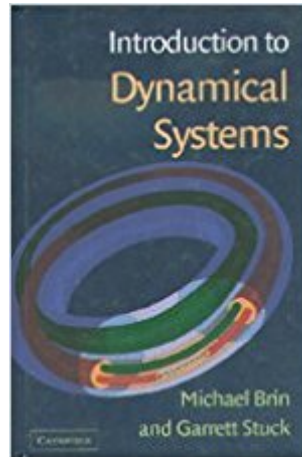




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# Introduction To Dynamical Systems



## Synopsis

This book provides a broad introduction to the subject of dynamical systems, suitable for a one or two-semester graduate course. In the first chapter, the authors introduce over a dozen examples, and then use these examples throughout the book to motivate and clarify the development of the theory. Topics include topological dynamics, symbolic dynamics, ergodic theory, hyperbolic dynamics, one-dimensional dynamics, complex dynamics, and measure-theoretic entropy. The authors top off the presentation with some beautiful and remarkable applications of dynamical systems to areas such as number theory, data storage, and internet search engines.

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## Customer Reviews

"... an ideal choice for a graduate course on dynamical systems ... warmly recommended ..." *Acta Scientiarum Mathematicarum*"... exceptionally well written ... You should consider adopting this wonderful text for your next graduate course on the pure mathematics of the modern theory of dynamical systems." *Carmen Chicone, SIAM Review*"... despite the breadth, one finds here major results rigorously treated and substantial applications. By itself, the clean, accessible exposition of the amazing Sharkovsky theorem would justify the acquisition of this book ... Highly recommended." *Choice*"While the pace is fast and the book is very concise, the organization and selection of topics has been considered carefully, and the writing is strong enough to support the speedy treatment ... It certainly does give a notion of the scope of dynamical systems in a way that few other single books do." *Bill Satzer, MAA Reviews*

This book provides a broad introduction to the subject of dynamical systems, suitable for a one or two-semester graduate course. In the first chapter, the authors introduce over a dozen examples, and then use these examples throughout the book to motivate and clarify the development of the theory. Topics include topological dynamics, symbolic dynamics, ergodic theory, hyperbolic dynamics, one-dimensional dynamics, complex dynamics, and measure-theoretic entropy. The authors top off the presentation with some beautiful and remarkable applications of dynamical systems to such areas as number theory, data storage, and internet search engines.

I can understand the disparaging reviews of this book, but this book is a graduate textbook requiring significant mathematical maturity. Consequently, the author, in my opinion, is right to expect students of higher maths to fill in the blanks and mentally construct their own example. This book is my favorite as a comprehensive introduction to dynamical systems since it supplies enough details to help with pursuing research on the subject.

The author is a very good mathematician (and a grandfather of Google) so I was expecting a short and lucid introduction to dynamical system. Imagine my sadness when I found the book barely comprehensible. Apparently, the author learned his writing skills in Russian in the 60s, where paper was scarce, and any sort of explanation was viewed a waste thereof. If you actually want to understand dynamics, Katok/Hasselblatt's *Introduction to the Modern Theory of Dynamical Systems* (Encyclopedia of Mathematics and its Applications) is vastly superior.

So far I have found this book to include many of the classic and meaningful examples of Dynamical Systems, and has appropriate exercise for a graduate level course. So, I'll give it a good rating based solely on its use for researchers and advanced math students. However, it is very terse. Do not pick this up expecting a lot of discussion about the topics. Most of the time it is basically a list of definitions and theorem/proofs with exercises. Because of that it is great for use in a class, but might be a little difficult for independent learning. It could use a few more pictures, too.

This book was mostly our lecture notes for a year long course at University of Maryland. We helped find typos in it and I have read most of this material very carefully. It is exceedingly concise. It is a good introduction if you have access to classes themselves; otherwise, it is a rather quick way for an advanced reader to learn about some major topics in Dynamical systems. If you have time,

everything is there and the book is readable. overall, a good book in your collection of dynamical systems but perhaps not the very first book on the subject. I would say it's good for a third year graduate student for self-study.

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