbols stare back at you with almost every turn of the page. This book introduces you to the logic of chance without the use of mathematical formulas or symbols. In Part One, you will meet the fascinating pioneers of the mathematics of probability, including Galileo Galilei and Blaise Pascal. Their stories will introduce you, step by step, to the basics of probability. In Part Two, various examples in all areas of daily life will show you how chance defies our expectations time and again. But armed with the basic rules of probability and a good dose of inventiveness, you will be able to unravel the counter-intuitive logic of chance.

In the wrong hands, math can be deadly. Even the simplest numbers can become powerful forces when manipulated by politicians or the media, but in the case of the law, your liberty -- and your life -- can depend on the right calculation. In *Math on Trial*, mathematicians Leila Schneps and Coralie Colmez describe ten trials spanning from the nineteenth century to today, in which mathematical arguments were used -- and disastrously misused -- as evidence. They tell the stories of Sally Clark, who was accused of murdering her children by a doctor with a faulty sense of calculation; of nineteenth-century tycoon Hetty Green, whose dispute over her aunt's will became a signal case in the forensic use of mathematics; and of the case of Amanda Knox, in which a judge's misunderstanding of probability led him to discount critical evidence -- which might have kept her in jail. Offering a fresh angle on cases from the nineteenth-century Dreyfus affair to the murder trial of Dutch nurse Lucia de Berk, Schneps and Colmez show how the improper application of mathematical concepts can mean the difference between walking free and life in prison. A colorful narrative of mathematical abuse, *Math on Trial* blends courtroom drama, history, and math to show that legal expertise isn't always enough to prove a person innocent.

Fat Chance

Hidden Harmonies

The Romance of an American Elite

Sophie's World

What are the Odds?

The Unfinished Game

A World of Chance

This book brings together a variety of probability applications through entertaining stories that will appeal to a broad readership. What are the best stopping rules for the dating problem? What can Bayes' formula tell us about the chances of a Champions League draw for soccer teams being rigged? How could syndicates win millions of lottery dollars by buying a multitude of tickets at the right time? What's the best way to manage your betting bankroll in a game in which you have an edge? How to use probability to debunk quacks and psychic mediums? How can the Monte Carlo simulation be used to solve a wide variety of probability problems? Are seven riffle shuffles of a standard deck of 52 playing cards enough for randomness? Provides seventeen engaging stories that illustrate ideas in probability. Written so as to be suitable for those with minimal mathematical background. Stories can be read independently. Can be used as examples and exercises for teaching introductory probability. These questions and many more are addressed in seventeen short chapters that can be read independently. The engaging stories are instructive and demonstrate valuable probabilistic ideas. They offer students material that they most likely don't learn in class, and offer teachers a new way of teaching their subject.

“Witty, compelling, and just plain fun to read . . .” —Evelyn Lamb, Scientific American The Freakonomics of math—a math-world superstar unveils the hidden beauty and logic of the world and puts its power in our hands The math we learn in school can seem like a dull set of rules, laid down by the ancients and not to be questioned. In How Not to Be Wrong, Jordan Ellenberg shows us how terribly limiting this view is: Math isn't confined to abstract incidents that never occur in real life, but rather touches everything we do—the whole world is shot through with it. Math allows us to see the hidden structures underneath the messy and chaotic surface of our world. It's a science of not being wrong, hammered out by centuries of hard work and argument. Armed with the tools of mathematics, we can see through to the true meaning of information we take for granted: How early should you get to the airport? What does “public opinion” really represent? Why do tall parents have shorter children? Who really won Florida in 2000? And how likely are you, really, to develop cancer? How Not to Be Wrong presents the surprising revelations behind all of these questions and many more, using the mathematician's method of analyzing life and exposing the hard-won insights of the academic community to the layman—minus the jargon. Ellenberg chases mathematical threads through a vast range of time and space, from the everyday to the cosmic, encountering, among other things, baseball, Reaganomics, daring lottery schemes, Voltaire, the replicability crisis in psychology, Italian Renaissance painting, artificial languages, the development of non-Euclidean geometry, the coming obesity apocalypse, Antonin Scalia's views on crime and punishment,

the psychology of slime molds, what Facebook can and can't figure out about you, and the existence of God. Ellenberg pulls from history as well as from the latest theoretical developments to provide those not trained in math with the knowledge they need. Math, as Ellenberg says, is "an atomic-powered prosthesis that you attach to your common sense, vastly multiplying its reach and strength." With the tools of mathematics in hand, you can understand the world in a deeper, more meaningful way. *How Not to Be Wrong* will show you how.

Chance fills every day of our lives and affects every decision we make. Yet, for something woven so closely into the fabric of our being, we are not very good at thinking about uncertainty and risk. In this lively and engaging book, Andrew C. A. Elliott asks why this is so. He picks at the threads and, in showing how our world is built on probability rather than certainty, he identifies five obstacles to thinking about uncertainty that confuse us time after time. Elliott takes us into the casino, but this is not an invitation to gamble. He looks at financial markets, but this is not a guide to investment. There's discussion of health, but this is not a medical book. He touches on genetics and evolution, and music-making, and writing, because chance is at work there too. Entering many different fields, *What are the Chances of That?* is always following the trail of chance and randomness. One purpose of the book is to go cross-country, to show that there are connected ways of thinking that disrespect boundaries and cut across the domains of finance, and gambling, and genetics, and public health, and creativity. Through it, one visits the vantage points that give a broad view of the landscape and sees how these different areas of life and knowledge are connected - through chance. *What are the Chances of That?* discusses chance and the importance of understanding how it affects our lives. It goes beyond a mathematical approach to the subject, showing how our thinking about chance and uncertainty has been shaped by history and culture, and only relatively recently by the mathematical theory of probability. In considering how we think about uncertainty, Elliott proposes five "dualities" that encapsulate many of the ambiguities that arise.

The value of nothing is explored in rich detail as the author reaches back as far as the ancient Sumerians to find evidence that humans have long struggled with the concept of zero, from the Greeks who may or may not have known of it, to the East where it was first used, to the modern-day desktop PC, which uses it as an essential letter in its computational alphabet.

How Randomness Rules Our Lives
Adventures in Probability
How to Think About Uncertainty
Betty Bunny Didn't Do It

Winning with Probability

Probabilities

What Are the Chances?

An exhilarating, eye-opening guide to understanding our random world Leonard Mlodinow reveals the psychological illusions that prevent us understanding everything from stock-picking to wine-tasting, winning the lottery to road safety, and reveals the truth about the success of sporting heroes and film stars, and even how to make sense of a blood test. The Drunkard's Walk is an exhilarating, eye-opening guide to understanding our random world - read it, so you won't be left a victim of chance. Leonard Mlodinow has a Ph.D., has been a member of the faculty of the California Institute of Technology and a television writer in Hollywood, as well as developing many award winning CD-Roms. He is currently Vice President of Emerging Technologies and R&D at Scholastic Inc. and lives in New York City. His previous books include A Brief History of Time, which he co-authored, and Euclid's Window and Some Time with Feynman both published by Penguin.

Although financial markets often try to distance themselves from gambling, the two factors have far more in common than usually thought. When, historically there were no financial institutions such as banks, lotteries constituted the ways by which expensive items were disposed of, and governments raised money quickly. Gambling tables fulfilled roles that venture capital and banking do today. "Gamblers" created clearinghouses and sustained liquidity. When those gamblers bet on price distributions in futures markets, they were redefined as "speculators." Today they are called "hedge fund managers" or "bankers." Though the names have changed, the actions undertaken have essentially stayed the same. This book shows how discussion on "chance," "risk," "gambling," "insurance," and "speculation" illuminates where societies stood, where we are today, and where we may be heading.

"An entertaining look into the science of mathematical probabilities." --provided by Goodreads. This book combines detailed scientific historical research with characteristic philosophic breadth and verve.

Making Smarter Decisions When You Don't Have All the Facts

The Little Numbers That Rule Our Lives

Essentials of Stochastic Processes

Math on Trial

Probability from 0 to 1 Betting on Religion, Games, Wall Street The Drunkard's Walk

A compelling journey through history, mathematics, and philosophy, charting humanity's struggle against randomness. Our lives are played out in the arena of chance. However little we recognize it in our day-to-day existence, we are always riding the odds, seeking out certainty but settling—reluctantly—for likelihood, building our beliefs on the shadowy props of probability. *Chances Are* is the story of man's millennia-long search for the tools to manage the recurrent but unpredictable—to help us prevent, or at least mitigate, the seemingly random blows of disaster, disease, and injustice. In these pages, we meet the brilliant individuals who developed the first abstract formulations of probability, as well as the intrepid visionaries who recognized their practical applications—from gamblers to military strategists to meteorologists to medical researchers, from blackjack to our own mortality.

What, exactly, is chance? In this book, statistician and storyteller Holland takes readers on a tour of the world of probability. Weaving together tales from real life, he writes of surprising examples of probability in action, everyday events that can profoundly affect lives but are controlled by just a number.

A lighthearted survey of the science of mistakes by the authors of *Chances Are* reveals how the human race is hard-wired to get things wrong in countless ways, citing such examples as successful racy advertisements for inferior products, our inclinations to favor dysfunctional relationship partners and the socially unacceptable behaviors of leaders. Reprint.

A witty, conversational, and accessible tour of math's profoundest mysteries. Mathematical symbols, for mathematicians, store worlds of meaning, leap continents and centuries. But we need not master symbols to grasp the magnificent abstractions they represent, and to which all art aspires. Through language, anyone can come to delight in the works of mathematical art, which are among our kind's greatest glories. Taking the concept of infinity, in its countless guises, as a starting point and a helpful touchstone, the founders of Harvard's pioneering Math Circle program Robert and Ellen Kaplan guide us through the "Republic of Numbers," where we meet both its upstanding citizens and its more shadowy dwellers, explore realms where only the imagination can go, and grapple with math's most profound uncertainties, including the question of truth itself—do we discover mathematical principles, or invent them?

She Is Not Invisible

Pascal, Fermat, and the Seventeenth-Century Letter That Made the World Modern

Setting Mathematics Free

Pigs at Odds

Taking Chances

A Book About What Might Happen

The Lives and Times of the Pythagorean Theorem

In simple, non-technical language, this volume explores the fundamentals governing chance and applies them to sports, government, and business. Topics include the theory of probability in relation to superstitions, betting odds, warfare, social problems, stocks, and other areas. "Clear and lively ...remarkably accurate." —*Scientific Monthly*.

In a world where we are constantly being asked to make decisions based on incomplete information, facility with basic probability is an essential skill. This book provides a solid foundation in basic probability theory designed for intellectually curious readers and those new to the subject. Through its conversational tone and careful pacing of mathematical development, the book balances a charming style with informative discussion. This text will immerse the reader in a mathematical view of the world, giving them a glimpse into what attracts mathematicians to the subject in the first place. Rather than simply writing out and memorizing formulas, the reader will come out with an understanding of what those formulas mean, and how and when to use them. Readers will also encounter settings where probabilistic reasoning does not apply or where intuition can be misleading. This book establishes simple principles of counting collections and sequences of alternatives, and elaborates on these techniques to solve real world problems both inside and outside the casino. Pair this book with the HarvardX online course for great videos and interactive learning: <https://harvardx.link/fat-chance>. Combines colorful photographs and interactive examples in an introduction to the science and math of probability that provides comprehensive explanations about games of chance and various easy-to-understand scenarios. By the author of Great Estimations. Wall Street Journal bestseller! Poker champion turned business consultant Annie Duke teaches you how to get comfortable with uncertainty and make better decisions as a result. In Super Bowl XLIX, Seahawks coach Pete Carroll made one of the most controversial calls in football history: With 26 seconds remaining, and trailing by four at the Patriots' one-yard line, he called for a pass instead of a hand off to his star running back. The pass was intercepted and the Seahawks lost. Critics called it the dumbest play in history. But was the call really that bad? Or did Carroll actually make a great move that was ruined by bad luck? Even the best decision doesn't yield the best outcome every time. There's always an element of luck that you can't control, and there is always information that is hidden from view. So the key to long-term success (and avoiding worrying yourself to death) is to think in bets: How sure am I? What are the possible ways things could turn out? What decision has the highest odds of success? Did I land in the unlucky 10% on the strategy that works 90% of the time? Or is my success attributable to dumb luck rather than great decision making? Annie Duke, a former World Series of Poker champion turned business consultant, draws on examples from business, sports, politics, and (of course) poker to share tools anyone can use to embrace uncertainty and make better decisions. For most people, it's difficult to say "I'm not sure" in a world that values and, even, rewards the appearance of certainty. But professional poker players are comfortable with the fact that great decisions don't always lead to great outcomes and bad decisions don't always lead to bad outcomes. By shifting your thinking from a need for certainty to a goal of accurately assessing what you know and what you don't, you'll be less vulnerable to reactive emotions, knee-jerk biases, and destructive habits in your decision making. You'll become more confident, calm, compassionate and successful in the long run.

The History, Mathematics, and Psychology of the Gambler's Illusion

A Natural History of Zero

Out of the Labyrinth

The Art of the Infinite