

Preface

This book is based on the lectures notes for the course, Probability and Mathematical Statistics, taught for many years by one of the authors (M.C.) and then, divided into two sections, by both authors at the University of Bologna (Italy).

We follow the approach of de Finetti, see de Finetti [1] for a complete detailed exposition. Although de Finetti [1] was conceived as a textbook of probability for mathematics students, it was also meant to illustrate the point of view of the author on the foundations of probability and mathematical statistics and discuss it in relation to prevalent approaches, resulting often of difficult access for beginners. This was the main reason that prompted us to arrange the lectures notes of our courses into a more organic way and to write a textbook for an initial class on probability and mathematical statistics.

The first five chapters are devoted to elementary probability. After that in the next three chapters we develop some elements of Markov chains in discrete and continuous time also in connection with queueing processes, and introduce basic concepts in mathematical statistics in the Bayesian approach. Then we propose six chapters of exercises, which cover most of the topics treated in the theoretical part. In the appendices we have inserted summary schemes and complementary topics (two proofs of Stirling formula). We also informally recall some elements of calculus, as this has often proved useful for the students.

This book offers a comprehensive but concise introduction to probability and mathematical statistics without requiring notions of measure theory; hence it can be used in basic classes on probability for mathematics students and is particularly suitable for computer science, physics and engineering students.

We are grateful to Springer for allowing us to publish the English version of the book. We wish to thank Elisa Canova, Alessandra Cretarola, Nicola Mezzetti and Quirin Vogel for their fundamental help with latex, for both the Italian and the English version.

Munich
Bologna
June 2015

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<http://www.springer.com/978-3-319-07253-1>

Elements of Probability and Statistics

An Introduction to Probability with de Finetti's Approach
and to Bayesian Statistics

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2016, XV, 246 p. 33 illus., 27 illus. in color., Softcover

ISBN: 978-3-319-07253-1