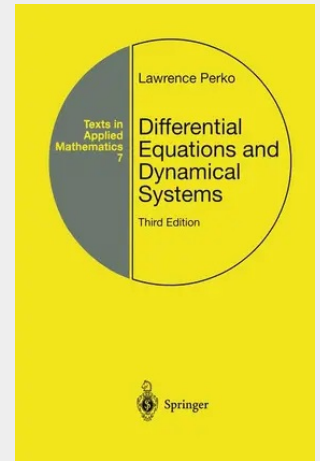


Differential Equations and Dynamical Systems

This textbook, ideal for students and lecturers alike, is nothing less than a systematic study of the qualitative and geometric theory of nonlinear differential equations and dynamical systems. Although the main topic of the book is the local and global behavior of nonlinear systems and their bifurcations, a thorough treatment of linear systems is given at the beginning of the text. All the material necessary for a clear understanding of the qualitative behavior of dynamical systems is contained in this textbook, including an outline of the proof and examples illustrating the proof of the Hartman-Grobman theorem. In addition to minor corrections and updates throughout, this new edition includes materials on higher order Melnikov theory and the bifurcation of limit cycles for planar systems of differential equations, including new sections on Francoise's algorithm for higher order Melnikov functions and on the finite codimension bifurcations that occur in the class of bounded quadratic systems.

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