Game Theory A Very Short Introduction Very Short Introductions

Game Theory and Applications outlines game theory and proves its validity by examining it alongside the neoclassical paradigm. This book contends that the neoclassical theory is the exceptional case, and that game theory may indeed be the rule. The papers and abstracts collected here explore its recent development and suggest new research directions. Explains many of the recent central developments in game theory Highlights new research directions in economic theory which surpass the neoclassical paradigm Includes game-theoretical analyses in economics, political science, and biology Written by leading game theorists, economists, political scientists, and biologists

Together these countries pioneered new technologies that have made them ever richer.

Modern statistics is very different from the dry and dusty discipline of the popular imagination. In its place is an exciting subject which uses deep theory and powerful software tools to shed light and enable understanding. And it sheds this light on all aspects of our lives, enabling astronomers to explore the origins of the universe, archaeologists to investigate ancient civilisations, governments to understand how to benefit and improve society, and businesses to learn how best to provide goods and services. Aimed at readers with no prior mathematical knowledge, this Very Short Introduction explores and explains how statistics work, and how we can decipher them. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Games are everywhere: Drivers maneuvering in heavy traffic are playing a driving game. Bargain hunters bidding on eBay are playing an auctioning game. The supermarket's price for corn flakes is decided by playing an economic game. This Very Short Introduction offers a succinct tour of the fascinating world of game theory, a ground-breaking field that analyzes how to play games in a rational way. Ken Binmore, a renowned game theorist, explains the theory in a way that is both entertaining and non-mathematical yet also deeply insightful, revealing how game theory can shed light on everything from social gatherings, to ethical decision-making, to successful card-playing strategies, to calculating the sex ratio among bees. With mini-biographies of many fascinating, and occasionally eccentric, founders of the subject--including John Nash, subject of the movie A Beautiful Mind--this book offers a concise overview of a cutting-edge field that has seen spectacular successes in evolutionary biology and economics, and is beginning to revolutionize other disciplines from psychology to political science. About the Series: Oxford's Very Short Introductions offers concise and original introductions to a wide range of subjects--from Islam to Sociology, Politics to Classics, and Literary Theory to History. Not simply a textbook of definitions, each volume provides trenchant and provocative--yet always balanced and complete--discussions of the central issues in a given topic. Every Very Short Introduction gives a readable evolution of the subject in question, demonstrating how it has developed and influenced society. Whatever the area of study, whatever the topic that fascinates the reader, the series has a handy and affordable guide that will likely prove indispensable.

Game Theory: A Simple Introduction offers an accessible and enjoyable guide to the basic principles and extensive applications of game theory. Understand a game matrix, the prisoners' dilemma, dominant and mixed strategies, zero-sum games, Pareto efficiency, the Nash equilibrium, and the power of asymmetric information. Calculate payoffs and outcomes in games involving characters such as Jack and Jill, or Frodo and Gollum. Look at the effects of altruism and hatred on games, and see how games can change over time. Explore examples looking at gang members, free riders, global governance, a long-term relationship, competing corporations, advertisers and their customers, along with familiar hawk-dove and chicken games. See game players use every trick in the book to get what they want, with over 50 images to guide through the steps they use to play the game.

Choice Theory: A Very Short Introduction

Introducing Game Theory

The Game Theory

A Text on Game Theory

Statistics: A Very Short Introduction

Games are everywhere: Drivers manoeuvring in heavy traffic are playing a driving game. Bargain hunters bidding on eBay are playing an auctioning game. A firm negotiating next year's wage is playing a bargaining game. The opposing candidates in an election are playing a political game. The supermarket's price for corn flakes is decided by playing an economic game. Game theory is about how to play such games in a rational way. Even when the players have not thought everything out in advance, game theory often works for the same reason that mindless animals sometimes end up behaving very cleverly: evolutionary forces eliminate irrational play because it is unfit. Game theory has seen spectacular successes in evolutionary biology and economics, and is beginning to revolutionize other disciplines from psychology to political science. This Very Short Introduction introduces the fascinating world of game theory, showing how it can be understood without mathematical equations, and revealing that everything from how to play poker optimally to the sex ratio among bees can be understood by anyone willing to think seriously about the problem. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Quantum Theory is the most revolutionary discovery in physics since Newton. This book gives a lucid, exciting, and accessible account of the surprising and counterintuitive ideas that shape our understanding of the sub-atomic world. It does not disguise the problems of interpretation that still remain unsettled 75 years after the initial discoveries. The main text makes no use of equations, but there is a Mathematical Appendix for those desiring stronger fare. Uncertainty, probabilistic physics, complementarity, the problematic character of measurement, and decoherence are among the many topics discussed. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

A famed political scientist's classic argument for a more cooperative world We assume that, in a world ruled by natural selection, selfishness pays. So why cooperate? In The Evolution of Cooperation, political scientist Robert Axelrod seeks to answer this question. In 1980, he organized the famed Computer Prisoners Dilemma Tournament, which sought to find the optimal strategy for survival in a particular game. Over and over, the simplest strategy, a cooperative program called Tit for Tat, shut out the competition. In other words, cooperation, not unfettered competition, turns out to be our best chance for survival. A vital book for leaders and decision makers, The Evolution of Cooperation reveals how cooperative principles help us think better about everything from military strategy, to political elections, to family dynamics.

From the New York Times bestselling author of Start With Why and Leaders Eat Last, a bold framework for leadership in today's ever-changing world. How do we win a game that has no end? Finite games, like football or chess, have known players, fixed rules and a clear endpoint. The winners and losers are easily identified. Infinite games, games with no finish line, like business or politics, or life itself, have players who come and go. The rules of an infinite game are changeable while infinite games have no defined endpoint. There are no winners or losers—only ahead and behind. The question is, how do we play to succeed in the game we're in? In this revelatory new book, Simon Sinek offers a framework for leading with an infinite mindset. On one hand, none of us can resist the fleeting thrills of a promotion earned or a tournament won, yet these rewards fade quickly. In pursuit of a Just Cause, we will commit to a vision of a future world so appealing that we will build it week after week, month after month, year after year. Although we do not know the exact form this world will take, working toward it gives our work and our life meaning. Leaders who embrace an infinite mindset build stronger, more innovative, more inspiring organizations. Ultimately, they are the ones who lead us into the future.

A business professor at Duke University shows professionals how to become empowered "game-changers" that use circumstances to their best advantage through applying six different techniques to solve a variety of strategic challenges.

Playing for Real

A Very Short Introduction

The Evolution of Cooperation

Economics: A Very Short Introduction

Game Theory and Economic Modelling

In this Very Short Introduction, John Holland presents an introduction to the science of complexity. Using examples from biology and economics, he shows how complexity science models the behaviour of complex systems.

Economics has the capacity to offer us deep insights into some of the most formidable problems of life, and offer solutions to them too. Combining a global approach with examples from everyday life, Partha Dasgupta describes the lives of two children who live very different lives in different parts of the world: in the Mid-West USA and in Ethiopia. He compares the obstacles facing them, and the processes that shape their lives, their families, and their futures. He shows how economics uncovers these processes, finds explanations for them, and how it forms policies and solutions. Along the way, Dasgupta provides an intelligent and accessible introduction to key economic factors and concepts such as individual choices, national policies, efficiency, equity, development, sustainability, dynamic equilibrium, property rights, markets, and public goods. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

In the early days of Pong and Pac Man, video games appeared to be little more than an idle pastime. Today, video games make up a multi-billion dollar industry that rivals television and film. The Video Game Theory Reader brings together exciting new work on the many ways video games are reshaping the face of entertainment and our relationship with technology. Drawing upon examples from widely popular games ranging from Space Invaders to Final Fantasy IX and Combat Flight Simulator 2, the contributors discuss the relationship between video games and other media; the shift from third- to first-person games; gamers and the gaming community; and the important sociological, cultural, industrial, and economic issues that surround gaming. The Video Game Theory Reader is the essential introduction to a fascinating and rapidly expanding new field of media studies.

Number theory is the branch of mathematics primarily concerned with the counting numbers, especially primes. It dates back to the ancient Greeks, but today it has great practical importance in cryptography, from credit card security to national defence. This book introduces the main areas of number theory, and some of its most interesting problems.

"One of the best Decision Making and Game Theory books of all time." —Reid Hoffman (LinkedIn founder) and Nassim Nicholas Taleb (author of Black Swan), BookAuthority An accessible, light-hearted exploration of Game Theory—what it is, why it's important, and how it can help us in our daily lives Game Theory is the mathematical formalization of interactive decision-making—it assumes that each player's goal is to maximize his/her benefit, whatever it may be. Players may be friends, foes, political parties, states, or any entity that behaves interactively, whether collectively or individually. One of the problems with game analysis is the fact that, as a player, it's very hard to know what would benefit each of the other players. Some of us are not even clear about our own goals or what might actually benefit us. In Gladiators, Pirates, and Games of Trust, Haim Shapira shares humorous anecdotes and insightful examples to explain Game Theory, how it affects our daily lives, and how the different interactions between decision-makers can play out. In this book, you will: • Meet Nobel Laureate John F. Nash and familiarize yourself with Nash equilibrium • Learn the basic ideas of the art of negotiation • Visit the gladiators' ring and apply for a coaching position • Build an airport and divide inheritance • Issue ultimatums and learn to trust • Review every aspect of the prisoner's dilemma and learn about the importance of cooperation • Learn how statistics bolster lies • And much more

Management: A Very Short Introduction

Game Theory

Gladiators, Pirates and Games of Trust

Game Theory, Alive

Game Theory: A Very Short Introduction

The definitive introduction to game theory This comprehensive textbook introduces readers to the principal ideas and applications of game theory, in a style that combines rigor with accessibility. Steven Tadelis begins with a concise description of rational decision making, and goes on to discuss strategic and extensive form games with complete information, Bayesian games, and extensive form games with imperfect information. He covers a host of topics, including multistage and repeated games, bargaining theory, auctions, rent-seeking games, mechanism design, signaling games, reputation building, and information transmission games. Unlike other books on game theory, this one begins with the idea of rationality and explores its implications for multiperson decision problems through concepts like dominated strategies and rationalizability. Only then does it present the subject of Nash equilibrium and its derivatives. Game Theory is the ideal textbook for advanced undergraduate and beginning graduate students. Throughout, concepts and methods are explained using real-world examples backed by precise analytic material. The book features many important applications to economics and political science, as well as numerous exercises that focus on how to formalize informal situations and then analyze them. Introduces the core ideas and applications of game theory Covers static and dynamic games, with complete and incomplete information Features a variety of examples, applications, and exercises Topics include repeated games, bargaining, auctions, signaling, reputation, and information transmission Ideal for advanced undergraduate and beginning graduate students Complete solutions available to teachers and selected solutions available to students

Preface -- Introduction: what is critical theory? -- The frankfurt school -- A matter of method -- Critical theory and modernism -- Alienation and reification -- Enlightened illusions -- The utopian laboratory -- The happy consciousness -- The great refusal -- From resignation to renewal -- Unfinished tasks -- Further reading -- Index

Games are played everywhere: from economics to evolutionary biology, and from social interactions to online auctions. This title shows how to play such games in a rational way, and how to maximize their outcomes.

The principles of game theory apply to a wide range of topics in biology. This book presents the central concepts in evolutionary game theory and provides an authoritative and up-to-date account. The focus is on concepts that are important for biologists in their attempts to explain observations. This strong connection between concepts and applications is a recurrent theme throughout the book which incorporates recent and traditional ideas from animal psychology, neuroscience, and machine learning that provide a mechanistic basis for behaviours shown by players of a game. The approaches taken to modelling games often rest on idealized and unrealistic assumptions whose limitations and consequences are not always appreciated. The authors provide a novel reassessment of the field, highlighting how to overcome limitations and identifying future directions. Game Theory in Biology is an advanced textbook suitable for graduate level students as well as professional researchers (both empiricists and theoreticians) in the fields of behavioural ecology and evolutionary biology. It will also be of relevance to a broader interdisciplinary audience including psychologists and neuroscientists.

This book examines why game theory has become such a popular tool of analysis. It investigates the deficiencies in this methodology and goes on to consider whether its popularity will fade or remain an important tool for economists. The book provides the reader with some basic concepts from noncooperative theory, and then goes on to explore the strengths, weaknesses, and future of the theory as a tool of economic modelling and analysis. All those interested in the applications of game theory to economics, from undergraduates to academics will find this study of particular value.

Game Theory: A Simple Introduction

How Game Theory, Strategy and Probability Rule Our Lives

The Infinite Game

Mathematics: A Very Short Introduction

Probability: A Very Short Introduction

Game Theory: A Very Short IntroductionOxford University Press

The Game Theory is a light-hearted look at the world of dating through the lens of economic theory. If you've ever wondered about the ups and downs of playing hard-to-get; how to give gifts that will actually be appreciated; or why your partner isn't willing to hang up the phone first, this is the book for you. It will help you find love, learn economics, and (almost) certainly find love through learning economics. Don't play the dating game without The Game Theory.

'This short volume is very welcome . . . Most importantly, on pages 32-33, the volume reprints as an appendix to the journal article based on Nash's Princeton doctoral dissertation on non-cooperative games a section of the thesis on "motivation and interpretation" that was omitted from the article. An editorial note remarks mildly that "The missing section is of considerable interest". This section, not available in any other published source, makes the present volume indispensable for research libraries . . . Nash's Essays on Game Theory, dating from his years as a Princeton graduate student . . . has a lasting impact on economics and related fields unmatched by any series of articles written in such a brief time . . . To economists, his name will always bring to mind his game theory papers of the early 1950s. It is good to have these conveniently reprinted in this volume.' - Robert W. Dimand, The Economic Journal 'The news that John Nash was to share the 1994 Nobel Prize for Economics with John Harsanyi and Reinhard Selten was doubly welcome. It signalled not only that the brilliant achievements of his youth were to be recognized in a manner consistent with their significance, but that the long illness that clouded his later years had fallen into remission. I hope that this collection of his economic papers will serve as another reminder that John Nash has rejoined the intellectual community to which he has contributed so much.' - From the introduction by Ken Binmore Essays on Game Theory is a unique collection of seven of John Nash's essays which highlight his pioneering contribution to game theory in economics. Featuring a comprehensive introduction by Ken Binmore which explains and summarizes John Nash's achievements in the field of non-cooperative and cooperative game theory, this book will be an indispensable reference for scholars and will be welcomed by those with an interest in game theory and its applications to the social sciences.

Making good decisions under conditions of uncertainty - which is the norm - requires a sound appreciation of the way random chance works. As analysis and modelling of most aspects of the world, and all measurement, are necessarily imprecise and involve uncertainties of varying degrees, the understanding and management of probabilities is central to much work in the sciences and economics. In this Very Short Introduction, John Haigh introduces the ideas of probability and different philosophical approaches to probability, and gives a brief account of the history of development of probability theory, from Galileo and Pascal to Bayes, Laplace, Poisson, and Markov. He describes the basic probability distributions, and goes on to discuss a wide range of applications in science, economics, and a variety of other contexts such as games and betting. He concludes with an intriguing discussion of coincidences and some curious paradoxes. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This is a light-hearted introduction to game theory suitable for advanced undergraduate students or beginning graduate students. It answers three questions. What is game theory? How is game theory applied? Why is game theory right?

Quantum Theory: A Very Short Introduction

An Introduction to Linear Programming and Game Theory

A Concise Multidisciplinary Introduction

Combinatorics

Gain some insight into the game of life... Game Theory means rigorous strategic thinking. It is based on the idea that everyone acts competitively and in his own best interest. With the help of mathematical models, it is possible to anticipate the actions of others in nearly all life's enterprises. This book includes down-to-earth examples and solutions, as well as charts and illustrations designed to help teach the concept. In The Complete Idiot's Guide® to Game Theory, Dr. Edward C. Rosenthal makes it easy to understand game theory with insights into: ? The history of the disciple made popular by John Nash, the mathematician dramatized in the film A Beautiful Mind ? The role of social behavior and psychology in this amazing discipline ? How important game theory has become in our society and why

When should you adopt an aggressive business strategy? How do we make decisions when we don ' t have all the information? What makes international environmental cooperation possible? Game theory is the study of how we make a decision when the outcome of our moves depends on the decisions of someone else. Economists Ivan and Tuvana Pastine explain why, in these situations, we sometimes cooperate, sometimes clash, and sometimes act in a way that seems completely random. Stylishly brought to life by award-winning cartoonist Tom Humberstone, Game Theory will help readers understand behaviour in everything from our social lives to business, global politics to evolutionary biology. It provides a thrilling new perspective on the world we live in.

The aim of this volume is to explain the differences between research-level mathematics and the maths taught at school. Most differences are philosophical and the first few chapters are about general aspects of mathematical thought.

A Course in Game Theory presents the main ideas of game theory at a level suitable for graduate students and advanced undergraduates, emphasizing the theory's foundations and interpretations of its basic concepts. The authors provide precise definitions and full proofs of results, sacrificing generalities and limiting the scope of the material in order to do so. The text is organized in four parts: strategic games, extensive games with perfect information, extensive games with imperfect information, and coalitional games. It includes over 100 exercises.

Chaos exists in systems all around us. Even the simplest system of cause and effect can be subject to chaos, denying us accurate predictions of its behaviour, and sometimes giving rise to astonishing structures of large-scale order. Our growing understanding of Chaos Theory is having fascinating applications in the real world - from technology to global warming, politics, human behaviour, and even gambling on the stock market. Leonard Smith shows that we all have an intuitive understanding of chaotic systems. He uses accessible maths and physics (replacing complex equations with simple examples like pendulums, railway lines, and tossing coins) to explain the theory, and points to numerous examples in philosophy and literature (Edgar Allen Poe, Chang-Tzu, Arthur Conan Doyle) that illuminate the problems. The beauty of fractal patterns and their relation to chaos, as well as the history of chaos, and its uses in the real world and implications for the philosophy of science are all discussed in this Very Short Introduction. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Critical Theory: a Very Short Introduction

concepts and frontiers

Game Theory and Applications

Revised Edition

Game Theory in Biology

Praise for the Second Edition: "This is quite a well-done book: very tightly organized,better-than-average exposition, and numerous examples,illustrations, and applications." —Mathematical Reviews of the American MathematicalSociety An Introduction to Linear Programming and Game Theory, ThirdEdition presents a rigorous, yet accessible, introduction tothe theoretical concepts and computational techniques of linearprogramming and game theory. Now with more extensive modelingexercises and detailed integer programming examples, this bookuniquely illustrates how mathematics can be used in real-worldapplications in the social, life, and managerial sciences,providing readers with the opportunity to develop and apply theiranalytical abilities when solving realistic problems. This Third Edition addresses various new topics and improvementsin the field of mathematical programming, and it also presents twosoftware programs, LP Assistant and the Solver add-in for MicrosoftOffice Excel, for solving linear programming problems. LPAssistant, developed by coauthor Gerard Keough, allows readers toperform the basic steps of the algorithms provided in the book andis freely available via the book's related Web site. The use of thesensitivity analysis report and integer programming algorithm fromthe Solver add-in for Microsoft Office Excel is introduced soreaders can solve the book's linear and integer programmingproblems. A detailed appendix contains instructions for the use ofboth applications. Additional features of the Third Edition include: A discussion of sensitivity analysis for the two-variableproblem, along with new examples demonstrating integer programming,non-linear programming, and make vs. buy models Revised proofs and a discussion on the relevance and solution ofthe dual problem A section on developing an example in Data EnvelopmentAnalysis An outline of the proof of John Nash's theorem on the existenceof equilibrium strategy pairs for non-cooperative, non-zero-sumgames Providing a complete mathematical development of all presentedconcepts and examples, Introduction to Linear Programming andGame Theory, Third Edition is an ideal text for linearprogramming and mathematical modeling courses at theupper-undergraduate and graduate levels. It also serves as avaluable reference for professionals who use game theory inbusiness, economics, and management science.

How many possible sudoku puzzles are there? In the lottery, what is the chance that two winning balls have consecutive numbers? Who invented Pascal's triangle? (it was not Pascal) Combinatorics, the branch of mathematics concerned with selecting, arranging, and listing or counting collections of objects, works to answer all these questions. Dating back some 3000 years, and initially consisting mainly of the study of permutations and combinations, its scope has broadened to include topics such as graph theory, partitions of numbers, block designs, design of codes, and latin squares. In this Very Short Introduction Robin Wilson gives an overview of the field and its applications in mathematics and computer theory, considering problems from the shortest routes covering certain stops to the minimum number of colours needed to colour a map with different colours for neighbouring countries. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This fascinating, newly revised edition offers an overview of game theory, plus lucid coverage of two-person zero-sum game with equilibrium points; general, two-person zero-sum game; utility theory; and other topics.

This book lays out foundations for a "science of morals." Binmore uses game theory as a systematic tool for investigating ethical matters. He reinterprets classical social contract ideas within a game-theory framework and generates new insights into the fundamental questions of social philosophy. In contrast to the previous writing in moral philosophy that relied on vague notion such as " societal well-being" and "moral duty," Binmore begins with individuals; rational decision-makers with the ability to empathize with one another. Any social arrangement that prescribes them to act against their interests will become unstable and eventually will be replaced by another, until one is found that includes worthwhile actions for all individuals involved.

In the 1800s mathematicians introduced a formal theory of symmetry: group theory. Now a branch of abstract algebra, this subject first arose in the theory of equations. Symmetry is an immensely important concept in mathematics and throughout the sciences, and its applications range across the entire subject. Symmetry governs the structure of crystals, innumerable types of pattern formation, how systems change their state as parameters vary; and fundamental physics is governed by symmetries in the laws of nature. It is highly visual, with applications that include animal markings, locomotion, evolutionary biology, elastic buckling, waves, the shape of the Earth, and the form of galaxies. In this Very Short Introduction, Ian Stewart demonstrates its deep implications, and shows how it plays a major role in the current search to unify relativity and quantum theory. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Chaos: A Very Short Introduction

Game-Changer: Game Theory and the Art of Transforming Strategic Situations

A Graphic Guide

The Video Game Theory Reader

Essays on Game Theory

In this Very Short Introduction, John Hendry provides a lively introduction to the nature and principles of management. Tracing its development over the past century, Hendry looks not only at the jobs managers do today and their place in the culture of work, but also provides an insight into modern management theory.

We live in a highly connected world with multiple self-interested agents interacting and myriad opportunities for conflict and cooperation. The goal of game theory is to understand these opportunities. This book presents a rigorous introduction to the mathematics of game theory without losing sight of the joy of the subject. This is done by focusing on theoretical highlights (e.g., at least six Nobel Prize winning results are developed from scratch) and by presenting exciting connections of game theory to other fields such as computer science (algorithmic game theory), economics (auctions and matching markets), social choice (and evolutionary stability), and learning theory. Both classical topics, such as zero-sum games, and modern topics, such as sponsored search auctions, are covered. Along the way, beautiful mathematical tools used in game theory are introduced, including convexity, fixed-point theorems, and probabilistic arguments. The book is appropriate for a first course in game theory at either the undergraduate or graduate level, whether in mathematics, economics, computer science, or statistics. The importance of game-theoretic thinking transcends the academic setting—for every action we take, we must consider not only its direct incentives of others.

This book deals with applications of game theory in a wide variety of disciplines.

Game theory is the mathematical study of interaction among independent, self-interested agents. The audience for game theory has grown dramatically in recent years, and now spans disciplines as diverse as political science, biology, psychology, economics, linguistics, sociology, and computer science, among others. What has been missing is a relatively short introduction to the field covering the common basis that anyone with a professional interest in game theory is likely to require. Such a text would minimize notation, ruthlessly focus on essentials, and yet not sacrifice rigor. This Synthesis Lecture aims to fill this gap b introduction to the field. It covers the main classes of games, their representations, and the main concepts used to analyze them.

We make choices all the time - about trivial matters, about how to spend our money, about how to spend our time, about what to do with our lives. And we are also constantly judging the decisions other people make as rational or irrational. But what kind of criteria are we applying when we say that a choice is rational? What guides our own choices, especially in cases where we don't have complete information about the outcomes? What strategies should be applied in making decisions which affect a lot of people, as in the case of government policy? This book explores what it means to be rational in all these contexts. It int philosophy, and other areas, showing how the theory applies to decisions in everyday life, and to particular situations such as gambling and the allocation of resources. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Number Theory

Essentials of Game Theory

The Complete Idiot's Guide to Game Theory

Game Theory and Strategy

Symmetry: A Very Short Introduction

An exciting new edition of the popular introduction to game theory and its applications The thoroughly expanded Second Edition presents a unique, hands-on approach to game theory. While most books on the subject are too abstract or too basic for mathematicians, Game Theory: An Introduction, Second Edition offers a blend of theory and applications, allowing readers to use theory and software to create and analyze real-world decision-making models. With a rigorous, yet accessible, treatment of mathematics, the book focuses on can be used to determine optimal game strategies. Game Theory: An Introduction, Second Edition demonstrates how to use modern software, such as MapleTM, Mathematica®, and Gambit, to create, analyze, and implement effective decision-making models. Coverage includes the main aspects of game theory including the fundamentals of two-person zero-sum games, cooperative games, and population games as well as a large number of examples from various fields, such as economics, transportation, warfare, asset distribution, science, and biology. The Second Edition features: • A new chapter on extensive games, which greatly expands the implementation of available models • New sections on correlated equilibria and exact formulas for three-player cooperative games • Many updated topics including threats in bargaining games and evolutionary stable strategies • Solutions and methods used to solve all odd-numbered problems • A companion website containing the related Maple and Mathematica data sets and code A trusted and proven guide for studen mathematics and economics, Game Theory: An Introduction, Second Edition is also an excellent resource for researchers and practitioners in economics, finance, engineering, operations research, statistics, and computer science.

The Fascinating Math Behind Decision-Making

A Course in Game Theory

A Nontechnical Introduction

Complexity
Natural Justice