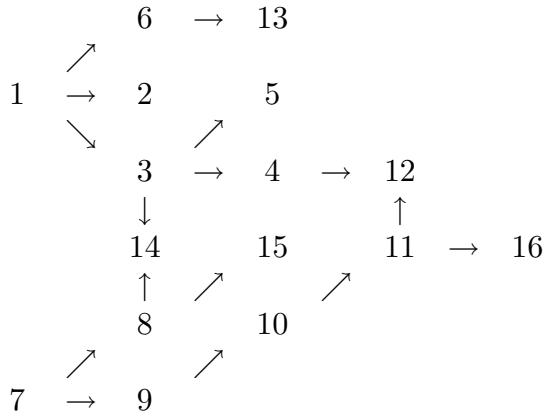
INTRODUCTION

This book is intended as an introduction to both dynamical systems and ergodic theory. Our aim is to give a direct and detailed introduction to the basic theory, suitable as a text for advanced undergraduate students or beginning graduate students in mathematics.

The notes divide naturally into three parts. The first part (chapters 1-6) concentrates on topological dynamics. The second part (chapters 7-12) deals with ergodic theory and measurable dynamics. The third part (chapters 13-16) consists of more advanced material to supplement the two earlier parts.

Each of the first two parts is intended to be essentially self-contained, as is illustrated by the following diagram of the relationships between chapters:



The areas of dynamical systems and ergodic theory are rich in connections with other subjects (e.g. number theory, geometry, statistics, mathematical physics, biology, etc.). In the course of these notes we have tried to motivate the general theory with some important applications (particularly to number theory, in chapter 2 and chapter 16).

There are already a number of excellent books on dynamical systems and ergodic theory (e.g. Devaney's *Introduction to Chaotic Dynamical Systems*) Walters' *Introduction to Ergodic Theory* and *Introduction to the Modern Theory of Dynamical Systems* by Katok and Hasselblatt).

To pre-empt any comparison with these fine texts, we should emphasize that this book is intended to be a more modest introduction to the subject. The reader who would like to find out more about dynamical systems and ergodic theory will find much more in these books.

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