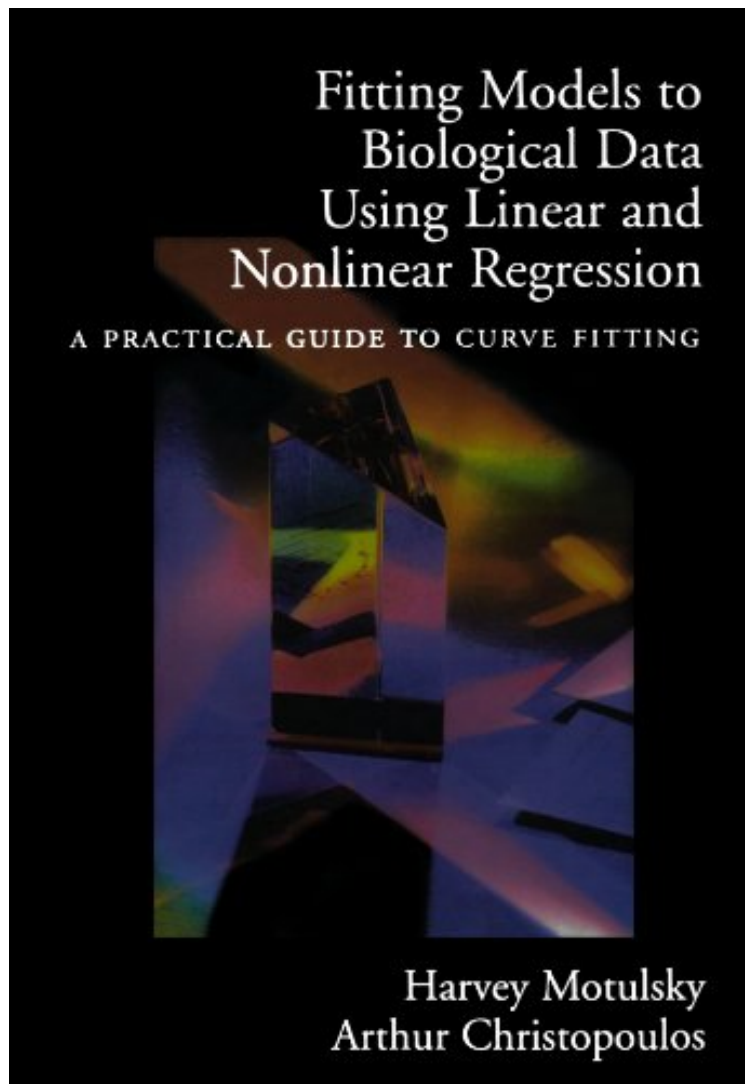


[DOWNLOAD] Fitting Models to Biological Data Using Linear and Nonlinear Regression: A Practical Guide to Curve Fitting

Fitting Models to Biological Data Using Linear and Nonlinear Regression: A Practical Guide to Curve Fitting

Harvey Motulsky, Arthur Christopoulos
*ebooks | Download PDF | *ePub | DOC | audiobook*



 Download

 Read Online

#1018817 in Books Harvey Motulsky 2004-05-27 Original language: English PDF # 1 6.70 x .80 x 9.401, 1.25
#File Name: 0195171802352 pages Fitting Models to Biological Data Using Linear and Nonlinear
Regression A Practical Guide to Curve Fitting | File size: 67.Mb

Harvey Motulsky, Arthur Christopoulos : Fitting Models to Biological Data Using Linear and Nonlinear Regression: A Practical Guide to Curve Fitting before purchasing it in order to gauge whether or not it would be worth my time, and all praised Fitting Models to Biological Data Using Linear and Nonlinear Regression: A Practical Guide to Curve Fitting:

1 of 1 people found the following review helpful. all around a good book
By aneI work in academia, in a very close collaboration with pharmaceutical industry, my interest is enzymology and drug design, I am a PhD scientist. The book is well written, easy to follow for a novice and an expert, all concepts are well illustrated and explained. Simply if you can not follow the material in this book you are not likely to follow anything. I am grateful to the authors for writing this book.
19 of 19 people found the following review helpful. Found the book I needed!
By Kirk DolanI've been looking for a book like this for 5 years to help me understand better nonlinear regression. The only choices before this were the same old basic stats books, or the other extreme of stats books for mathematicians. As an engineer, I needed a book that does APPLIED, not THEORETICAL, nonlinear regression. This book gives examples and speaks normal English, unlike Seber and Wild's book, which is virtually devoid of examples and drowns one with matrix math instead. Seber and Wild's book is more like a dictionary of stats equations. For Motulsky's book, here are 3 examples of things you won't find in most other statistics books: 1) the difference between confidence bands and prediction bands for Y (p. 32), showing that the former doesn't include a majority of the points, while the latter does; 2) How to compute egg- and elliptical-shaped joint confidence regions for 2 parameters (p. 114-121); 3) Good explanation of 3 different ways to compute parameter conf. regions (asymptotic, Monte Carlo, model comparison). Just one of these 3 makes it worth the price of the book for me.
Motulsky has so many different helpful topics in here, that he obviously has run into many of the problems that nonlinear regression people will see. The book is helpful regardless of the software you use, because I do a lot of coding in Matlab. I may make this book a standard text for a new engineering statistics class I am preparing.
The main shortcoming of the book for me (remember that I'm an engineer) is lack of the exact equations 1) for confidence bands and prediction bands for Y (p.32), 2) for asymptotic conf. interval for parameter (p. 98), and 3) for standard error vs. standard deviation. For the first 2, the author could reference eqn. numbers in Seber and Wild or Bates so his text flow would not be interrupted. For those of us who publish, we need to know what's going on in the black box. The standard error/standard dev. formulas would make the explanation given easier to follow.
In summary, this is the book that will help walk you through many of the problems and concerns in nonlinear regression. I'm glad someone who understands my situation finally wrote it!
1 of 1 people found the following review helpful. A Clear and Practical Guide
By Robert A. CopelandThe translation of experimental data into testable hypotheses rests, in large part, on the ability to describe the data in quantitative terms, and to model the relationship between experimental variables and outcome. In this exceptionally readable text, the authors provide a very practical approach to curve fitting routines for the graphic display of experimental data. From this basis, the authors guide the reader through the process of model building, model comparisons and model testing. All of this is a vital part of modern science, from basic biology to physics to chemistry and beyond to applied sciences such as drug discovery. The illustrative examples used throughout the text tend to derive from the authors' interest in pharmacology, but they are nevertheless useful and clear to anyone with a basis understanding of science and mathematics. This book should be part of the library of every serious scientist and student of experimental science. It offers an approachable introduction to modern data analysis.

Most biologists use nonlinear regression more than any other statistical technique, but there are very few places to learn about curve-fitting. This book, by the author of the very successful *Intuitive Biostatistics*, addresses this relatively focused need of an extraordinarily broad range of scientists.

From the Inside Flap "This well-written book fills a major need for biomedical researchers -- an explanation of nonlinear regression that is simple, deep, insightful and practical." Lee E. Limbird, Ph.D. Dept. Pharmacology Vanderbilt University "Because the data from many of the experiments in my laboratory are analyzed by curve fitting, it is important that my postdoctoral fellows, students and senior technicians understand the basic principles of nonlinear regression. But it has been hard for them to do so. Basic statistics books don't discuss curve fitting, advanced books on nonlinear regression tend to be too mathematical, and the manuals that come with computer programs tend to be too narrow. Motulsky and Christopolous do a excellent job of explaining the principles of curve fitting (with enough but not too much math) along with practical discussions of how to pick a model, how to make sense of results, what to do when the results appear to be nonsense and how to compare curves. I enthusiastically recommend this book to anyone doing research in pharmacology, biophysics or biochemistry -- especially for those generating dose-response, ligand binding or enzyme kinetic data (as these are discussed in detail). " David B. Bylund, Ph.D. Professor of Pharmacology University of Nebraska Medical Center
About the Author Arthur Christopolous is at University of Melbourne.