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KEY=GREEN - KENT SAWYER

Think Bayes "O'Reilly Media, Inc." If you know how to program with Python and also know a little about probability, you're ready to tackle Bayesian statistics. With this book, you'll learn how to solve statistical problems with Python code instead of mathematical notation, and use discrete probability distributions instead of continuous mathematics. Once you get the math out of the way, the Bayesian fundamentals will become clearer, and you'll begin to apply these techniques to real-world problems. Bayesian statistical methods are becoming more common and more important, but not many resources are available to help beginners. Based on undergraduate classes taught by author Allen Downey, this book's computational approach helps you get a solid start. Use your existing programming skills to learn and understand Bayesian statistics Work with problems involving estimation, prediction, decision analysis, evidence, and hypothesis testing Get started with simple examples, using coins, M&Ms, Dungeons & Dragons dice, paintball, and hockey Learn computational methods for solving real-world problems, such as interpreting SAT scores, simulating kidney tumors, and modeling the human microbiome. **Think Java How to Think Like a Computer Scientist** "O'Reilly Media, Inc." Currently used at many colleges, universities, and high schools, this hands-on introduction to computer science is ideal for people with little or no programming experience. The goal of this concise book is not just to teach you Java, but to help you think like a computer scientist. You'll learn how to program—a useful skill by itself—but you'll also discover how to use programming as a means to an end. Authors Allen Downey and Chris Mayfield start with the most basic concepts and gradually move into topics that are more complex, such as recursion and object-oriented programming. Each brief chapter covers the material for one week of a college course and includes exercises to help you practice what you've learned. Learn one concept at a time: tackle complex topics in a series of small steps with examples Understand how to formulate problems, think creatively about solutions, and write programs clearly and accurately Determine which development techniques work best for you, and practice the important skill of debugging Learn relationships among input and output, decisions and loops, classes and methods, strings and arrays Work on exercises involving word games, graphics, puzzles, and playing cards **Think Complexity Complexity Science and Computational Modeling** "O'Reilly Media, Inc." Enhances Python skills by working with data structures and algorithms and gives examples of complex systems using exercises, case studies, and simple explanations. **Think Bayes** "O'Reilly Media, Inc." If you know how to program, you're ready to tackle Bayesian statistics. With this book, you'll learn how to solve statistical problems with Python code instead of mathematical formulas, using discrete probability distributions rather than continuous mathematics. Once you get the math out of the way, the Bayesian fundamentals will become clearer and you'll begin to apply these techniques to real-world problems. Bayesian statistical methods are becoming more common and more important, but there aren't many resources available to help beginners. Based on undergraduate classes taught by author Allen B. Downey, this book's computational approach helps you get a solid start. Use your programming skills to learn and understand Bayesian statistics Work with problems involving estimation, prediction, decision analysis, evidence, and Bayesian hypothesis testing Get started with simple examples, using coins, dice, and a bowl of cookies Learn computational methods for solving real-world problems **Think DSP Digital Signal Processing in Python** "O'Reilly Media, Inc." If you understand basic mathematics and know how to program with Python, you're ready to dive into signal processing. While most resources start with theory to teach this complex subject, this practical book introduces techniques by showing you how they're applied in the real world. In the first chapter alone, you'll be able to decompose a sound into its harmonics, modify the harmonics, and generate new sounds. Author Allen Downey explains techniques such as spectral decomposition, filtering, convolution, and the Fast Fourier Transform. This book also provides exercises and code examples to help you understand the material. You'll explore: Periodic signals and their spectrums Harmonic structure of simple waveforms Chirps and other sounds whose spectrum changes over time Noise signals and natural sources of noise The autocorrelation function for estimating pitch The discrete cosine transform (DCT) for compression The Fast Fourier Transform for spectral analysis Relating operations in time to filters in the frequency domain Linear time-invariant (LTI) system theory Amplitude modulation (AM) used in radio Other books in this series include Think Stats and Think Bayes, also by Allen Downey. **Think Stats** "O'Reilly Media, Inc." If you know how to program, you have the skills to turn data into knowledge, using tools of probability and statistics. This concise introduction shows you how to perform statistical analysis computationally, rather than mathematically, with programs written in Python. By working with a single case study throughout this thoroughly revised book, you'll learn the entire process of exploratory data analysis—from collecting data and generating statistics to identifying patterns and testing hypotheses. You'll explore distributions, rules of probability, visualization, and many other tools and concepts. New chapters on regression, time series analysis, survival analysis, and analytic methods will enrich your discoveries. Develop an understanding of probability and statistics by writing and testing code Run experiments to test statistical behavior, such as generating samples from several distributions Use simulations to understand concepts that are hard to grasp mathematically Import data from most sources with Python, rather than rely on data that's cleaned and formatted for

statistics tools Use statistical inference to answer questions about real-world data **Think Perl 6 How to Think Like a Computer Scientist** *"O'Reilly Media, Inc."* Want to learn how to program and think like a computer scientist? This practical guide gets you started on your programming journey with the help of Perl 6, the younger sister of the popular Perl programming language. Ideal for beginners, this hands-on book includes over 100 exercises with multiple solutions, and more than 1,000 code examples so you can quickly practice what you learn. Experienced programmers—especially those who know Perl 5—will also benefit. Divided into two parts, Think Perl 6 starts with basic concepts that every programmer needs to know, and then focuses on different programming paradigms and some more advanced programming techniques. With two semesters' worth of lessons, this book is the perfect teaching tool for computer science beginners in colleges and universities. Learn basic concepts including variables, expressions, statements, functions, conditionals, recursion, and loops Understand commonly used basic data structures and the most useful algorithms Dive into object-oriented programming, and learn how to construct your own types and methods to extend the language Use grammars and regular expressions to analyze textual content Explore how functional programming can help you make your code simpler and more expressive **Think Data Structures Algorithms and Information Retrieval in Java** *"O'Reilly Media, Inc."* If you're a student studying computer science or a software developer preparing for technical interviews, this practical book will help you learn and review some of the most important ideas in software engineering—data structures and algorithms—in a way that's clearer, more concise, and more engaging than other materials. By emphasizing practical knowledge and skills over theory, author Allen Downey shows you how to use data structures to implement efficient algorithms, and then analyze and measure their performance. You'll explore the important classes in the Java collections framework (JCF), how they're implemented, and how they're expected to perform. Each chapter presents hands-on exercises supported by test code online. Use data structures such as lists and maps, and understand how they work Build an application that reads Wikipedia pages, parses the contents, and navigates the resulting data tree Analyze code to predict how fast it will run and how much memory it will require Write classes that implement the Map interface, using a hash table and binary search tree Build a simple web search engine with a crawler, an indexer that stores web page contents, and a retriever that returns user query results Other books by Allen Downey include Think Java, Think Python, Think Stats, and Think Bayes. **Think Stats** *"O'Reilly Media, Inc."* If you know how to program, you have the skills to turn data into knowledge using the tools of probability and statistics. This concise introduction shows you how to perform statistical analysis computationally, rather than mathematically, with programs written in Python. You'll work with a case study throughout the book to help you learn the entire data analysis process—from collecting data and generating statistics to identifying patterns and testing hypotheses. Along the way, you'll become familiar with distributions, the rules of probability, visualization, and many other tools and concepts. Develop your understanding of probability and statistics by writing and testing code Run experiments to test statistical behavior, such as generating samples from several distributions Use simulations to understand concepts that are hard to grasp mathematically Learn topics not usually covered in an introductory course, such as Bayesian estimation Import data from almost any source using Python, rather than be limited to data that has been cleaned and formatted for statistics tools Use statistical inference to answer questions about real-world data **Probability and Bayesian Modeling** *CRC Press* Probability and Bayesian Modeling is an introduction to probability and Bayesian thinking for undergraduate students with a calculus background. The first part of the book provides a broad view of probability including foundations, conditional probability, discrete and continuous distributions, and joint distributions. Statistical inference is presented completely from a Bayesian perspective. The text introduces inference and prediction for a single proportion and a single mean from Normal sampling. After fundamentals of Markov Chain Monte Carlo algorithms are introduced, Bayesian inference is described for hierarchical and regression models including logistic regression. The book presents several case studies motivated by some historical Bayesian studies and the authors' research. This text reflects modern Bayesian statistical practice. Simulation is introduced in all the probability chapters and extensively used in the Bayesian material to simulate from the posterior and predictive distributions. One chapter describes the basic tenets of Metropolis and Gibbs sampling algorithms; however several chapters introduce the fundamentals of Bayesian inference for conjugate priors to deepen understanding. Strategies for constructing prior distributions are described in situations when one has substantial prior information and for cases where one has weak prior knowledge. One chapter introduces hierarchical Bayesian modeling as a practical way of combining data from different groups. There is an extensive discussion of Bayesian regression models including the construction of informative priors, inference about functions of the parameters of interest, prediction, and model selection. The text uses JAGS (Just Another Gibbs Sampler) as a general-purpose computational method for simulating from posterior distributions for a variety of Bayesian models. An R package ProbBayes is available containing all of the book datasets and special functions for illustrating concepts from the book. **Python for Software Design How to Think Like a Computer Scientist** *Cambridge University Press* A no-nonsense introduction to software design using the Python programming language. Written for people with no programming experience, this book starts with the most basic concepts and gradually adds new material. Some of the ideas students find most challenging, like recursion and object-oriented programming, are divided into a sequence of smaller steps and introduced over the course of several chapters. The focus is on the programming process, with special emphasis on debugging. The book includes a wide range of exercises, from short examples to substantial projects, so that students have ample opportunity to practise each new concept. Exercise solutions and code examples are available from thinkpython.com, along with Swampy, a suite of Python programs that is used in some of the exercises. **Think Python How to Think Like a Computer Scientist** *"O'Reilly Media, Inc."* If you want to learn how to program, working with Python is an excellent way to start. This hands-on guide takes you through the language a step at a time, beginning with basic programming concepts before moving on to functions, recursion, data structures, and object-oriented design. This second edition and its supporting code have been updated for Python 3. Through exercises in each chapter, you'll try out programming concepts as you learn them. Think Python is ideal for students at the high school or college level, as well as self-learners, home-schooled students, and professionals who need to learn programming basics. Beginners just getting their feet wet will learn how to start with Python in a browser. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand objects, methods, and object-oriented programming Use debugging techniques to fix syntax, runtime, and semantic errors Explore

interface design, data structures, and GUI-based programs through case studies **Bayes Or Bust? A Critical Examination of Bayesian Confirmation Theory** *Bradford Books* There is currently no viable alternative to the Bayesian analysis of scientific inference, yet the available versions of Bayesianism fail to do justice to several aspects of the testing and confirmation of scientific hypotheses. Bayes or Bust? provides the first balanced treatment of the complex set of issues involved in this nagging conundrum in the philosophy of science. Both Bayesians and anti-Bayesians will find a wealth of new insights on topics ranging from Bayes's original paper to contemporary formal learning theory. In a paper published posthumously in 1763, the Reverend Thomas Bayes made a seminal contribution to the understanding of "analogical or inductive reasoning." Building on his insights, modem Bayesians have developed an account of scientific inference that has attracted numerous champions as well as numerous detractors. Earman argues that Bayesianism provides the best hope for a comprehensive and unified account of scientific inference, yet the presently available versions of Bayesianisin fail to do justice to several aspects of the testing and confirming of scientific theories and hypotheses. By focusing on the need for a resolution to this impasse, Earman sharpens the issues on which a resolution turns. John Earman is Professor of History and Philosophy of Science at the University of Pittsburgh. **HT THINK LIKE A COMPUTER SCIEN** *Samurai Media Limited* The goal of this book is to teach you to think like a computer scientist. This way of thinking combines some of the best features of mathematics, engineering, and natural science. Like mathematicians, computer scientists use formal languages to denote ideas (specifically computations). Like engineers, they design things, assembling components into systems and evaluating tradeoffs among alternatives. Like scientists, they observe the behavior of complex systems, form hypotheses, and test predictions. The single most important skill for a computer scientist is problem solving. Problem solving means the ability to formulate problems, think creatively about solutions, and express a solution clearly and accurately. As it turns out, the process of learning to program is an excellent opportunity to practice problem-solving skills. That's why this chapter is called, The way of the program. On one level, you will be learning to program, a useful skill by itself. On another level, you will use programming as a means to an end. As we go along, that end will become clearer. **How Spies Think Ten Lessons in Intelligence** *Penguin UK* LONGLISTED FOR THE ORWELL PRIZE FOR POLITICAL WRITING 2021 'One of the best books ever written about intelligence analysis and its long-term lessons' Christopher Andrew, author of The Defence of the Realm: The Authorized History of MI5 'An invaluable guide to avoiding self-deception and fake news' Melanie Phillips, The Times From the former director of GCHQ, Professor Sir David Omand, learn the methodology used by British intelligence agencies to reach judgements, establish the right level of confidence and act decisively. Full of revealing examples from a storied career, including key briefings with Prime Ministers and strategies used in conflicts from the Cold War to the present, in How Spies Think Professor Omand arms us with the tools to sort fact from fiction, and shows us how to use real intelligence every day. **Thinking as Computation A First Course** *MIT Press* Students explore the idea that thinking is a form of computation by learning to write simple computer programs for tasks that require thought. This book guides students through an exploration of the idea that thinking might be understood as a form of computation. Students make the connection between thinking and computing by learning to write computer programs for a variety of tasks that require thought, including solving puzzles, understanding natural language, recognizing objects in visual scenes, planning courses of action, and playing strategic games. The material is presented with minimal technicalities and is accessible to undergraduate students with no specialized knowledge or technical background beyond high school mathematics. Students use Prolog (without having to learn algorithms: "Prolog without tears!"), learning to express what they need as a Prolog program and letting Prolog search for answers. After an introduction to the basic concepts, Thinking as Computation offers three chapters on Prolog, covering back-chaining, programs and queries, and how to write the sorts of Prolog programs used in the book. The book follows this with case studies of tasks that appear to require thought, then looks beyond Prolog to consider learning, explaining, and propositional reasoning. Most of the chapters conclude with short bibliographic notes and exercises. The book is based on a popular course at the University of Toronto and can be used in a variety of classroom contexts, by students ranging from first-year liberal arts undergraduates to more technically advanced computer science students. **All of Statistics A Concise Course in Statistical Inference** *Springer Science & Business Media* Taken literally, the title "All of Statistics" is an exaggeration. But in spirit, the title is apt, as the book does cover a much broader range of topics than a typical introductory book on mathematical statistics. This book is for people who want to learn probability and statistics quickly. It is suitable for graduate or advanced undergraduate students in computer science, mathematics, statistics, and related disciplines. The book includes modern topics like non-parametric curve estimation, bootstrapping, and classification, topics that are usually relegated to follow-up courses. The reader is presumed to know calculus and a little linear algebra. No previous knowledge of probability and statistics is required. Statistics, data mining, and machine learning are all concerned with collecting and analysing data. **Modeling and Simulation in Python** *No Starch Press* Modeling and Simulation in Python teaches readers how to analyze real-world scenarios using the Python programming language, requiring no more than a background in high school math. Modeling and Simulation in Python is a thorough but easy-to-follow introduction to physical modeling—that is, the art of describing and simulating real-world systems. Readers are guided through modeling things like world population growth, infectious disease, bungee jumping, baseball flight trajectories, celestial mechanics, and more while simultaneously developing a strong understanding of fundamental programming concepts like loops, vectors, and functions. Clear and concise, with a focus on learning by doing, the author spares the reader abstract, theoretical complexities and gets right to hands-on examples that show how to produce useful models and simulations. **An A-Z of Type Designers** *Yale University Press* Review: "This illustrated A-Z features outstanding type designers from around the world, from Gutenberg to the present day. Arranged alphabetically by designer's name, the book contains over 260 biographical profiles. Entries are illustrated by key typefaces taken from a wide range of sources, including type specimens, original posters, private press editions and magazine covers, and also give a list of work and, where applicable, further reading references and a website address. An essential reference for typographers, graphic designers and students, the book also features a full index and eight short texts by leading typographers - Jonathan Barnbrook, Erik van Blokland, Clive Bruton, John Downer, John Hudson, Jean Francois Porchez, Erik Spiekermann and Jeremy Tankard - that cover a variety of different aspects of type design, including typeface revivals, font piracy, designing fonts for corporate identities and the role of nationality in type design."--BOOK JACKET **Think Julia How to Think Like a Computer Scientist** *O'Reilly Media* If you're just learning how to program, Julia is an excellent JIT-compiled,

dynamically-typed language with a clean syntax. This hands-on guide uses Julia (version 1.0) to walk you through programming one step at a time, beginning with basic programming concepts before moving on to more advanced capabilities, such as creating new types and multiple dispatch. Designed from the beginning for high performance, Julia is a general-purpose language not only ideal for numerical analysis and computational science, but also for web programming or scripting. Through exercises in each chapter, you'll try out programming concepts as you learn them. Think Julia is ideal for students at the high school or college level, as well as self-learners, home-schooled students, and professionals who need to learn programming basics. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand types, methods, and multiple dispatch Use debugging techniques to fix syntax, runtime, and semantic errors Explore interface design and data structures through case studies **The Sciences of the Artificial, third edition** *MIT Press* Continuing his exploration of the organization of complexity and the science of design, this new edition of Herbert Simon's classic work on artificial intelligence adds a chapter that sorts out the current themes and tools—chaos, adaptive systems, genetic algorithms—for analyzing complexity and complex systems. There are updates throughout the book as well. These take into account important advances in cognitive psychology and the science of design while confirming and extending the book's basic thesis: that a physical symbol system has the necessary and sufficient means for intelligent action. The chapter "Economic Reality" has also been revised to reflect a change in emphasis in Simon's thinking about the respective roles of organizations and markets in economic systems. **The Challenge of Developing Statistical Literacy, Reasoning and Thinking** *Springer Science & Business Media* Unique in that it collects, presents, and synthesizes cutting edge research on different aspects of statistical reasoning and applies this research to the teaching of statistics to students at all educational levels, this volume will prove of great value to mathematics and statistics education researchers, statistics educators, statisticians, cognitive psychologists, mathematics teachers, mathematics and statistics curriculum developers, and quantitative literacy experts in education and government. **Bayesian Cognitive Modeling A Practical Course** *Cambridge University Press* Using a practical, hands-on approach, this book will teach anyone how to carry out Bayesian analyses and interpret the results. **Learning Perl** *"O'Reilly Media, Inc."* Shows how to write, debug, and run a Perl program, describes CGI scripting and data manipulation, and describes scalar values, basic operators, and associative arrays. **The Data Science Design Manual** *Springer* This engaging and clearly written textbook/reference provides a must-have introduction to the rapidly emerging interdisciplinary field of data science. It focuses on the principles fundamental to becoming a good data scientist and the key skills needed to build systems for collecting, analyzing, and interpreting data. The Data Science Design Manual is a source of practical insights that highlights what really matters in analyzing data, and provides an intuitive understanding of how these core concepts can be used. The book does not emphasize any particular programming language or suite of data-analysis tools, focusing instead on high-level discussion of important design principles. This easy-to-read text ideally serves the needs of undergraduate and early graduate students embarking on an "Introduction to Data Science" course. It reveals how this discipline sits at the intersection of statistics, computer science, and machine learning, with a distinct heft and character of its own. Practitioners in these and related fields will find this book perfect for self-study as well. Additional learning tools: Contains "War Stories," offering perspectives on how data science applies in the real world Includes "Homework Problems," providing a wide range of exercises and projects for self-study Provides a complete set of lecture slides and online video lectures at www.data-manual.com Provides "Take-Home Lessons," emphasizing the big-picture concepts to learn from each chapter Recommends exciting "Kaggle Challenges" from the online platform Kaggle Highlights "False Starts," revealing the subtle reasons why certain approaches fail Offers examples taken from the data science television show "The Quant Shop" (www.quant-shop.com) **The Arts and the Creation of Mind** *Yale University Press* Learning in and through the visual arts can develop complex and subtle aspects of the mind. Reviews in: Journal of aesthetic education. 38(2004)4(Winter. 71-98), available M05-194. **Tea War A History of Capitalism in China and India** *Yale University Press* A history of capitalism in nineteenth- and twentieth-century China and India exploring the competition between their tea industriesTea remains the world's most popular commercial drink today, and at the turn of the twentieth century, it represented the largest export industry of both China and colonial India. In analyzing the global competition between Chinese and Indian tea, Andrew B. Liu challenges past economic histories premised on the technical "divergence" between the West and the Rest, arguing instead that seemingly traditional technologies and practices were central to modern capital accumulation across Asia. He shows how competitive pressures compelled Chinese merchants to adopt abstract, industrial conceptions of time, while colonial planters in India pushed for labor indenture laws to support factory-style tea plantations. Further, characterizations of China and India as premodern backwaters, he explains, were themselves the historical result of new notions of political economy adopted by Chinese and Indian nationalists, who discovered that these abstract ideas corresponded to concrete social changes in their local surroundings. Together, these stories point toward a more flexible and globally oriented conceptualization of the history of capitalism in China and India. **Eccentric Objects Rethinking Sculpture in 1960s America** *Yale University Press* In America during the 1960s, sculpture as an artistic practice underwent a series of radical transformations. Artists including Lee Bontecou, Claes Oldenburg, Lucas Samaras, H. C. Westermann, and Bruce Nauman offered alternative ways of imagining the three-dimensional object. The objects they created were variously described as erotic, soft, figurative, aggressive, bodily, or, in the words of the critic Lucy Lippard, "eccentric." Looking beyond the familiar and canonic artworks of the 1960s, the book challenges not only how we think about these artists, but how we learn to look at the more familiar narratives of 1960s sculpture, such as Pop and Minimalism. Ambivalent and disruptive, the work of this decade articulated a radical renegotiation—rejection, even—of contemporary paradigms of sculptural practice. This invigorating study explores that shift and the ways in which the kinds of work made in this period defied established categories and questioned the criteria for thinking about sculpture. **Fundamentals of Mathematical Statistics** *Sultan Chand & Sons* Knowledge updating is a never-ending process and so should be the revision of an effective textbook. The book originally written fifty years ago has, during the intervening period, been revised and reprinted several times. The authors have, however, been thinking, for the last few years that the book needed not only a thorough revision but rather a substantial rewriting. They now take great pleasure in presenting to the readers the twelfth, thoroughly revised and enlarged, Golden Jubilee edition of the book. The subject-matter in the entire book has been re-written in the light of numerous criticisms

and suggestions received from the users of the earlier editions in India and abroad. The basis of this revision has been the emergence of new literature on the subject, the constructive feedback from students and teaching fraternity, as well as those changes that have been made in the syllabi and/or the pattern of examination papers of numerous universities. Knowledge updating is a never-ending process and so should be the revision of an effective textbook. The book originally written fifty years ago has, during the intervening period, been revised and reprinted several times. The authors have, however, been thinking, for the last few years that the book needed not only a thorough revision but rather a substantial rewriting. They now take great pleasure in presenting to the readers the twelfth, thoroughly revised and enlarged, Golden Jubilee edition of the book. 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Double Expectation Rule or Double-E Rule and many others **The Theory That Would Not Die How Bayes' Rule Cracked the Enigma Code, Hunted Down Russian Submarines, & Emerged Triumphant from Two Centuries of C** *Yale University Press* "This account of how a once reviled theory, Baye's rule, came to underpin modern life is both approachable and engrossing" (Sunday Times). A New York Times Book Review Editors' Choice Bayes' rule appears to be a straightforward, one-line theorem: by updating our initial beliefs with objective new information, we get a new and improved belief. To its adherents, it is an elegant statement about learning from experience. To its opponents, it is subjectivity run amok. In the first-ever account of Bayes' rule for general readers, Sharon Bertsch McGrayne explores this controversial theorem and the generations-long human drama surrounding it. McGrayne traces the rule's discovery by an 18th century amateur mathematician through its development by French scientist Pierre Simon Laplace. She reveals why respected statisticians rendered it professionally taboo for 150 years—while practitioners relied on it to solve crises involving great uncertainty and scanty information, such as Alan Turing's work breaking Germany's Enigma code during World War II. McGrayne also explains how the advent of computer technology in the 1980s proved to be a game-changer. Today, Bayes' rule is used everywhere from DNA de-coding to Homeland Security. Drawing on primary source material and interviews with statisticians and other scientists, The Theory That Would Not Die is the riveting account of how a seemingly simple theorem ignited one of the greatest controversies of all time. **Introduction to Probability** *American Mathematical Soc.* This text is designed for an introductory probability course at the university level for sophomores, juniors, and seniors in mathematics, physical and social sciences, engineering, and computer science. It presents a thorough treatment of ideas and techniques necessary for a firm understanding of the subject. The text is also recommended for use in discrete probability courses. The material is organized so that the discrete and continuous probability discussions are presented in a separate, but parallel, manner. This organization does not emphasize an overly rigorous or formal view of probability and therefore offers some strong pedagogical value. Hence, the discrete discussions can sometimes serve to motivate the more abstract continuous probability discussions. Features: Key ideas are developed in a somewhat leisurely style, providing a variety of interesting applications to probability and showing some nonintuitive ideas. Over 600 exercises provide the opportunity for practicing skills and developing a sound understanding of ideas. Numerous historical comments deal with the development of discrete probability. The text includes many computer programs that illustrate the algorithms or the methods of computation for important problems. The book is a beautiful introduction to probability theory at the beginning level. The book contains a lot of examples and an easy development of theory without any sacrifice of rigor, keeping the abstraction to a minimal level. It is indeed a valuable addition to the study of probability theory. --Zentralblatt MATH **Practical Statistics for Data Scientists 50 Essential Concepts** "*O'Reilly Media, Inc.*" Statistical methods are a key part of of data science, yet very few data scientists have any formal statistics training. Courses and books on basic statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you're familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data How the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that "learn" from data Unsupervised learning methods for extracting meaning from unlabeled data **Interpretable Machine Learning** *Lulu.com* **Finding What Works in Health Care Standards for Systematic Reviews** *National Academies Press* Healthcare decision makers in search of reliable information that compares health interventions increasingly turn to systematic reviews for the best summary of the evidence. Systematic reviews identify, select, assess, and synthesize the findings of similar but separate studies, and can help clarify what is known and not known about the potential benefits and harms of drugs, devices, and other healthcare services. Systematic reviews can be helpful for clinicians who want to integrate research findings into their daily practices, for patients to make well-informed choices about their own care, for professional medical societies and other organizations that develop clinical practice guidelines. Too often systematic reviews are of uncertain or poor quality. There are no universally accepted standards for developing systematic reviews leading to variability in how conflicts of interest and biases are handled, how evidence is

appraised, and the overall scientific rigor of the process. In Finding What Works in Health Care the Institute of Medicine (IOM) recommends 21 standards for developing high-quality systematic reviews of comparative effectiveness research. The standards address the entire systematic review process from the initial steps of formulating the topic and building the review team to producing a detailed final report that synthesizes what the evidence shows and where knowledge gaps remain. Finding What Works in Health Care also proposes a framework for improving the quality of the science underpinning systematic reviews. This book will serve as a vital resource for both sponsors and producers of systematic reviews of comparative effectiveness research. **How Not to Be Wrong The Power of Mathematical Thinking** *Penguin* "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. **The Psychology of Fake News Accepting, Sharing, and Correcting Misinformation** *Routledge* This volume examines the phenomenon of fake news by bringing together leading experts from different fields within psychology and related areas, and explores what has become a prominent feature of public discourse since the first Brexit referendum and the 2016 US election campaign. Dealing with misinformation is important in many areas of daily life, including politics, the marketplace, health communication, journalism, education, and science. In a general climate where facts and misinformation blur, and are intentionally blurred, this book asks what determines whether people accept and share (mis)information, and what can be done to counter misinformation? All three of these aspects need to be understood in the context of online social networks, which have fundamentally changed the way information is produced, consumed, and transmitted. The contributions within this volume summarize the most up-to-date empirical findings, theories, and applications and discuss cutting-edge ideas and future directions of interventions to counter fake news. Also providing guidance on how to handle misinformation in an age of "alternative facts", this is a fascinating and vital reading for students and academics in psychology, communication, and political science and for professionals including policy makers and journalists. **Analysing REDD+: Challenges and choices** *CIFOR* **Trust in Numbers The Pursuit of Objectivity in Science and Public Life** *Princeton University Press* A foundational work on historical and social studies of quantification What accounts for the prestige of quantitative methods? The usual answer is that quantification is desirable in social investigation as a result of its successes in science. Trust in Numbers questions whether such success in the study of stars, molecules, or cells should be an attractive model for research on human societies, and examines why the natural sciences are highly quantitative in the first place. Theodore Porter argues that a better understanding of the attractions of quantification in business, government, and social research brings a fresh perspective to its role in psychology, physics, and medicine. Quantitative rigor is not inherent in science but arises from political and social pressures, and objectivity derives its impetus from cultural contexts. In a new preface, the author sheds light on the current infatuation with quantitative methods, particularly at the intersection of science and bureaucracy. **The Making of Assisi The Pope, the Franciscans and the Painting of the Basilica** For a moment at the close of the 13th century the town of Assisi was the focus for the two greatest powers in the Latin church. The election of Nicholas IV was the catalyst for the creation of frescoes in the Basilica of San Francesco. In this book the authors investigate the particular moment the frescoes were made casting new light on their patronage and iconography. **Understanding Philosophy of Science** *Routledge* Few can imagine a world without telephones or televisions; many depend on computers and the Internet as part of daily life. Without scientific theory, these developments would not have been possible. In this exceptionally clear and engaging introduction to philosophy of science, James Ladyman explores the philosophical questions that arise when we reflect on the nature of the scientific method and the knowledge it produces. He discusses whether fundamental philosophical questions about knowledge and reality might be answered by science, and considers in detail the debate between realists and antirealists about the extent of scientific knowledge. Along the way, central topics in philosophy of science, such as the demarcation of science from non-science, induction, confirmation and falsification, the relationship between theory and observation and relativism are all addressed. Important and complex current debates over underdetermination, inference to the best explaination and the implications of radical theory change are clarified and clearly explained for those new to the subject.