
Walter Rudin Functional Analysis

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Real and Complex Analysis

Introductory Functional Analysis with Applications

Applied Functional Analysis

Introduction to Fourier Analysis on Euclidean Spaces

Functional Analysis (Second Edition)

The Way I Remember It

Functional Analysis, Spectral Theory, and Applications

Functional Analysis

An Introduction to Banach Space Theory

Measure, Integration & Real Analysis

Linear Algebra Done Right

A Guide to Functional Analysis

Functional Analysis, Sobolev Spaces and Partial Differential Equations

A Course in Functional Analysis

Functional Analysis

Fourier Analysis on Groups
Functional Analysis

Walter Rudin *Functional Analysis*

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Elementary Real and Complex Analysis Courier Corporation
Function Theory in the Unit Ball of \mathbb{C}^n . From the reviews: "...The book is easy on the reader. The prerequisites are minimal—just the standard graduate introduction to real analysis, complex analysis (one variable), and functional analysis. This presentation is unhurried and the author does most of the work. ...certainly a valuable reference book, and (even though there are no exercises) could be used as a text in advanced courses." R. Rochberg in *Bulletin of the London Mathematical Society*. "...an excellent introduction to one of the most active research fields of complex analysis. ...As the author emphasizes, the principal ideas can be presented clearly and explicitly in the ball, specific theorems can be quickly proved. ...Mathematics lives in the book: main ideas of theorems and proofs, essential features of the subjects, lines of further developments, problems and conjectures are continually underlined. ...Numerous examples throw light on the results as well as on the difficulties." C. Andreian Cazacu in *Zentralblatt für Mathematik*

Functional Analysis Springer Science & Business Media
Walter Rudin's memoirs should prove to be a delightful read specifically to mathematicians, but also to historians who are interested in learning about his colourful history and ancestry. Characterized by his personal style of elegance, clarity, and brevity, Rudin presents in the first part of the book his early memories about his family history, his boyhood in Vienna throughout the 1920s and 1930s, and his experiences during World War II. Part II offers samples of his work, in which he relates where problems came from, what their solutions led to, and who else was involved. As those who are familiar with Rudin's writing will recognize, he brings to this book the same care, depth, and originality that is the hallmark of his work. Co-published with the London Mathematical Society

Lectures and Exercises on Functional Analysis Springer

"Designed for a one-year course in topological vector spaces, this

text is geared toward beginning graduate students of mathematics. Topics include Banach space, open mapping and closed graph theorems, local convexity, duality, equicontinuity, operators, inductive limits, and compactness and barrelled spaces. Extensive tables cover theorems and counterexamples. Rich problem sections throughout the book. 1978 edition"--

Functional Analysis Springer Science & Business Media

A stimulating introductory text, this volume examines many important applications of functional analysis to mechanics, fluid mechanics, diffusive growth, and approximation. Detailed enough to impart a thorough understanding, the text is also sufficiently straightforward for those unfamiliar with abstract analysis. Its four-part treatment begins with distribution theory and discussions of Green's functions. Essentially independent of the preceding material, the second and third parts deal with Banach spaces, Hilbert space, spectral theory, and variational techniques. The final part outlines the ideas behind Frechet calculus, stability and bifurcation theory, and Sobolev spaces. 1985 edition. 25 Figures. 9 Appendices. Supplementary Problems. Indexes.

FUNCTIONAL ANALYSIS John Wiley & Sons

The book is intended to serve as a textbook for an introductory course in functional analysis for the senior undergraduate and graduate students. It can also be useful for the senior students of applied mathematics, statistics, operations research, engineering and theoretical physics. The text starts with a chapter on preliminaries discussing basic concepts and results which would be taken for granted later in the book. This is followed by chapters on normed and Banach spaces, bounded linear operators, bounded linear functionals. The concept and specific geometry of Hilbert spaces, functionals and operators on Hilbert spaces and introduction to spectral theory. An appendix has been given on Schauder bases. The salient features of the book are: * Presentation of the subject in a natural way * Description of the concepts with justification * Clear and precise exposition avoiding pedantry * Various examples and counterexamples * Graded problems throughout each chapter Notes and remarks within the text enhance the utility of the book for the students.

Modern Methods in Topological Vector Spaces Courier Dover Publications

This book is an introductory text written with minimal prerequisites. The plan is to impose a distance structure on a linear space, exploit it fully and then introduce additional features only when one cannot get any further without them. The book naturally falls into two parts and each of them is developed independently of the other. The first part deals with normed spaces, their completeness and continuous linear maps on them, including the theory of compact operators. The much shorter second part treats Hilbert spaces and leads up to the spectral theorem for compact self-adjoint operators. Four appendices point out areas of further development. Emphasis is on giving a number of examples to illustrate abstract concepts and on citing various applications of results proved in the text. In addition to proving existence and uniqueness of a solution, its approximate construction is indicated. Problems of varying degrees of difficulty are given at the end of each section. Their statements contain the answers as well.

Exercises in Functional Analysis Springer Science & Business Media

This book is meant as a text for a first-year graduate course in analysis. In a sense, it covers the same topics as elementary calculus but treats them in a manner suitable for people who will be using it in further mathematical investigations. The organization avoids long chains of logical interdependence, so that chapters are mostly independent. This allows a course to omit material from some chapters without compromising the exposition of material from later chapters.

Functional Analysis New Age International

Preparing students for further study of both the classical works and current research, this is an accessible text for students who have had a course in real and complex analysis and understand the basic properties of L^p spaces. It is sprinkled liberally with examples, historical notes, citations, and original sources, and over 450 exercises provide practice in the use of the results developed in the text through supplementary examples and counterexamples.

Functional Analysis Walter de Gruyter GmbH & Co KG

This book contains almost 450 exercises, all with complete solutions; it provides supplementary examples, counter-examples, and applications for the basic notions usually presented in an introductory course in Functional Analysis. Three comprehensive sections cover the broad topic of functional analysis. A large number of exercises on the weak topologies is included.

Functional Analysis PHI Learning Pvt. Ltd.

This textbook is a completely revised, updated, and expanded English edition of the important *Analyse fonctionnelle* (1983). In addition, it contains a wealth of problems and exercises (with solutions) to guide the reader. Uniquely, this book presents in a coherent, concise and unified way the main results from functional analysis together with the main results from the theory of partial differential equations (PDEs). Although there are many books on functional analysis and many on PDEs, this is the first to cover both of these closely connected topics. Since the French book was first published, it has been translated into Spanish, Italian, Japanese, Korean, Romanian, Greek and Chinese. The English edition makes a welcome addition to this list.

Function Theory in the Unit Ball of C_n John Wiley & Sons

Banach spaces provide a framework for linear and nonlinear functional analysis, operator theory, abstract analysis, probability, optimization and other branches of mathematics. This book introduces the reader to linear functional analysis and to related parts of infinite-dimensional Banach space theory. Key Features: - Develops classical theory, including weak topologies, locally convex space, Schauder bases and compact operator theory - Covers Radon-Nikodým property, finite-dimensional spaces and local theory on tensor products - Contains sections on uniform homeomorphisms and non-linear theory, Rosenthal's L1 theorem, fixed points, and more - Includes information about further topics and directions of research and some open problems at the end of each chapter - Provides numerous exercises for practice The text is suitable for graduate courses or for independent study.

Prerequisites include basic courses in calculus and linear.

Researchers in functional analysis will also benefit for this book as it can serve as a reference book.

Foundations of Mathematical Analysis Courier Corporation

This textbook provides a careful treatment of functional analysis

and some of its applications in analysis, number theory, and ergodic theory. In addition to discussing core material in functional analysis, the authors cover more recent and advanced topics, including Weyl's law for eigenfunctions of the Laplace operator, amenability and property (T), the measurable functional calculus, spectral theory for unbounded operators, and an account of Tao's approach to the prime number theorem using Banach algebras. The book further contains numerous examples and exercises, making it suitable for both lecture courses and self-study. Functional Analysis, Spectral Theory, and Applications is aimed at postgraduate and advanced undergraduate students with some background in analysis and algebra, but will also appeal to everyone with an interest in seeing how functional analysis can be applied to other parts of mathematics.

Principles of Mathematical Analysis McGraw-Hill Publishing Company

MAA guides series numbering on title page appears as # 49. It should read # 9.

Function Theory in the Unit Ball of C_n Springer Science & Business Media

Includes sections on the spectral resolution and spectralrepresentation of self adjoint operators, invariant subspaces, strongly continuous one-parameter semigroups, the index of operators, the trace formula of Lidskii, the Fredholm determinant, and more. * Assumes prior knowledge of Naive set theory, linear algebra, point set topology, basic complex variable, and real variables. * Includes an appendix on the Riesz representation theorem.

Techniques of Functional Analysis for Differential and Integral Equations Princeton University Press

In an elegant and concise fashion, this book presents the concepts of functional analysis required by students of mathematics and physics. It begins with the basics of normed linear spaces and quickly proceeds to concentrate on Hilbert spaces, specifically the spectral theorem for bounded as well as unbounded operators in separable Hilbert spaces. While the first two chapters are devoted to basic propositions concerning normed vector spaces and Hilbert spaces, the third chapter treats advanced topics which are perhaps not standard in a first course on functional analysis. It begins with the Gelfand theory of commutative Banach algebras, and proceeds to the Gelfand-

Naimark theorem on commutative C^* -algebras. A discussion of representations of C^* -algebras follows, and the final section of this chapter is devoted to the Hahn-Hellinger classification of separable representations of commutative C^* -algebras. After this detour into operator algebras, the fourth chapter reverts to more standard operator theory in Hilbert space, dwelling on topics such as the spectral theorem for normal operators, the polar decomposition theorem, and the Fredholm theory for compact operators. A brief introduction to the theory of unbounded operators on Hilbert space is given in the fifth and final chapter. There is a voluminous appendix whose purpose is to fill in possible gaps in the reader's background in various areas such as linear algebra, topology, set theory and measure theory. The book is interspersed with many exercises, and hints are provided for the solutions to the more challenging of these.

Analysis in Euclidean Space Springer Nature

This open access textbook welcomes students into the fundamental theory of measure, integration, and real analysis. Focusing on an accessible approach, Axler lays the foundations for further study by promoting a deep understanding of key results. Content is carefully curated to suit a single course, or two-semester sequence of courses, creating a versatile entry point for graduate studies in all areas of pure and applied mathematics. Motivated by a brief review of Riemann integration and its deficiencies, the text begins by immersing students in the concepts of measure and integration. Lebesgue measure and abstract measures are developed together, with each providing key insight into the main ideas of the other approach. Lebesgue integration links into results such as the Lebesgue Differentiation Theorem. The development of products of abstract measures leads to Lebesgue measure on \mathbb{R}^n . Chapters on Banach spaces, L_p spaces, and Hilbert spaces showcase major results such as the Hahn-Banach Theorem, Hölder's Inequality, and the Riesz Representation Theorem. An in-depth study of linear maps on Hilbert spaces culminates in the Spectral Theorem and Singular Value Decomposition for compact operators, with an optional interlude in real and complex measures. Building on the Hilbert space material, a chapter on Fourier analysis provides an invaluable introduction to Fourier series and the Fourier transform. The final chapter offers a taste of probability. Extensively class tested at multiple universities and written by an

award-winning mathematical expositor, *Measure, Integration & Real Analysis* is an ideal resource for students at the start of their journey into graduate mathematics. A prerequisite of elementary undergraduate real analysis is assumed; students and instructors looking to reinforce these ideas will appreciate the electronic Supplement for *Measure, Integration & Real Analysis* that is freely available online.

FUNCTIONAL ANALYSIS by Walter Rudin Academic Press
The authors present a unified treatment of basic topics that arise in Fourier analysis. Their intention is to illustrate the role played by the structure of Euclidean spaces, particularly the action of translations, dilatations, and rotations, and to motivate the study of harmonic analysis on more general spaces having an analogous structure, e.g., symmetric spaces.
Complex Analysis Courier Corporation
The book is based on courses taught by the author at Moscow State University. Compared to many other books on the subject, it is unique in that the exposition is based on extensive use of the language and elementary constructions of category theory. Among topics featured in the book are the theory of Banach and Hilbert tensor products, the theory of distributions and weak topologies, and Borel operator calculus. The book contains many examples illustrating the general theory presented, as well as multiple exercises that help the reader to learn the subject. It can be used as a textbook on selected topics of functional analysis and operator theory. Prerequisites include linear algebra, elements of real analysis, and elements of the theory of metric spaces.

Real and Functional Analysis American Mathematical Soc.

Intended as an introductory text on Functional Analysis for the postgraduate students of Mathematics, this compact and well-organized book covers all the topics considered essential to the subject. In so doing, it provides a very good understanding of the subject to the reader. The book begins with a review of linear algebra, and then it goes on to give the basic notion of a norm on linear space (proving thereby most of the basic results), progresses gradually, dealing with operators, and proves some of the basic theorems of Functional Analysis. Besides, the book analyzes more advanced topics like dual space considerations, compact operators, and spectral theory of Banach and Hilbert space operators. The text is so organized that it strives, particularly in the last chapter, to apply and relate the basic theorems to problems which arise while solving operator equations. The present edition is a thoroughly revised version of its first edition, which also includes a section on Hahn-Banach extension theorem for operators and discussions on Lax-Milgram theorem. This student-friendly text, with its clear exposition of concepts, should prove to be a boon to the beginner aspiring to have an insight into Functional Analysis. KEY FEATURES • Plenty of examples have been worked out in detail, which not only illustrate a particular result, but also point towards its limitations so that subsequent stronger results follow. • Exercises, which are designed to aid understanding and to promote mastery of the subject, are interspersed throughout the text. TARGET AUDIENCE • M.Sc. Mathematics

Real and Complex Analysis Courier Corporation
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recognized classics in their respective fields. With these new unabridged and inexpensive editions, Wiley hopes to extend the life of these important works by making them available to future generations of mathematicians and scientists. Currently available in the Series: Emil Artin Geometric Algebra R. W. Carter Simple Groups Of Lie Type Richard Courant Differential and Integral Calculus. Volume I Richard Courant Differential and Integral Calculus. Volume II Richard Courant & D. Hilbert Methods of Mathematical Physics, Volume I Richard Courant & D. Hilbert Methods of Mathematical Physics. Volume II Harold M. S. Coxeter Introduction to Modern Geometry. Second Edition Charles W. Curtis, Irving Reiner Representation Theory of Finite Groups and Associative Algebras Nelson Dunford, Jacob T. Schwartz Linear Operators. Part One. General Theory Nelson Dunford, Jacob T. Schwartz Linear Operators, Part Two. Spectral Theory—Self Adjant Operators in Hilbert Space Nelson Dunford, Jacob T. Schwartz Linear Operators. Part Three. Spectral Operators Peter Henrici Applied and Computational Complex Analysis. Volume I—Power Series-Integration-Contour Mapping-Location of Zeros Peter Hilton, Yet-Chiang Wu A Course in Modern Algebra Harry Hochstadt Integral Equations Erwin Kreyszig Introductory Functional Analysis with Applications P. M. Prenter Splines and Variational Methods C. L. Siegel Topics in Complex Function Theory. Volume I —Elliptic Functions and Uniformization Theory C. L. Siegel Topics in Complex Function Theory. Volume II —Automorphic and Abelian Integrals C. L. Siegel Topics In Complex Function Theory. Volume III —Abelian Functions & Modular Functions of Several Variables J. J. Stoker Differential Geometry