

Introduction to Dynamical Systems and Geometric Mechanics provides a comprehensive tour of two fields that are intimately entwined: dynamical systems is the study of the behavior of physical systems that may be described by a set of nonlinear first-order ordinary differential equations in Euclidean space, whereas geometric mechanics explores similar systems that instead evolve on differentiable manifolds. In the study of geometric mechanics, however, additional geometric structures are often present, since such systems arise from the laws of nature that govern the motions of particles, bodies, and even galaxies. In the first part of the text, we discuss linearization and stability of trajectories and fixed points, invariant manifold theory, periodic orbits, Poincare maps, Floquet theory, the Poincare-Bendixson theorem, bifurcations, and chaos. The second part of the text begins with a self-contained chapter on differential geometry that introduces notions of manifolds, mappings, vector fields, the Jacobi-Lie bracket, and differential forms. The final chapters cover Lagrangian and Hamiltonian mechanics from a modern geometric perspective, mechanics on Lie groups, and nonholonomic mechanics via both moving frames and fiber bundle decompositions. The text can be reasonably digested in a single-semester introductory graduate-level course. Each chapter concludes with an application that can serve as a springboard project for further investigation or in-class discussion. This is a color reprint of the first edition published in 2012.

Emergency Planet Earth: A Beginners Guide to Survival in the Future (Future Files), Doug the slug, Lee, the Centipede and the Game of Cricket: A Bermuda Childrens story, Fishbeins illustrated medical and health encyclopedia: Volume 4, Zyme-Index, My Hand Will Write What My Heart Dictates: The Unsettled Lives of Women in Nineteenth-Century New Zealand As Revealed to Sisters, Family and Friends, Mimi (Las Tres Edades) (Spanish Edition), Physiology Illustrated by Experiment, 1991 Mercury Tracer Owners Manual,

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