

1. Record Nr.	UNINA9911065991803321
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Titolo	The Essentials of Measure Theory // by Carlos S. Kubrusly
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2026
ISBN	3-032-12663-0
Edizione	[2nd ed. 2026.]
Descrizione fisica	1 online resource (355 pages)
Collana	Universitext, , 2191-6675
Disciplina	515.42
Soggetti	Measure theory Topology Measure and Integration
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Part I. Introduction to Measure and Integration.-1. Measurable Functions -- 2. Measure on a σ -Algebra -- 3. Integral of Nonnegative Functions -- 4. Integral of Real-Valued Functions -- 5. Banach Spaces L_p -- 6. Convergence of Functions -- 7. Decomposition of Measures -- 8. Extension of Measures -- 9. Product Measures -- Part II -- 10. Remarks on Integrals -- 11. Borel Measure -- 12. Representation Theorems -- 13. Invariant Measures -- References -- Index.
Sommario/riassunto	Classical in its approach, this textbook is thoughtfully designed and composed in two parts. Part I is meant for a one-semester beginning graduate course in measure theory, proposing an “abstract” approach to measure and integration, where the classical concrete cases of Lebesgue measure and Lebesgue integral are presented as an important particular case of general theory. Part I may be also accessible to advanced undergraduates who fulfill the prerequisites which include an introductory course in analysis, linear algebra (Chapter 5 only), and elementary set theory. Part II of the text is more advanced and is addressed to a more experienced reader. The material is designed to cover another one-semester graduate course subsequent to a first course, dealing with measure and integration in topological spaces. With modest prerequisites, this text is intended to meet the needs of a contemporary course in measure theory for

mathematics students and is also accessible to a wider student audience, namely those in statistics, economics, engineering, and physics. The final section of each chapter in Part I presents problems that are integral to each chapter, the majority of which consist of auxiliary results, extensions of the theory, examples, and counterexamples. Problems which are highly theoretical have accompanying hints. The last section of each chapter of Part II consists of Additional Propositions containing auxiliary and complementary results. The entire book contains collections of suggested readings at the end of each chapter in order to highlight alternate approaches, proofs, and routes toward additional results. This second edition adds a new discussion on probability measures, some of which are scattered among proposed problems in Part I and all of them summarized in the Appendix to Part I. Chapters on decomposition of measures and representation theorems include substantially more material. A comprehensive discussion on the Cantor–Lebesgue measure can be found in problems 7.15 and 7.16. Rajchman measures have been considered in Problems 7.17 and 7.18. There is a new subsection on Borel regular measures on topological spaces in Section 12.4.
