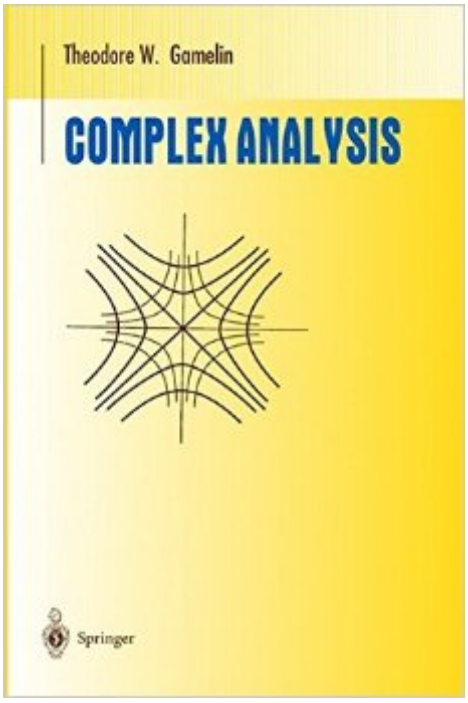
Complex Analysis (Undergraduate Texts In Mathematics)



Synopsis

An introduction to complex analysis for students with some knowledge of complex numbers from high school. It contains sixteen chapters, the first eleven of which are aimed at an upper division undergraduate audience. The remaining five chapters are designed to complete the coverage of all background necessary for passing PhD qualifying exams in complex analysis. Topics studied include Julia sets and the Mandelbrot set, Dirichlet series and the prime number theorem, and the uniformization theorem for Riemann surfaces, with emphasis placed on the three geometries: spherical, euclidean, and hyperbolic. Throughout, exercises range from the very simple to the challenging. The book is based on lectures given by the author at several universities, including UCLA, Brown University, La Plata, Buenos Aires, and the Universidad Autonomo de Valencia, Spain.

Book Information

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Customer Reviews

Gamelin’s book covers an interesting and wide range of topics in a somewhat unorthodox manner. Examples: Riemann surfaces are introduced in the first chapter, whereas winding numbers don’t make an appearance until halfway into the book. Cauchy’s theorem and its kin are instead developed in the context of piecewise-smooth boundaries of domains (in particular, simple closed curves) and only later generalized to arbitrary closed paths, almost as an afterthought.In general, the author successfully conveys the spirit of the subject, and manages to do so quite efficiently. It’s

not the most painstakingly rigorous text out there, and the reader is expected to fill in some of the details himself, but the payoff is that a lot of ground is covered without getting bogged down in technicalities. In many books on this subject it can be tough to see the forest for the trees. This one is a pleasant exception.There are a lot of good complex analysis books out there: Conway, Ahlfors, Remmert, Palka, Narasimhan, the second half of big Rudin, and of course Needham's "Visual Complex Analysis." (And many others that are well-regarded but that I have not looked at, such as Lang and Jones/Singerman, as well as the old classics by Hille, Knopp, Cartan, Saks and Zygmund.) Every one of these has its own perspective, and complex analysis is a big, multifaceted subject that is perhaps best studied from multiple points of view. Anyone wanting to learn this subject well will benefit from having several books at hand.Gamelin's contribution to the pantheon is not revolutionary, but it does collect between its pages a wide assortment of topics not generally found in a single text. The reader is whisked from the basics to the Riemann mapping theorem in 300 pages with surprising ease.

Never before have I began reading a book more predisposed to hate it. Generally, I like to read math books that are slim because I feel that it forces the author to get right to the heart of the material as quickly as possible. I also like my math books to have a rigid structure of formal proofs surrounded by expositional paragraphs. This book, on the other hand, sits at an intimidating 478 pages and has no proofs that are set aside in the proof environment in LaTeX. The proofs are blended together with the general commentary paragraphs in the flow of this book's exposition. So it was a huge surprise for me when I actually found that I enjoyed reading this book.The first thing that I think should be noted is that this book is written in an informal language. I know many reviewers have stated that this bothers them and have hinted at the fact that they think some of the proofs here are less-than-rigorous (perhaps implying wrong). I don't think this is the case at all and there's a good reason for this. This book is about conveying the essence of a proof to the reader much more than the gritty technical details (which there is little of in basic complex analysis in the first place). This is a good thing. Whatever can be said about the books by Rudin or some others, you cannot possibly say that a newcomer to the subject would walk away with a good intuition for the subject on a first go. Here is a book entirely devoted to teaching the reader how to think about the material so that they will see the results as being natural, and the book does a marvelous job at it. Now, with this in mind, I thought that all of the proofs were very rigorously stated, and the fact that he used English instead of mathematical symbols for everything greatly enhanced the readability of the proofs.

7 More Psychological Complexes That You Didn't Know Existed: Cinderella Complex, Superman Complex, Napoleon Complex, Messiah Complex, Phaedra Complex, ... Complex (Transcend Mediocrity Book 125) Complex Analysis (Undergraduate Texts in Mathematics) A First Course in Complex Analysis with Applications (Jones and Bartlett Publishers Series in Mathematics: Complex) Discrete Mathematics: Elementary and Beyond (Undergraduate Texts in Mathematics) Mathematics and Its History (Undergraduate Texts in Mathematics) Real Mathematical Analysis (Undergraduate Texts in Mathematics) Understanding Analysis (Undergraduate Texts in Mathematics) Applied Linear Algebra and Matrix Analysis (Undergraduate Texts in Mathematics) Complex Analysis For Mathematics And Engineering (International Series in Mathematics) The Pleasures of Probability (Undergraduate Texts in Mathematics) Calculus with Vectors (Springer Undergraduate Texts in Mathematics and Technology) Conics and Cubics: A Concrete Introduction to Algebraic Curves (Undergraduate Texts in Mathematics) Elementary Number Theory: Primes, Congruences, and Secrets: A Computational Approach (Undergraduate Texts in Mathematics) Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra (Undergraduate Texts in Mathematics) Rational Points on Elliptic Curves (Undergraduate Texts in Mathematics) Elementary Topics in Differential Geometry (Undergraduate Texts in Mathematics) The Foundations of Geometry and the Non-Euclidean Plane (Undergraduate Texts in Mathematics) Topology (Undergraduate Texts in Mathematics) Basic Concepts of Algebraic Topology (Undergraduate Texts in Mathematics) Introduction to Partial Differential Equations (Undergraduate Texts in Mathematics)