

# Introduction to Discrete Dynamical Systems and Chaos (Wiley Series in Discrete Mathematics and Optimization)

*By Mario Martelli*

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## **Introduction to Discrete Dynamical Systems and Chaos (Wiley Series in Discrete Mathematics and Optimization)** By Mario Martelli

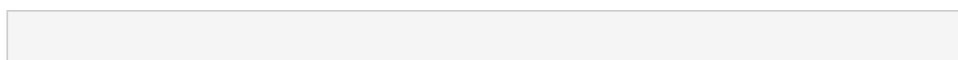
A timely, accessible introduction to the mathematics of chaos.

The past three decades have seen dramatic developments in the theory of dynamical systems, particularly regarding the exploration of chaotic behavior. Complex patterns of even simple processes arising in biology, chemistry, physics, engineering, economics, and a host of other disciplines have been investigated, explained, and utilized.

Introduction to Discrete Dynamical Systems and Chaos makes these exciting and important ideas accessible to students and scientists by assuming, as a background, only the standard undergraduate training in calculus and linear algebra. Chaos is introduced at the outset and is then incorporated as an integral part of the theory of discrete dynamical systems in one or more dimensions. Both phase space and parameter space analysis are developed with ample exercises, more than 100 figures, and important practical examples such as the dynamics of atmospheric changes and neural networks.

An appendix provides readers with clear guidelines on how to use Mathematica to explore discrete dynamical systems numerically. Selected programs can also be downloaded from a Wiley ftp site (address in preface). Another appendix lists possible projects that can be assigned for classroom investigation. Based on the author's 1993 book, but boasting at least 60% new, revised, and updated material, the present Introduction to Discrete Dynamical Systems and Chaos is a unique and extremely useful resource for all scientists interested in this active and intensely studied field.

An Instructor's Manual presenting detailed solutions to all the problems in the book is available upon request from the Wiley editorial department.



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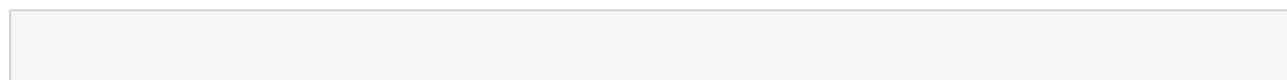
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#### **Review**

"From the preface: 'The purpose of this book is to present the fundamental ideas on discrete dynamical systems and chaos at the level of those undergraduates...who have completed the standard calculus sequence, with the inclusion of functions of several variables and linear algebra.'" (Mathematical Reviews, Issue 2001k)

#### **From the Back Cover**

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#### **About the Author**

MARIO MARTELLI, PhD, is Professor of Mathematics at California State University at Fullerton.

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