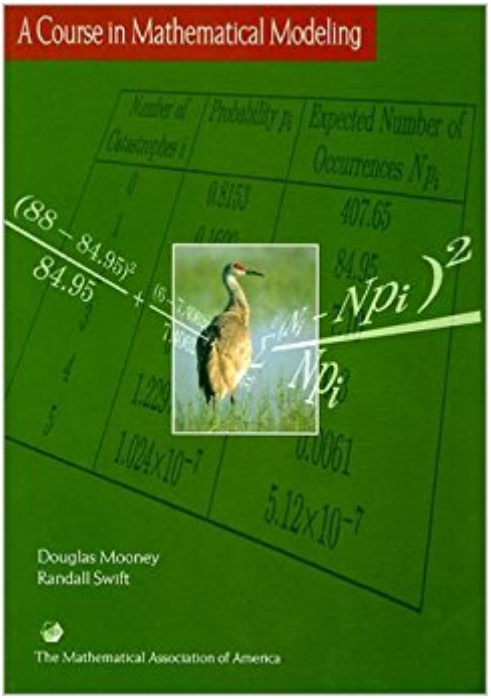
A Course In Mathematical Modeling (Mathematical Association Of America Textbooks)



Synopsis

The emphasis of this book lies on the teaching of mathematical modeling rather than simply presenting models. To this end the book starts with the simple discrete exponential growth model as a building block, and successively refines it. This involves adding variable growth rates, multiple variables, fitting growth rates to data, including random elements, testing exactness of fit, using computer simulations and moving to a continuous setting. No advanced knowledge is assumed of the reader, making this book suitable for elementary modeling courses. The book can also be used to supplement courses in linear algebra, differential equations, probability theory and statistics.

Book Information

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Customer Reviews

The aim of this book is the teaching of mathematical modeling. No advanced knowledge is assumed of the reader, making this book suitable for elementary modeling courses, or to supplement courses in linear algebra, differential equations, probability theory and statistics.

Students taking a course based on this book should have some mathematical maturity, but will need little advanced knowledge. The book presents more advanced topics on an as-needed basis and serves to show how the different topics of undergraduate mathematics can be used together to solve problems. The course presents elements of discrete dynamical systems, basic probability theory, differential equations, matrix algebra, stochastic processes, curve fitting, statistical testing, and regression analysis. Computer analysis is extensively used in conjunction with these topics.

You can also use this book if you are seeking applications to supplement a course in linear algebra, differential equations, difference equations, probability theory, or statistics.

Clear explanations. Models are from biology. Does not elaborate on the math and solving the differential equations, but a good overview.

Good.

Incredibly poorly written book. This is NOT a general introduction to M&S. A more appropriate title for this book would be "A Course in Biological Modeling". If you are looking for an introduction to numerous biological modeling systems then this is your book. If you want a book that overviews the wonderfully complex world of modeling then look elsewhere. (I'm still looking - any help out there). Point is that modeling is much more than understanding birth and death rates of Sand Hill Cranes. Modeling encompasses all fields of Engineering and Physics of which this book hardly mentions. (As you may detect I am particularly annoyed about the misleading title of this book.)Also, take the authors math expectation in the forward seriously. Make sure you math skills are current before tackling this book. There is a lot of assumption and little equation development. If your skills are rusty you'll find yourself frequently bewildered by how they got from A to B.I am completing a class on M&S using this book and I can honestly say that I do not know of one student in a class of 25 that is happy with this text.

Came in good condition

To break it down.1. The authors write with a clarity and elegance that is almost universally absent in math/science texts. The book is beautifully paced. Anybody thinking about writing a technical book would do well to read this before starting out.2. The mathematics is second to the modelling. They move from simple examples towards the formal mathematics, nothing is introduced without explanation. This is a vast improvement over so many other texts that are happy to derive the math first and then show an example, which is no way to engage the mind. It is the only text I have come across that presents differential equations and continuous stochastic processes in a palatable manner.3. The exercises have been well thought out, and not just thrown in at the end of each chapter, reflecting the authors' teaching experience, and leave you with any number of directions in which to take your own steps in modelling.It is simply one of the best written and engaging technical

books I have read this or any other year. This books shows that one can write clearly about mathematics. If you really want to understand and ground yourself in math modelling and simulation, this is where to start.

A Course in Mathematical Modeling (Mathematical Association of America Textbooks) Number Theory Through Inquiry (Maa Textbooks) (Mathematical Association of America Textbooks) Mathematical Interest Theory (Mathematical Association of America Textbooks) Non-Euclidean Geometry (Mathematical Association of America Textbooks) Thinking Geometrically: A Survey of Geometries (Mathematical Association of America Textbooks) Knot Theory (Mathematical Association of America Textbooks) Real Infinite Series (Classroom Resource Material) (Mathematical Association of America Textbooks) Fourier Series (Mathematical Association of America Textbooks) Cryptological Mathematics (Mathematical Association of America Textbooks) A First Course in Mathematical Modeling Chance, Strategy, and Choice: An Introduction to the Mathematics of Games and Elections (Cambridge Mathematical Textbooks) Bayesian Filtering and Smoothing (Institute of Mathematical Statistics Textbooks) Chaos: An Introduction to Dynamical Systems (Textbooks in Mathematical Sciences) Chaotic Dynamics: Fractals, Tilings, and Substitutions (Cambridge Mathematical Textbooks) Understanding Nonlinear Dynamics (Textbooks in Mathematical Sciences) Exploring Mathematics: An Engaging Introduction to Proof (Cambridge Mathematical Textbooks) Introduction to Mathematical Proofs: A Transition (Textbooks in Mathematics) An Introduction to Hilbert Space (Cambridge Mathematical Textbooks) American Psychiatric Association Practice Guideline for the Treatment of Patients with Eating Disorders (2314) (American Psychiatric Association Practice Guidelines) American Diabetes Association Complete Guide to Diabetes: The Ultimate Home Reference from the Diabetes Experts (American Diabetes Association Comlete Guide to Diabetes)