The Bugs Book A Practical Introduction To Bayesian Analysis Chapman Hall Crc Texts In Statistical Science

Explores the consumption of spiders, crickets, grubs, scorpions, and dragonflies in thirteen different countries, including Australia, Japan, China, Venezuela, and the United States

The high-level language of R is recognized as one of the most powerful and flexible statistical software environments, and is rapidly becoming the standard setting for quantitative analysis, statistics and graphics. R provides free access to unrivalled coverage and cutting-edge applications, enabling the user to apply numerous statistical methods ranging from simple regression to time series or multivariate analysis. Building on the success of the author's bestselling Statistics: An Introduction using R, The R Book is packed with worked examples, providing an all inclusive guide to R, ideal for novice and more accomplished users alike. The book assumes no background in statistics or computing and introduces the advantages of the R environment, detailing its applications in a wide range of disciplines. Provides the first comprehensive reference manual for the R language, including practical guidance and full coverage of the graphics facilities. Introduces all the statistical models covered by R, beginning with simple classical tests such as chi-square and t-test. Proceeds to examine more advance methods, from regression and analysis of variance, through to generalized linear models, generalized mixed models, time series, spatial statistics, multivariate statistics and much more. The R Book is aimed at undergraduates, postgraduates and professionals in science, engineering and medicine. It is also ideal for students and professionals in statistics, economics, geography and the social sciences.

Using a practical, hands-on approach, this book will teach anyone how to carry out Bayesian analyses and interpret the results.

Gain a deeper understanding of software and learn to be a better programmer with this unique book of challenging code exercises.

This book is based on over a dozen years teaching a Bayesian Statistics course. The material presented here has been used by students of different levels and disciplines, including advanced undergraduates studying Mathematics and Statistics and students in graduate programs in Statistics, Biostatistics, Engineering, Economics, Marketing, Pharmacy, and Psychology. The goal of the book is to impart the basics of designing and carrying out Bayesian analyses, and interpreting and communicating the results. In addition, readers will learn to use the predominant software for Bayesian model-fitting, R and OpenBUGS. The practical approach this book takes will help students of all levels to build

understanding of the concepts and procedures required to answer real questions by performing Bayesian analysis of real data. Topics covered include comparing and contrasting Bayesian and classical methods, specifying hierarchical models, and assessing Markov chain Monte Carlo output. Kate Cowles taught Suzuki piano for many years before going to graduate school in Biostatistics. Her research areas are Bayesian and computational statistics, with application to environmental science. She is on the faculty of Statistics at The University of Iowa.

"This is a lovely little book that could and should have a big impact...Let's all get rebugging right away!"—Hugh Fearnley-Whittingstall Meet the intelligent insects, marvelous minibeasts, and inspirational invertebrates that help shape our planet—and discover how you can help them help us by rebugging your attitude today! Remember when there were bugs on your windshield? Ever wonder where they went? We need to act now if we are to help the insects survive. Robin Wall Kimmerer, David Attenborough, and Elizabeth Kolbert are but a few voices championing the rewilding of our world. Rebugging the Planet explains how we are headed toward "insectageddon" with a rate of insect extinction eight times faster than that of mammals or birds, and gives us crucial information to help all those essential creepy-crawlies flourish once more. Author Vicki Hird passionately demonstrates how insects and invertebrates are the cornerstone of our global ecosystem. They pollinate plants, feed birds, support and defend our food crops, and clean our water systems. They are also beautiful, inventive, and economically invaluable—bees, for example, contribute an estimated $235 to $577 billion to the US economy annually, according to Forbes. Rebugging the Planet shows us small changes we can make to have a big impact on our littlest allies: Learn how to rewild parks, schools, sidewalks, roadsides, and other green spaces. Leave your garden to grow a little wild and plant weedkiller-free, wildlife-friendly plants. Take your kids on a minibeast treasure hunt and learn how to build bug palaces. Make bug-friendly choices with your food and support good farming practices Begin to understand how reducing inequality and poverty will help nature and wildlife too—it's all connected. So do your part and start rebugging today! The bees, ants, earthworms, butterflies, beetles, grasshoppers, ladybugs, snails, and slugs will thank you—and our planet will thank you too.

Bayesian Statistical Methods provides data scientists with the foundational and computational tools needed to carry out a Bayesian analysis. This book focuses on Bayesian methods applied routinely in practice including multiple linear regression, mixed effects models and generalized linear models (GLM). The authors include many examples with complete R code and comparisons with analogous frequentist procedures. In addition to the basic concepts of Bayesian inferential methods, the book covers many general topics: Advice on selecting prior distributions Computational methods including Markov chain Monte Carlo (MCMC) Model-comparison and goodness-of-fit measures, including sensitivity to priors Frequentist properties of Bayesian methods Case studies covering advanced topics illustrate the flexibility of the

Bayesian approach: Semiparametric regression Handling of missing data using predictive distributions Priors for high-dimensional regression models Computational techniques for large datasets Spatial data analysis The advanced topics are presented with sufficient conceptual depth that the reader will be able to carry out such analysis and argue the relative merits of Bayesian and classical methods. A repository of R code, motivating data sets, and complete data analyses are available on the book's website. Brian J. Reich, Associate Professor of Statistics at North Carolina State University, is currently the editor-in-chief of the Journal of Agricultural, Biological, and Environmental Statistics and was awarded the LeRoy & Elva Martin Teaching Award. Sujit K. Ghosh, Professor of Statistics at North Carolina State University, has over 22 years of research and teaching experience in conducting Bayesian analyses, received the Cavell Brownie mentoring award, and served as the Deputy Director at the Statistical and Applied Mathematical Sciences Institute.

A hands-on introduction to the principles of Bayesian modeling using WinBUGS Bayesian Modeling Using WinBUGS provides an easily accessible introduction to the use of WinBUGS programming techniques in a variety of Bayesian modeling settings. The author provides an accessible treatment of the topic, offering readers a smooth introduction to the principles of Bayesian modeling with detailed guidance on the practical implementation of key principles. The book begins with a basic introduction to Bayesian inference and the WinBUGS software and goes on to cover key topics, including: Markov Chain Monte Carlo algorithms in Bayesian inference Generalized linear models Bayesian hierarchical models Predictive distribution and model checking Bayesian model and variable evaluation Computational notes and screen captures illustrate the use of both WinBUGS as well as R software to apply the discussed techniques. Exercises at the end of each chapter allow readers to test their understanding of the presented concepts and all data sets and code are available on the book's related Web site. Requiring only a working knowledge of probability theory and statistics, Bayesian Modeling Using WinBUGS serves as an excellent book for courses on Bayesian statistics at the upper-undergraduate and graduate levels. It is also a valuable reference for researchers and practitioners in the fields of statistics, actuarial science, medicine, and the social sciences who use WinBUGS in their everyday work.

This is the first comprehensive firefly guide for eastern and central North America ever published. It is written for all those who want to know more about the amazing world of lightning bugs and learn the secrets hidden in the flash patterns of the 75+ species found in the eastern and central U.S. and Canada. As an independent researcher working with numerous university teams, naturalist Lynn Frierson Faust, "The Lightning Bug Lady," has spent decades tracking the behavior and researching the habitats of these fascinating creatures. Based on her twenty-five years of field work, this book is intended to increase understanding and appreciation of bioluminescent insects while igniting enthusiasm in a fun

and informative way. Species accounts are coupled with historical background and literary epigraphs to engage and draw readers young and old into the world of these tiny sparklers. A chart documenting the flash patterns of the various species will aid in identification. Clear photos illustrate the insects' distinguishing physical characteristics, while habitats, seasonality, and common names are provided in clear, easy-to-understand yet scientifically accurate language. The guide will be welcomed by everyone who wants to learn more about fireflies' and glow-worms' unique traits and about their fragile niche in the ecosystem. FEATURES Over 600 color photographsDetailed accounts and anatomical diagrams of 75+ species, as well as aids in distinguishing between similar speciesA first-of-its-kind flash-pattern chart that folds out on heavy-weight paper • Extensive scientific details written in an understandable and engaging wayColorful, common names—Twilight Bush Baby, Shadow Ghosts, and Snappy Syncs, and more—for easy species identification based on flash patternsTips on ideal sites and times of year for firefly watchingConservation-oriented approach Introduction to WinBUGS for Ecologists introduces applied Bayesian modeling to ecologists using the highly acclaimed, free WinBUGS software. It offers an understanding of statistical models as abstract representations of the various processes that give rise to a data set. Such an understanding is basic to the development of inference models tailored to specific sampling and ecological scenarios. The book begins by presenting the advantages of a Bayesian approach to statistics and introducing the WinBUGS software. It reviews the four most common statistical distributions: the normal, the uniform, the binomial, and the Poisson. It describes the two different kinds of analysis of variance (ANOVA): one-way and two- or multiway. It looks at the general linear model, or ANCOVA, in R and WinBUGS. It introduces generalized linear model (GLM), i.e., the extension of the normal linear model to allow error distributions other than the normal. The GLM is then extended contain additional sources of random variation to become a generalized linear mixed model (GLMM) for a Poisson example and for a binomial example. The final two chapters showcase two fairly novel and nonstandard versions of a GLMM. The first is the site-occupancy model for species distributions; the second is the binomial (or N-) mixture model for estimation and modeling of abundance. Introduction to the essential theories of key models used by ecologists Complete juxtaposition of classical analyses in R and Bayesian analysis of the same models in WinBUGS Provides every detail of R and WinBUGS code required to conduct all analyses Companion Web Appendix that contains all code contained in the book and additional material (including more code and solutions to exercises) Provides a one-stop resource for engineers learning biostatistics using MATLAB® and WinBUGS Through its scope and depth of coverage, this book addresses the needs of the vibrant and rapidly growing bio-oriented engineering fields while implementing software packages that are familiar to engineers. The book is heavily oriented to computation and hands-on approaches so readers understand each step of the programming. Another dimension of this book is in parallel

coverage of both Bayesian and frequentist approaches to statistical inference. It avoids taking sides on the classical vs. Bayesian paradigms, and many examples in this book are solved using both methods. The results are then compared and commented upon. Readers have the choice of MATLAB® for classical data analysis and WinBUGS/OpenBUGS for Bayesian data analysis. Every chapter starts with a box highlighting what is covered in that chapter and ends with exercises, a list of software scripts, datasets, and references. Engineering Biostatistics: An Introduction using MATLAB® and WinBUGS also includes: parallel coverage of classical and Bayesian approaches, where appropriate substantial coverage of Bayesian approaches to statistical inference material that has been classroom-tested in an introductory statistics course in bioengineering over several years exercises at the end of each chapter and an accompanying website with full solutions and hints to some exercises, as well as additional materials and examples Engineering Biostatistics: An Introduction using MATLAB® and WinBUGS can serve as a textbook for introductory-to-intermediate applied statistics courses, as well as a useful reference for engineers interested in biostatistical approaches.

Bayesian statistical methods have become widely used for data analysis and modelling in recent years, and the BUGS software has become the most popular software for Bayesian analysis worldwide. Authored by the team that originally developed this software, The BUGS Book provides a practical introduction to this program and its use. The text presents complete coverage of all the functionalities of BUGS, including prediction, missing data, model criticism, and prior sensitivity. It also features a large number of worked examples and a wide range of applications from various disciplines. The book introduces regression models, techniques for criticism and comparison, and a wide range of modelling issues before going into the vital area of hierarchical models, one of the most common applications of Bayesian methods. It deals with essentials of modelling without getting bogged down in complexity. The book emphasises model criticism, model comparison, sensitivity analysis to alternative priors, and thoughtful choice of prior distributions—all those aspects of the "art" of modelling that are easily overlooked in more theoretical expositions. More pragmatic than ideological, the authors systematically work through the large range of "tricks" that reveal the real power of the BUGS software, for example, dealing with missing data, censoring, grouped data, prediction, ranking, parameter constraints, and so on. Many of the examples are biostatistical, but they do not require domain knowledge and are generalisable to a wide range of other application areas. Full code and data for examples, exercises, and some solutions can be found on the book's website.

Survival Analysis with Interval-Censored Data: A Practical Approach with Examples in R, SAS, and BUGS provides the reader with a practical introduction into the analysis of interval-censored survival times. Although many theoretical developments have appeared in the last fifty years, interval censoring is often ignored in practice. Many are unaware of

the impact of inappropriately dealing with interval censoring. In addition, the necessary software is at times difficult to trace. This book fills in the gap between theory and practice. Features: -Provides an overview of frequentist as well as Bayesian methods. -Include a focus on practical aspects and applications. -Extensively illustrates the methods with examples using R, SAS, and BUGS. Full programs are available on a supplementary website. The authors: Kris Bogaerts is project manager at I-BioStat, KU Leuven. He received his PhD in science (statistics) at KU Leuven on the analysis of interval-censored data. He has gained expertise in a great variety of statistical topics with a focus on the design and analysis of clinical trials. Arnošt Komárek is associate professor of statistics at Charles University, Prague. His subject area of expertise covers mainly survival analysis with the emphasis on interval-censored data and classification based on longitudinal data. He is past chair of the Statistical Modelling Society?and editor of?Statistical Modelling: An International Journal. Emmanuel Lesaffre is professor of biostatistics at I-BioStat, KU Leuven. His research interests include Bayesian methods, longitudinal data analysis, statistical modelling, analysis of dental data, interval-censored data, misclassification issues, and clinical trials. He is the founding chair of the?Statistical Modelling Society, past-president of the?International Society for Clinical Biostatistics,?and fellow of?ISI?and?ASA.

Supported by a wealth of learning features, exercises, and visual elements as well as online video tutorials and interactive simulations, this book is the first student-focused introduction to Bayesian statistics. Without sacrificing technical integrity for the sake of simplicity, the author draws upon accessible, student-friendly language to provide approachable instruction perfectly aimed at statistics and Bayesian newcomers. Through a logical structure that introduces and builds upon key concepts in a gradual way and slowly acclimatizes students to using R and Stan software, the book covers: An introduction to probability and Bayesian inference Understanding Bayes' rule Nuts and bolts of Bayesian analytic methods Computational Bayes and real-world Bayesian analysis Regression analysis and hierarchical methods This unique guide will help students develop the statistical confidence and skills to put the Bayesian formula into practice, from the basic concepts of statistical inference to complex applications of analyses.

"The Insectarium" is a vintage guide to setting up and maintaining an insectarium, originally written for entomologists and naturalists. An insectarium is an artificial habitat for insects where they can be displayed and studied. They usually contain a variety of insects and similar arthropods, such as spiders, beetles, cockroaches, ants, bees, millipedes, centipedes, crickets, grasshoppers, etc. This volume contains practical tips on creating and maintaining one, as well as information on where and how insects can be captured. Contents include: "The Capture of Insects", "Beetles", "Butterflies and Moths", "Insectarium", "Origin of the Insectarium", "How an Insectarium should be Constructed and Regulated", "Caterpillar Breeding in the Insectarium", "How to Preserve Butterflies in the Insectarium", "Ichneumon

Parasites", etc. Many vintage books such as this are increasingly scarce and expensive. It is with this in mind that we are republishing this volume now in a new, affordable, modern edition complete with the original text and artwork.

This title is a much needed update of Barbosa's self-published Manual of Basic Techniques in Insect Histology. It is a laboratory manual of 'traditional' and 'modern' insect histology techniques, completely revised using cutting-edge methodology carried out today and includes new immunohistochemical techniques not previously looked at. Insect Histology is designed as a resource for student and professional researchers, in academia and industry, who require basic information on the procedures that are essential for the histological display of the tissues of insects and related organisms.

Discusses the anatomy, life cycle, and behavior of different insects, and explains how each group of insects differs from another

"...this edition is useful and effective in teaching Bayesian inference at both elementary and intermediate levels. It is a well-written book on elementary Bayesian inference, and the material is easily accessible. It is both concise and timely, and provides a good collection of overviews and reviews of important tools used in Bayesian statistical methods." There is a strong upsurge in the use of Bayesian methods in applied statistical analysis, yet most introductory statistics texts only present frequentist methods. Bayesian statistics has many important advantages that students should learn about if they are going into fields where statistics will be used. In this third Edition, four newly-added chapters address topics that reflect the rapid advances in the field of Bayesian statistics. The authors continue to provide a Bayesian treatment of introductory statistical topics, such as scientific data gathering, discrete random variables, robust Bayesian methods, and Bayesian approaches to inference for discrete random variables, binomial proportions, Poisson, and normal means, and simple linear regression. In addition, more advanced topics in the field are presented in four new chapters: Bayesian inference for a normal with unknown mean and variance; Bayesian inference for a Multivariate Normal mean vector; Bayesian inference for the Multiple Linear Regression Model; and Computational Bayesian Statistics including Markov Chain Monte Carlo. The inclusion of these topics will facilitate readers' ability to advance from a minimal understanding of Statistics to the ability to tackle topics in more applied, advanced level books. Minitab macros and R functions are available on the book's related website to assist with chapter exercises. Introduction to Bayesian Statistics, Third Edition also features: Topics including the Joint Likelihood function and inference using independent Jeffreys priors and join conjugate prior The cutting-edge topic of computational Bayesian Statistics in a new chapter, with a unique focus on Markov Chain Monte Carlo methods Exercises throughout the book that have been updated to reflect new applications and the latest software applications Detailed appendices that guide readers through the use of R and Minitab software for Bayesian analysis and Monte Carlo simulations, with all related macros available on the book's website Introduction to Bayesian Statistics, Third Edition is a textbook for upper-undergraduate or first-year graduate level courses on introductory statistics course with a Bayesian emphasis. It can also be used as a reference work for statisticians who require a working knowledge of Bayesian statistics.

We can't avoid insects. They scurry past us in the kitchen, pop up in our gardens, or are presented to us in jars by inquisitive children. Despite encountering them on a daily basis, most people don't know an aphid from an antlion, and identifying an insect using field guides or internet searches can be daunting. Miniature Lives provides a range of simple strategies that people can use to identify and learn more about

the insects in their homes and gardens. Featuring a step-by-step, illustrated identification key and detailed illustrations and colour photographs, the book guides the reader through the basics of entomology (the study of insects). Simple explanations, amusing analogies and quirky facts describe where insects live, how they grow and protect themselves, the clues they leave behind and their status as friend or foe in a way that is both interesting and easy to understand. Gardeners, nature lovers, students, teachers, and parents and grandparents of bug-crazed kids will love this comprehensive guide to the marvellous diversity of insects that surrounds us and the miniature lives they lead. "A successful and funny book that is sure to swell the ranks of the world's beekeepers." —New York Times A fascinating foray into the obsessions, friendships, scientific curiosity, misfortunes and rewards of suburban beekeeping—through the eyes of a Master Beekeeper . . . Who wants to keep bees? And why? For the answers, Master Beekeeper Frank Mortimer invites readers on an eye-opening journey into the secret world of bees, and the singular world of his fellow bee-keepers. There's the Badger, who introduces Frank to the world of bees; Rusty, a one-eyed septuagenarian bee sting therapist certain that honey will be the currency of the future after the governments fail; Scooby the "dude" who gets a meditative high off the awesome vibes of his psychedelia-painted hives; and the Berserker, a honeybee hitman who teaches Frank a rafter-raising lesson in staving off the harmful influences of an evil queen: "Squash her, mash her, kill, kill, kill!" Frank also crosses paths with those he calls the Surgeons (precise and protected), the Cowboys (improvisational and unguarded) and the Poseurs, ex-corporate cogs, YouTube-informed and ill-prepared for the stinging reality of their new lives. In connecting with this club of disparate but kindred spirits, Frank discovers the centuries-old history of the trade; the practicality of maintaining it; what bees see, think, and feel (emotionless but sometimes a little defensive); how they talk to each other and socialize; and what can be done to combat their biggest threats, both human (anti-apiarist extremists) and mite (the Varroa Destructor). With a swarm of offbeat characters and fascinating facts (did that bee just waggle or festoon?), Frank the Bee Man delivers an informative, funny, and galvanizing book about the symbiotic relationship between flower and bee, and bee and the beekeepers who are determined to protect the existence of one of the most beguiling and invaluable creatures on earth. "A very entertaining book." —American Bee Journal "A playful storyteller… A compelling memoir." —Foreword Reviews "A useful how-to guide as well as an affectionate ode to nature's pollinators and honey makers." —Publishers Weekly "This book includes great humor and a use of allegory that reveals tremendous background knowledge." —San Francisco Book Review "Frank's personal stories of his beekeeping journey are entertaining, well written, and will quickly have you happily lost in the world of bees." —Paleo Magazine "Bee People and the Bugs They Love is the bee's knees and getting a ton of buzz. Bee smart, people, and read this un-BEE-lievably interesting look at the quirky world of beekeeping." —Harlan Coben, #1 New York Times bestselling author "A delightful portrayal for non-beekeepers of what life is like for those of us who are always thinking about bees." —Tom Seeley, author of The Lives of Bees "A fun and exciting tale of the wonder-filled world of beginner beekeeping." —Noah Wilson-Rich, author of Bee: A Natural History , and CEO and partner The Best Bees Company

This book doesn't tell you how to write faster code, or how to write code with fewer memory leaks, or even how to debug code at all. What it does tell you is how to build your product in better ways, how to keep track of the code that you write, and how to track the bugs in your code. Plus some more things you'll wish you had known before starting a project. Practical Development Environments is a guide, a collection of advice about real development environments for small to medium-sized projects and groups. Each of the chapters considers a different kind of tool - tools for tracking versions of files, build tools, testing tools, bug-tracking tools, tools for creating documentation, and tools for creating packaged releases. Each chapter discusses what you should look for in that kind of tool and what to avoid, and also describes some good

ideas, bad ideas, and annoying experiences for each area. Specific instances of each type of tool are described in enough detail so that you can decide which ones you want to investigate further. Developers want to write code, not maintain makefiles. Writers want to write content instead of manage templates. IT provides machines, but doesn't have time to maintain all the different tools. Managers want the product to move smoothly from development to release, and are interested in tools to help this happen more often. Whether as a full-time position or just because they are helpful, all projects have toolsmiths: making choices about tools, installing them, and then maintaining the tools that everyone else depends upon. This book is especially for everyone who ends up being a toolsmith for his or her group.

Practical Vulnerability Management shows you how to weed out system security weaknesses and squash cyber threats in their tracks. Bugs: they're everywhere. Software, firmware, hardware -- they all have them. Bugs even live in the cloud. And when one of these bugs is leveraged to wreak havoc or steal sensitive information, a company's prized technology assets suddenly become serious liabilities. Fortunately, exploitable security weaknesses are entirely preventable; you just have to find them before the bad guys do. Practical Vulnerability Management will help you achieve this goal on a budget, with a proactive process for detecting bugs and squashing the threat they pose. The book starts by introducing the practice of vulnerability management, its tools and components, and detailing the ways it improves an enterprise's overall security posture. Then it's time to get your hands dirty! As the content shifts from conceptual to practical, you're guided through creating a vulnerability-management system from the ground up, using open-source software. Along the way, you'll learn how to: • Generate accurate and usable vulnerability intelligence • Scan your networked systems to identify and assess bugs and vulnerabilities • Prioritize and respond to various security risks • Automate scans, data analysis, reporting, and other repetitive tasks • Customize the provided scripts to adapt them to your own needs Playing whack-a-bug won't cut it against today's advanced adversaries. Use this book to set up, maintain, and enhance an effective vulnerability management system, and ensure your organization is always a step ahead of hacks and attacks.

Freshwater invertebrates identification guide for both professionals and non-professionals. Contains a key to all the macroinvertebrate groups and photographs of live specimens.

A book about programming, improving skill, and avoiding mistakes.The author spent two years researching every bug avoidance technique she could find. This book contains the best of them.If you want to program faster, with fewer bugs, and write more secure code, buy this book!http://www.zerobugsandprogramfaster.net

CD-ROM contains: Canned HEAT v.2.0 -- Holodeck Lite v. 1.0.

The BUGS BookA Practical Introduction to Bayesian AnalysisCRC Press

Ladybugs, snails, and butterflies! Oh my! This charming introduction to ten garden bugs, paired with friendly text and bold, basic patterns, provides a great high-contrast experience for young developing eyes. Newborns cannot fully recognize colors, so the sharp contrast between black and white patterns and illustrations allows babies to follow along and make connections to the real world, an important building block for communication skills. Using simple greetings like "Hello, bumblebee" and "Good to see you, dragonfly" alongside black-and-white art by Julissa Mora, Hello, Garden Bugs is the perfect board book for babies just beginning to look around and learn about their world. Featured in Omnivoracious. Also available: Hello, Baby Animals and Hello, Ocean Friends. Coming soon: Hello, My World.

Fun guide to learning Bayesian statistics and probability through unusual and illustrative examples. Probability and statistics are increasingly important in a huge range of professions. But many people use data in ways they don't even understand, meaning they aren't getting the

most from it. Bayesian Statistics the Fun Way will change that. This book will give you a complete understanding of Bayesian statistics through simple explanations and un-boring examples. Find out the probability of UFOs landing in your garden, how likely Han Solo is to survive a flight through an asteroid shower, how to win an argument about conspiracy theories, and whether a burglary really was a burglary, to name a few examples. By using these off-the-beaten-track examples, the author actually makes learning statistics fun. And you'll learn real skills, like how to: - How to measure your own level of uncertainty in a conclusion or belief - Calculate Bayes theorem and understand what it's useful for - Find the posterior, likelihood, and prior to check the accuracy of your conclusions - Calculate distributions to see the range of your data - Compare hypotheses and draw reliable conclusions from them Next time you find yourself with a sheaf of survey results and no idea what to do with them, turn to Bayesian Statistics the Fun Way to get the most value from your data.

Examining the enormous potential of microbiome manipulation to improve health Associations between the composition of the intestinal microbiome and many human diseases, including inflammatory bowel disease, cardiovascular disease, metabolic disorders, and cancer, have been elegantly described in the past decade. Now, whole-genome sequencing, bioinformatics, and precision gene-editing techniques are being combined with centuries-old therapies, such as fecal microbiota transplantation, to translate current research into new diagnostics and therapeutics to treat complex diseases. Bugs as Drugs provides a much-needed overview of microbes in therapies and will serve as an excellent resource for scientists and clinicians as they carry out research and clinical studies on investigating the roles the microbiota plays in health and disease. In Bugs as Drugs, editors Robert A. Britton and Patrice D. Cani have assembled a fascinating collection of reviews that chart the history, current efforts, and future prospects of using microorganisms to fight disease and improve health. Sections cover traditional uses of probiotics, next-generation microbial therapeutics, controlling infectious diseases, and indirect strategies for manipulating the host microbiome. Topics presented include: How well-established probiotics support and improve host health by improving the composition of the intestinal microbiota of the host and by modulating the host immune response. The use of gene editing and recombinant DNA techniques to create tailored probiotics and to characterize next-generation beneficial microbes. For example, engineering that improves the anti-inflammatory profile of probiotics can reduce the number of colonic polyps formed, and lactobacilli can be transformed into targeted delivery systems carrying therapeutic proteins or bioengineered bacteriophage. The association of specific microbiota composition with colorectal cancer, liver diseases, osteoporosis, and inflammatory bowel disease. The gut microbiota has been proposed to serve as an organ involved in regulation of inflammation, immune function, and energy homeostasis. Fecal microbiota transplantation as a promising treatment for numerous diseases beyond C. difficile infection. Practical considerations for using fecal microbiota transplantation are provided, while it is acknowledged that more high-quality evidence is needed to ascertain the importance of strain specificity in positive treatment outcomes. Because systems biology approaches and synthetic engineering of microbes are now high-throughput and cost-effective, a much wider range of therapeutic possibilities can be explored and vetted.

The practical implications of technical debt for the entire software lifecycle; with examples and case studies. Technical debt in software is incurred when developers take shortcuts and make ill-advised technical decisions in the initial phases of a project, only to be confronted with the need for costly and labor-intensive workarounds later. This book offers advice on how to avoid technical debt, how to locate its sources, and how to remove it. It focuses on the practical implications of technical debt for the entire software life cycle, with examples and case studies from companies that range from Boeing to Twitter. Technical debt is normal; it is part of most iterative development processes. But if debt is ignored, over time it may become unmanageably complex, requiring developers to spend all of their effort fixing bugs, with no time to

add new features--and after all, new features are what customers really value. The authors explain how to monitor technical debt, how to measure it, and how and when to pay it down. Broadening the conventional definition of technical debt, they cover requirements debt, implementation debt, testing debt, architecture debt, documentation debt, deployment debt, and social debt. They intersperse technical discussions with "Voice of the Practitioner" sidebars that detail real-world experiences with a variety of technical debt issues. Provides information on ways to find security bugs in software before it is released.

Uses real-world bug reports (vulnerabilities in software or in this case web applications) to teach programmers and InfoSec professionals how to discover and protect vulnerabilities in web applications. Real-World Bug Hunting is a field guide to finding software bugs. Ethical hacker Peter Yaworski breaks down common types of bugs, then contextualizes them with real bug bounty reports released by hackers on companies like Twitter, Facebook, Google, Uber, and Starbucks. As you read each report, you'll gain deeper insight into how the vulnerabilities work and how you might find similar ones. Each chapter begins with an explanation of a vulnerability type, then moves into a series of real bug bounty reports that show how the bugs were found. You'll learn things like how Cross-Site Request Forgery tricks users into unknowingly submitting information to websites they are logged into; how to pass along unsafe JavaScript to execute Cross-Site Scripting; how to access another user's data via Insecure Direct Object References; how to trick websites into disclosing information with Server Side Request Forgeries; and how bugs in application logic can lead to pretty serious vulnerabilities. Yaworski also shares advice on how to write effective vulnerability reports and develop relationships with bug bounty programs, as well as recommends hacking tools that can make the job a little easier.

Pretty ladybugs, fluttering butterflies, creepy daddy longlegs, and roly-poly bugs are some of the familiar creatures featured in this whimsically illustrated insect album. Complete with an "actual size" chart and bug-o-meter listing fun facts about each bug, Bugs! Bugs! Bugs! will inform and entertain curious little bug lovers everywhere.

The good, the bad, the ugly.

Learn how to design complex, correct programs and fix problems before writing a single line of code. This book is a practical, comprehensive resource on TLA+ programming with rich, complex examples. Practical TLA+ shows you how to use TLA+ to specify a complex system and test the design itself for bugs. You'll learn how even a short TLA+ spec can find critical bugs. Start by getting your feet wet with an example of TLA+ used in a bank transfer system, to see how it helps you design, test, and build a better application. Then, get some fundamentals of TLA+ operators, logic, functions, PlusCal, models, and concurrency. Along the way you will discover how to organize your blueprints and how to specify distributed systems and eventual consistency. Finally, you'll put what you learn into practice with some working case study applications, applying TLA+ to a wide variety of practical problems: from algorithm performance and data structures to business code and MapReduce. After reading and using this book, you'll have what you need to get started with TLA+ and how to use it in your mission-critical applications. What You'll Learn Read and write TLA+ specs Check specs for broken invariants, race conditions, and liveness bugs Design concurrency and distributed systems Learn how TLA+ can help you with your day-to-day production work Who This Book Is For Those with programming experience who are new to design and to TLA+. /div

This practical, non-technical introduction to insect classification offers a well-illustrated, straight-forward primer in entomology. Whether you are part of a master naturalist program, are interested in environmentally friendly pest management, or simply enjoy knowing what to call that strange-looking bug on your back porch, "Insects of Texas" will be your first resource for insect classification and identification. This book will help you sort out many of the millions of insect species by learning the readily distinguishable field characteristics needed to identify groups most commonly seen in Texas. David H. Kattes provides short tutorials on morphology and metamorphosis and uses a simple color-coding scheme to present the five classes of arthropods and the orders, suborders, and families of insects most relevant to Texas observers. Photo keys, pronunciation guides, illustrated tables, abundant photographs, and highlighted accounts of physical and biological characteristics help introduce readers to the various tiny creatures that inhabit our world, steering them through arachnids, crustaceans, millipedes, centipedes, and hexapods. Within each account, Kattes comments on habits and other interesting information, reflecting his long experience in teaching and speaking to a variety of receptive audiences.

When Love bug wakes up feeling discouraged about his life, and having no purpose, he goes on an adventure to find it, alone and a little nervous. In his quest to find purpose, Love Bug stumbles upon many different kinds of buts, including Tickle Bug and Litter Bug and discovers that each bug has their own unique talents - making him realize he knew his purpose all along!

A collection of unusual facts, games, puzzles, activities, and artwork centering around the world of insects.

Bayesian statistical methods have become widely used for data analysis and modelling in recent years, and the BUGS software has become the most popular software for Bayesian analysis worldwide. Authored by the team that originally developed this software, The BUGS Book provides a practical introduction to this program and its use. The text presents complete coverage of all the functionalities of BUGS, including prediction, missing data, model criticism, and prior sensitivity. It also features a large number of worked examples and a wide range of applications from various disciplines. The book introduces regression models, techniques for criticism and comparison, and a wide range of modelling issues before going into the vital area of hierarchical models, one of the most common applications of Bayesian methods. It deals with essentials of modelling without getting bogged down in complexity. The book emphasises model criticism, model comparison, sensitivity analysis to alternative priors, and thoughtful choice of prior distributionsall those aspects of the "art" of modelling that are easily overlooked in more theoretical expositions. More pragmatic than ideological, the authors systematically work through the large range of "tricks" that reveal the real power of the BUGS software, for example, dealing with missing data, censoring, grouped data, prediction, ranking, parameter constraints, and so on. Many of the examples are biostatistical, but they do not require domain knowledge and are generalisable to a wide range of other application areas. Full code and data for examples, exercises, and some solutions can be found on the books website.

Chronicles the evolution of insects and explains how evolutionary innovations have enabled them to disperse widely, occupy narrow niches, and survive global catastrophes.