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Autore	Loeb Peter A
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Nota di contenuto	Preface -- Set Theory and Numbers -- Measure on the Real Line -- Measurable Functions -- Integration -- Differentiation and Integration -- General Measure Spaces -- Introduction to Metric and Normed Spaces -- Hilbert Spaces -- Topological Spaces -- Measure Construction -- Banach Spaces -- Appendices -- References. .
Sommario/riassunto	This textbook is designed for a year-long course in real analysis taken by beginning graduate and advanced undergraduate students in mathematics and other areas such as statistics, engineering, and economics. Written by one of the leading scholars in the field, it elegantly explores the core concepts in real analysis and introduces new, accessible methods for both students and instructors. The first half of the book develops both Lebesgue measure and, with essentially no additional work for the student, general Borel measures for the real line. Notation indicates when a result holds only for Lebesgue measure. Differentiation and absolute continuity are presented using a local maximal function, resulting in an exposition that is both simpler and more general than the traditional approach. The second half deals with general measures and functional analysis, including Hilbert spaces,

Fourier series, and the Riesz representation theorem for positive linear functionals on continuous functions with compact support. To correctly discuss weak limits of measures, one needs the notion of a topological space rather than just a metric space, so general topology is introduced in terms of a base of neighborhoods at a point. The development of results then proceeds in parallel with results for metric spaces, where the base is generated by balls centered at a point. The text concludes with appendices on covering theorems for higher dimensions and a short introduction to nonstandard analysis including important applications to probability theory and mathematical economics. .