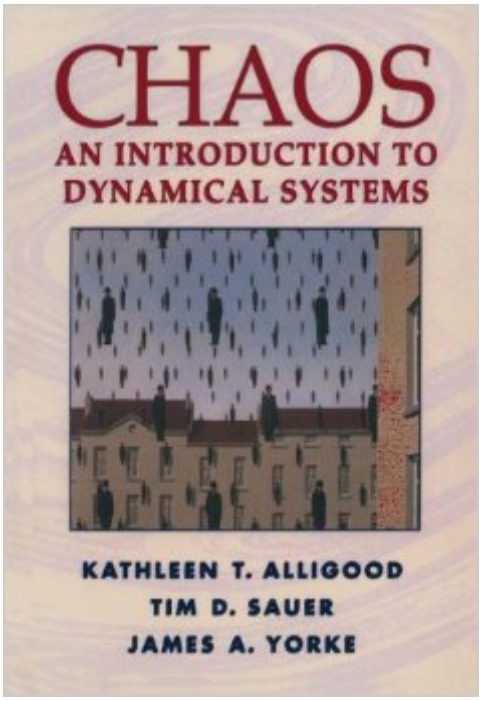
Chaos: An Introduction To Dynamical Systems (Textbooks In Mathematical Sciences)



Synopsis

Developed and class-tested by a distinguished team of authors at two universities, this text is intended for courses in nonlinear dynamics in either mathematics or physics. The only prerequisites are calculus, differential equations, and linear algebra. Along with discussions of the major topics, including discrete dynamical systems, chaos, fractals, nonlinear differential equations and bifurcations, the text also includes Lab Visits -- short reports that illustrate relevant concepts from the physical, chemical and biological sciences. There are Computer Experiments throughout the text that present opportunities to explore dynamics through computer simulations, designed for use with any software package. And each chapter ends with a Challenge, guiding students through an advanced topic in the form of an extended exercise.

Book Information

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Customer Reviews

It was about the mid 1990’s, still assimilating the big hype caused by the eventual and much-publicized proof by Andrew Wiles of Fermat’s Last Theorem, when my curiosity (bolstered more by having seen a movie such as The Jurassic Park!) finally led me to taking a first college course on Chaos and Fractals at a California State school. At that time, the funny, surcastic, and somewhat sloppy foreign professor (who happened to be a country-mate of mine, for better or worse), had chosen the brand-new text "Fractals Everywhere" by Michael F. Barnsely for teaching our mid-size class consisting mainly of senior and first-year graduate students in math and sciences. I recall the discussion starting out by covering the basics about the metric spaces and

sequences, and I having a head-start over many others coming fresh on the heels of a heavy-duty general topology course just in the previous semester (so for example I could show off to others on the first instruction day what it meant for two metrics to be equivalent). Still, I admit the semester went by without many of us really absorbing the nuts and bolts of the subject, for example why exactly topological transitivity was needed for chaos in an Iterated Function System, and why exactly some known fractals had the given fractional dimensions (eventhough we could compute them). However the students were generally happy to have scratched the surface of this vast, engaging subject, and for the time being it seemed about enough exposure for most of us.