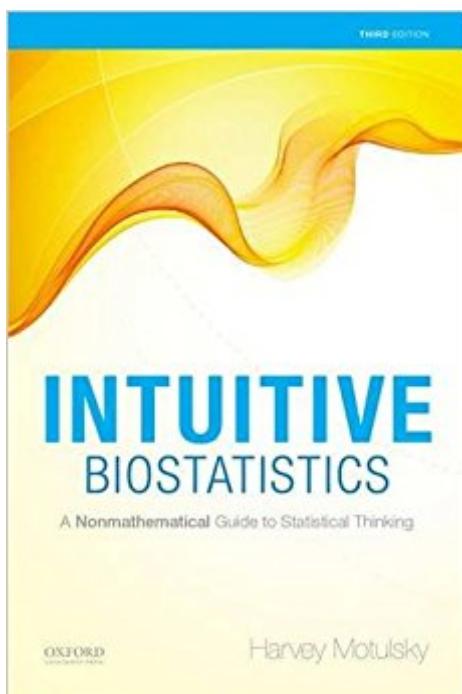The book was found

Intuitive Biostatistics: A Nonmathematical Guide To Statistical Thinking, 3rd Edition

Synopsis

Thoroughly revised and updated, the third edition of Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking retains and refines the core perspectives of the previous editions: a focus on how to interpret statistical results rather than on how to analyze data, minimal use of equations, and a detailed review of assumptions and common mistakes.With its engaging and conversational tone, this unique book provides a clear introduction to statistics for undergraduate and graduate students in a wide range of fields and also serves as a statistics refresher for working scientists. It is especially useful for those students in health-science related fields who have no background in biostatistics. CONTENTSPart A: Introducing Statistics 1. Statistics and Probability Are Not Intuitive 2. The Complexities of Probability 3. From Sample to Population Part B: Confidence Intervals 4. Confidence Interval of a Proportion 5. Confidence Interval of Survival Data 6. Confidence Interval of Counted Data Part C: Continuous Variables 7. Graphing Continuous Data 8. Types of Variables 9. Quantifying Scatter 10. The Gaussian Distribution 11. The Lognormal Distribution and Geometric Mean12. Confidence Interval of a Mean 13. The Theory of Confidence Intervals14. Error Bars PART D: P Values and Significance 15. Introducing P Values 16. Statistical Significance and Hypothesis Testing17. Relationship Between Confidence Intervals and Statistical Significance 18. Interpreting a Result That Is Statistically Significant 19. Interpreting a Result That Is Not Statistically Significant 20. Statistical Power21. Testing for Equivalence or NoninferiorityPART E: Challenges in Statistics 22. Multiple Comparisons Concepts 23. The Ubiquity of Multiple Comparison24. Normality Tests25. Outliers 26. Choosing a Sample SizePART F: Statistical Tests 27. Comparing Proportions28. Case-Control Studies29. Comparing Survival Curves 30. Comparing Two Means: Unpaired t Test31. Comparing Two Paired Groups32. Correlation PART G: Fitting Models to Data 33. Simple Linear Regression34. Introducing Models 35. Comparing Models 36. Nonlinear Regression37. Multiple Regression 38. Logistic and Proportional Hazards RegressionPART H The Rest of Statistics 39. Analysis of Variance 40. Multiple Comparison Tests After ANOVA 41. Nonparametric Methods42. Sensitivity and Specificity and Receiver-Operator Characteristic Curves 43. Meta-analysisPART I Putting It All Together 44. The Key Concepts of Statistics45. Statistical Traps to Avoid46. Capstone Example 47. Review Problems 48. Answers to Review Problems

Book Information

Paperback: 576 pages

Average Customer Review: 4.5 out of 5 stars   77 customer reviews

Best Sellers Rank: #13,928 in Books (See Top 100 in Books)   #6 in Books > Textbooks > Medicine & Health Sciences > Research > Biostatistics   #8 in Books > Medical Books > Basic Sciences > Biostatistics   #68 in Books > Textbooks > Medicine & Health Sciences > Reference

Customer Reviews

 Unlike other statistics texts I have seen, it includes extensive and carefully crafted discussions of the perils of multiple comparisons, warnings about common and avoidable mistakes in data analysis, a review of the assumptions that apply to various tests, an emphasis on confidence intervals rather than P values, explanations as to why the concept of statistical significance is rarely needed in scientific work, and a clear explanation of nonlinear regression (commonly used in labs; rarely explained in statistics books).   --Bruce Beutler, 2011 Nobel Laureate, Physiology or MedicineThis splendid book meets a major need in public health, medicine, and biomedical research training -- a user-friendly biostatistics text for non-mathematicians that clearly explains how to make sense of statistical results, how to avoid common mistakes in data analysis, and how to avoid being confused by statistical nonsense. You may enjoy statistics for the first time!

 --Gilbert S. Omenn, Professor of Medicine, Genetics, Public Health,   and Computational Medicine & Bioinformatics, University of MichiganAfter struggling with books that weren't right for my class, I was delighted to find Intuitive Biostatistics. It is the best starting point for undergraduate students seeking to learn the fundamental principles of statistics because of its unique presentation of the important concepts behind statistics. It meticulously goes through common mistakes and shows how to correctly choose, perform, and interpret the proper statistical test. It is accessible to new learners without being condescending.   --Beth Dawson, The University of Texas at AustinI've read several statistics books, but found that some concepts I was interested in were not mentioned and other concepts were hard to understand. You can ignore the "bio" in Intuitive Biostatistics, as it is the best applied statistics books I have come across, period. Its clear, straightforward explanations have allowed me to better understand research papers and select appropriate

statistical tests. Highly recommended. Â --Ariel H. Collis, Economist, Georgetown Economic Services"Intuitive Biostatistics is a beautiful book that has much to teach experimental biologists of all stripes. Motulsky has written thoughtfully, with compelling logic and wit. He teaches by example what one may expect of statistical methods and, perhaps just as importantly, what one may not expect of them. He is to be congratulated for this work, which will surely be valuable and perhaps even transformative for many of the scientists who read it."--Bruce Beutler, 2011 Nobel Laureate, Physiology or Medicine, and Director, Center for the Genetics of Host Defense, UT Southwestern Medical Center"Let's face it. Most statistics textbooks intimidate the average student. Motulsky's Intuitive Biostatistics, however, is written in a welcoming tone. It takes the static out of statistics. This textbook covers a wide spectrum of statistical concepts in a way that will benefit readers with varying levels of quantitative backgrounds."--Heather Hoffman, George Washington University

What makes the book unique? Intuitive Biostatistics is both an introduction and review of statistics. Compared to other books, it has:Breadth rather than depth. It is a guidebook, not a cookbook.Words rather than math. It has very few equations.Explanations rather than recipes. This book presents few details of statistical methods and only a few tables required to complete the calculations. Intuitive Biostatistics includes many topics often omitted from short introductory texts, including:How common sense can mislead. Chapter 1 is a fun chapter that explains how common sense can lead you astray and why we therefore need to understand statistical principles.Multiple comparisons. It is simply impossible to understand statistical results without a deep understanding of how to think about multiple comparisons. This isn't just a practical issue, but almost a philosophical issue in analyzing data. Chapters 22, 23, and 40 are devoted to this topic. I explain several approaches used to deal with multiple comparisons, including the false discovery rate (FDR).Nonlinear regression. In many fields of science, nonlinear regression is used more often than linear regression, but most introductory statistics books ignore nonlinear regression completely. This book gives them equal weight. Chapters 34 and 35 set the stage by explaining the concept of fitting models to data and comparing alternative models. Chapter 36 then discusses nonlinear regression.Bayesian logic. Bayesian thinking is briefly mentioned in Chapter 2 and is then explored in Chapter 18 as a way to interpret a finding that a comparison is statistically significant. This topic returns in Chapter 42, which compares interpreting statistical significance to interpreting the results of clinical laboratory tests. These are only brief introductions to Bayesian thinking. This book is about conventional (Frequentist) statistics, and only briefly introduces Bayesian approaches to data analysis.Lognormal distributions. These are commonly found in scientific data, but not in statistics

books. They are explained in Chapter 11 and are touched upon again in several examples that appear in later chapters. Logarithms and antilogarithms are reviewed in Appendix E.Testing for equivalence. Sometimes the goal is not to prove that two groups differ, but rather to prove that they are the same. This requires a different mindset, as explained in Chapter 21.Normality tests. Many statistical tests assume data are sampled from a Gaussian (also called normal) distribution, and normality tests are used to test this assumption. Chapter 24 explains why these tests are less useful than many hope.Outliers. Values far from the other values in a set are called outliers. Chapter 25 explains how to think about outliers.Comparing the fit of alternative models. Statistical hypothesis testing is usually viewed as a way to test a null hypothesis. Chapter 35 explains an alternative way to view statistical hypothesis testing as a way to compare the fits of alternative models.Meta-analysis as a way to reach conclusions by combining data from several studies. This topic is the subject of new chapter (Chapter 43).Detailed review of assumptions. All analyses are based on a set of assumptions, and many chapters discuss these assumptions in depth.Â Lengthy discussion of common mistakes in data analysis. Most chapters include lists (with explanations) of common mistakes and misunderstandings. To make space for these topics, I have left out many topics that are traditionally included in introductory texts:Probability. I assume that you have at least a vague familiarity with the ideas of probability, and this book does not explain these principles in much depth. I have added a new chapter (Chapter 2) to this edition that explains why probability can seem confusing. But you can still understand the rest of the book even if you skip this chapter.Equations needed to compute statistical tests. I assume that you will be either interpreting data analyzed by others or using statistical software to run statistical tests. In only a few places do I give enough details to compute the tests by hand.Â Statistical tables. If you aren't going to be analyzing data by hand, there is very little need for statistical tables. I include only a few tables in places where it might be useful to do simple calculations by hand.Statistical distributions. You can choose statistical tests and interpret the results without knowing much about z, t, and F distributions. This book mentions them but goes into very little depth.

This book helped me get on my feet in Statistics! I read it over spring break and came back with a much better understanding of p-values and confidence intervals. The textbook used by my class was written by a family of 5 statisticians, and I felt it was too cut-n-dry to understand. Motulsky explained things more simply. Best $6 I ever spent on Statistics textbooks!

Intuitive biostatistics is a comprehensive overview of biostatistics. Instead of reading cover to cover,

I have used this relatively detailed statistics text to review relevant sections as needed.Motulsky does not include mathematical equations. Rather, he focuses on interpreting statistical concepts, common pitfalls, and challenges the reader to think critically.Highly recommended for clinical, medical, and pharmaceutical professionals responsible for reviewing clinical data. Even for readers confident in their statistics knowledge, this is a great refresher. I have expanded my biostatistics acumen thanks to this book.This text is daily my go-to reference guide.

Best general biostatistics text out there. Highly useful in conducting research protocols and doing data analysis without using expensive software.

I will admit to having bought at least 10 copies of this book since it was published - it's that good. I give them to my employees so that they can have a gut feel for the statistics of clinical studies. Honestly, anyone who reads anything about the efficacy or safety of a drug, device, or procedure (which is pretty much any adult who can read) ought to read this book.

I loved this book. I couldn't learn alot from my bio statistics professor as I have learnt from this book. This is really good book fro Biostats beginners. I recommend it for those who are embarking on bio-statistics concentration in healthcare system. The book helps you learn competency by competency and will make you ready for the future and advance biostatistics classes. Go and buy it - This is not that I want you to buy - this is just because I learned from it and if you want to learn from something - This is the book

This book is a classic. You may have taken college statistics classes, but don't really feel like you know statistics. Or, you may never have taken a stats class. Either way, this book is for you. Dr. Motulsky describes statistics in understandable terms in a way that is easy to read. He offers a view of WHAT and WHY, with some explanations of HOW. In doing so, he gives you a perspective on the purpose, utility, and role of statistics, without getting caught up in theory and equations. When you have questions about statistics, consult this book first, then go on to consult more advanced textbooks. This book is a must-have for anybody who does not claim to be an expert in statistics but needs to understand something about the topic. I highly recommend it. There is also a newer version of the book, which I haven't obtained but look forward to reading.

The majority of reviewers really liked this book. I can see why, I did too. The author uses a unique

approach to teaching statistics that is focused on calculating and explaining Confidence Intervals (the minimum and maximum value you expect an outcome to be given a confidence level typically 95%) rather than P values (probability outcome is due to chance). He also uses common sense and clearly distinguishes between what is statistically significant and what is "significant." Thus, he translates well statistical mumbo jumbo into plain English. He tells you what you should care about and look for.He shares with you all the statistical flaws that clinical studies may have including testing multiple hypothesis to come up with just a single statistically meaningful one, using large samples to prove something trivial, using small samples that raises uncertainty level, etc...His section on Bayesian Logic is excellent. His table on what test or methodology to use given the shape of the data and objective you have is worth the price of the book alone. That's one of the clearest taxonomy of statistical methods I have seen anywhere.Some knowledgeable reviewers have picked up a few errors the author made. I stumbled upon a couple while attempting to replicate the calculation of a few examples. I emailed the author and each time within an hour he either clarified the calculation or corrected the typo that was present in the book. Given his prompt answers, I can't ding him for the couple of typos I caught.Although the author presents this book as an introductory one, I recommend the reader acquires a good foundation in basic statistics before studying this book.Â Forgotten StatisticsÂ would fit that bill. Indeed, `Intuitive Biostatistics' covers a huge amount of ground. It is far more than an introductory text. It covers material that is pretty advanced including nonparametric hypothesis tests, non linear regression, logistic regression, Bayesian analysis, etc... If it is the first time you come across that stuff you'd be well served having a solid stats foundation. Given that, this book has a lot to offer. I'll keep it as a great reference for years.

Before reading this book, I despised biostatistics and did not understand it. Dr. Motulsky's book is very easy to understand for a beginner. The book is very comprehensive and detailed, covering biostatistics concepts from A to Z. Each chapter contains a FAQ section which I found very helpful. I recommend this book to anyone interested in solidifying their biostatistics knowledge.

Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking, 3rd edition Intuitive Biostatistics: a Nonmathematical Guide to Statistical Thinking, 2nd Revised Edition Essential Biostatistics: A Nonmathematical Approach Positive Thinking: 50 Positive Habits to Transform you Life: Positive Thinking, Positive Thinking Techniques, Positive Energy, Positive Thinking,, Positive ... Positive Thinking Techniques Book 1) Primer of Biostatistics, Seventh Edition (Primer of

Biostatistics (Glantz)(Paperback)) Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health: With STUDENT CONSULT Online Access, 4e (Jekel's Epidemiology, Biostatistics, Preventive Medicine, Public Health) CRITICAL THINKING: A Beginner's Guide To Critical Thinking, Better Decision Making, And Problem Solving ! (critical thinking, problem solving, strategic thinking, decision making) Intuitive Thinking as a Spiritual Path Intuitive Thinking As a Spiritual Path: A Philosophy of Freedom (Classics in Anthroposophy) Analytics: Business Intelligence, Algorithms and Statistical Analysis (Predictive Analytics, Data Visualization, Data Analytics, Business Analytics, Decision Analysis, Big Data, Statistical Analysis) Intuitive Eating, 3rd Edition: A Revolutionary Program that Works Visual and Statistical Thinking: Displays of Evidence for Making Decisions Statistical Thinking for Non-Statisticians in Drug Regulation Thermodynamics, Statistical Thermodynamics, & Kinetics (3rd Edition) Thermodynamics, Kinetic Theory, and Statistical Thermodynamics (3rd Edition) DSM-III: Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition Biostatistics for the Biological and Health Sciences (2nd Edition) Biostatistics for the Biological and Health Sciences Plus MyStatLab with Pearson eText -- Title-Specific Access Card Package (2nd Edition) Biostatistics: A Foundation for Analysis in the Health Sciences, 10th Edition Introduction to Biostatistics: Second Edition (Dover Books on Mathematics)