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# A First Course In Complex Analysis With Applications

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**A First Course in Complex Analysis with Applications**  
*Jones & Bartlett Learning*

The new Second Edition of A First Course in Complex Analysis with Applications is a truly accessible introduction to the fundamental principles and applications of complex analysis. Designed for the undergraduate student with a calculus background but no

prior experience with complex variables, this text discusses theory of the most relevant mathematical topics in a student-friendly manner. With Zill's clear and straightforward writing style, concepts are introduced through numerous examples and clear illustrations. Students are guided and supported through numerous proofs providing them with a higher level of mathematical insight and maturity. Each chapter contains a separate section on the applications of complex variables, providing students with the opportunity to develop a practical and clear understanding of complex analysis.

**A First Course on  
Complex Functions**  
*Springer Science &*

### *Business Media*

This book contains a rigorous coverage of those topics (and only those topics) that, in the author's judgement, are suitable for inclusion in a first course on Complex Functions. Roughly speaking, these can be summarized as being the things that can be done with Cauchy's integral formula and the residue theorem. On the theoretical side, this includes the basic core of the theory of differentiable complex functions, a theory which is unsurpassed in Mathematics for its cohesion, elegance and wealth of surprises. On the practical side, it includes the computational applications of the residue theorem. Some prominence is given to

the latter, because for the more sceptical student they provide the justification for inventing the complex numbers. Analytic continuation and Riemann surfaces form an essentially different chapter of Complex Analysis. A proper treatment is far too sophisticated for a first course, and they are therefore excluded. The aim has been to produce the simplest possible rigorous treatment of the topics discussed. For the programme outlined above, it is quite sufficient to prove Cauchy's integral theorem for paths in star-shaped open sets, so this is done. No form of the Jordan curve theorem is used anywhere in the book.

### **A First Course in**

### **Complex Analysis with Applications**

*Jones & Bartlett Publishers*

The new Second Edition of *A First Course in Complex Analysis with Applications* is a truly accessible introduction to the fundamental principles and applications of complex analysis. Designed for the undergraduate student with a calculus background but no prior experience with complex variables, this text discusses theory of the most relevant mathematical topics in a student-friendly manner. With Zill's clear and straightforward writing style, concepts are introduced through numerous examples and clear illustrations. Students are guided

and supported through numerous proofs providing them with a higher level of mathematical insight and maturity. Each chapter contains a separate section on the applications of complex variables, providing students with the opportunity to develop a practical and clear understanding of complex analysis.

### **Complex Analysis**

*John Wiley & Sons*

A thorough introduction to the theory of complex functions emphasizing the beauty, power, and counterintuitive nature of the subject. Written with a reader-friendly approach, *Complex Analysis: A Modern First Course in Function Theory* features a self-contained, concise development of the

fundamental principles of complex analysis. After laying groundwork on complex numbers and the calculus and geometric mapping properties of functions of a complex variable, the author uses power series as a unifying theme to define and study the many rich and occasionally surprising properties of analytic functions, including the Cauchy theory and residue theorem. The book concludes with a treatment of harmonic functions and an epilogue on the Riemann mapping theorem. Thoroughly classroom tested at multiple universities, *Complex Analysis: A Modern First Course in Function Theory* features: Plentiful exercises, both

computational and theoretical, of varying levels of difficulty, including several that could be used for student projects. Numerous figures to illustrate geometric concepts and constructions used in proofs. Remarks at the conclusion of each section that place the main concepts in context, compare and contrast results with the calculus of real functions, and provide historical notes. Appendices on the basics of sets and functions and a handful of useful results from advanced calculus. Appropriate for students majoring in pure or applied mathematics as well as physics or engineering. **Complex Analysis: A Modern First Course in Function Theory** is an

ideal textbook for a one-semester course in complex analysis for those with a strong foundation in multivariable calculus. The logically complete book also serves as a key reference for mathematicians, physicists, and engineers and is an excellent source for anyone interested in independently learning or reviewing the beautiful subject of complex analysis.

**A First Course in Complex Analysis**  
*Orthogonal Publishing*  
 L3c

A First Course in Complex Analysis was developed from lecture notes for a one-semester undergraduate course taught by the authors. For many students, complex analysis is the

first rigorous analysis (if not mathematics) class they take, and these notes reflect this. The authors try to rely on as few concepts from real analysis as possible. In particular, series and sequences are treated from scratch.

**Complex Analysis**  
*Jones & Bartlett  
Publishers*

Designed for the undergraduate student with a calculus background but no prior experience with complex analysis, this text discusses the theory of the most relevant mathematical topics in a student-friendly manner. With a clear and straightforward writing style, concepts are introduced through numerous examples, illustrations, and

applications. Each section of the text contains an extensive exercise set containing a range of computational, conceptual, and geometric problems. In the text and exercises, students are guided and supported through numerous proofs providing them with a higher level of mathematical insight and maturity. Each chapter contains a separate section devoted exclusively to the applications of complex analysis to science and engineering, providing students with the opportunity to develop a practical and clear understanding of complex analysis. The Mathematica syntax from the second edition has been updated to coincide

with version 8 of the software. --

**Student Study Guide to Accompany A First Course in Complex Analysis with Applications**

*Jones & Bartlett Learning*

The Student Study Guide consists of seven chapters which correspond to the seven chapters of A First Course in Complex Analysis with Applications, Second Edition. Each chapter includes: Review Topics, Summaries, Exercises, and Focus on Concepts Problems. Solutions to odd exercises are included.

**Twenty-One Lectures on Complex Analysis** *Springer*

At its core, this concise textbook presents standard material for a

first course in complex analysis at the advanced

undergraduate level.

This distinctive text will prove most rewarding for students who have a genuine passion for mathematics as well as certain mathematical maturity. Primarily aimed at

undergraduates with working knowledge of real analysis and metric spaces, this book can also be used to instruct a graduate course. The text uses a conversational style with topics purposefully

apportioned into 21 lectures, providing a suitable format for either independent study or lecture-based teaching. Instructors are invited to rearrange the order of topics according to their own vision. A

clear and rigorous exposition is supported by engaging examples and exercises unique to each lecture; a large number of exercises contain useful calculation problems. Hints are given for a selection of the more difficult exercises. This text furnishes the reader with a means of learning complex analysis as well as a subtle introduction to careful mathematical reasoning. To guarantee a student's progression, more advanced topics are spread out over several lectures. This text is based on a one-semester (12 week) undergraduate course in complex analysis that the author has taught at the Australian National University for over twenty years. Most of

the principal facts are deduced from Cauchy's Independence of Homotopy Theorem allowing us to obtain a clean derivation of Cauchy's Integral Theorem and Cauchy's Integral Formula. Setting the tone for the entire book, the material begins with a proof of the Fundamental Theorem of Algebra to demonstrate the power of complex numbers and concludes with a proof of another major milestone, the Riemann Mapping Theorem, which is rarely part of a one-semester undergraduate course.

**A Complex Analysis  
Problem Book**  
*Birkhäuser*

This second edition presents a collection of exercises on the theory

of analytic functions, including completed and detailed solutions. It introduces students to various applications and aspects of the theory of analytic functions not always touched on in a first course, while also addressing topics of interest to electrical engineering students (e.g., the realization of rational functions and its connections to the theory of linear systems and state space representations of such systems). It provides examples of important Hilbert spaces of analytic functions (in particular the Hardy space and the Fock space), and also includes a section reviewing essential aspects of topology, functional analysis and Lebesgue integration. Benefits of the 2nd

edition Rational functions are now covered in a separate chapter. Further, the section on conformal mappings has been expanded.

**A Course in Complex Analysis** *Princeton University Press*

"This textbook is intended for a year-long graduate course on complex analysis, a branch of mathematical analysis that has broad applications, particularly in physics, engineering, and applied mathematics. Based on nearly twenty years of classroom lectures, the book is accessible enough for independent study, while the rigorous approach will appeal to more experienced readers and scholars, propelling further

research in this field. While other graduate-level complex analysis textbooks do exist, Zakeri takes a distinctive approach by highlighting the geometric properties and topological underpinnings of this area. Zakeri includes more than three hundred and fifty problems, with problem sets at the end of each chapter, along with additional solved examples. Background knowledge of undergraduate analysis and topology is needed, but the thoughtful examples are accessible to beginning graduate students and advanced undergraduates. At the same time, the book has sufficient depth for advanced readers to enhance their own research. The textbook

is well-written, clearly illustrated, and peppered with historical information, making it approachable without sacrificing rigor. It is poised to be a valuable textbook for graduate students, filling a needed gap by way of its level and unique approach"--

**Complex Made Simple** *American Mathematical Soc.*

Perhaps uniquely among mathematical topics, complex analysis presents the student with the opportunity to learn a thoroughly developed subject that is rich in both theory and applications. Even in an introductory course, the theorems and techniques can have elegant formulations. But for any of these profound results, the

student is often left asking: What does it really mean? Where does it come from? In *Complex Made Simple*, David Ullrich shows the student how to think like an analyst. In many cases, results are discovered or derived, with an explanation of how the students might have found the theorem on their own. Ullrich explains why a proof works. He will also, sometimes, explain why a tempting idea does not work. *Complex Made Simple* looks at the Dirichlet problem for harmonic functions twice: once using the Poisson integral for the unit disk and again in an informal section on Brownian motion, where the reader can understand intuitively how the Dirichlet

problem works for general domains. Ullrich also takes considerable care to discuss the modular group, modular function, and covering maps, which become important ingredients in his modern treatment of the often-overlooked original proof of the Big Picard Theorem. This book is suitable for a first-year course in complex analysis. The exposition is aimed directly at the students, with plenty of details included. The prerequisite is a good course in advanced calculus or undergraduate analysis.

**A First Course in Analysis** *Cambridge University Press*

This rigorous textbook is intended for a year-long analysis or

advanced calculus course for advanced undergraduate or beginning graduate students. Starting with detailed, slow-paced proofs that allow students to acquire facility in reading and writing proofs, it clearly and concisely explains the basics of differentiation and integration of functions of one and several variables, and covers the theorems of Green, Gauss, and Stokes. Minimal prerequisites are assumed, and relevant linear algebra topics are reviewed right before they are needed, making the material accessible to students from diverse backgrounds. Abstract topics are preceded by concrete examples to facilitate understanding, for example, before

introducing differential forms, the text examines low-dimensional examples. The meaning and importance of results are thoroughly discussed, and numerous exercises of varying difficulty give students ample opportunity to test and improve their knowledge of this difficult yet vital subject.

**Function Theory of One Complex Variable** *American Mathematical Soc.*

Complex analysis is one of the most central subjects in mathematics. It is compelling and rich in its own right, but it is also remarkably useful in a wide variety of other mathematical subjects, both pure and applied. This book is

different from others in that it treats complex variables as a direct development from multivariable real calculus. As each new idea is introduced, it is related to the corresponding idea from real analysis and calculus. The text is rich with examples and exercises that illustrate this point. The authors have systematically separated the analysis from the topology, as can be seen in their proof of the Cauchy theorem. The book concludes with several chapters on special topics, including full treatments of special functions, the prime number theorem, and the Bergman kernel. The authors also treat  $H^p$  spaces and Painlevé's theorem on smoothness to the boundary for conformal

maps. This book is a text for a first-year graduate course in complex analysis. It is an engaging and modern introduction to the subject, reflecting the authors' expertise both as mathematicians and as expositors.

### **Invitation to Complex Analysis**

Ideal for a first course in complex analysis, this book can be used either as a classroom text or for independent study. Written at a level accessible to advanced undergraduates and beginning graduate students, the book is suitable for readers acquainted with advanced calculus or introductory real analysis. The treatment goes beyond the standard material

of power series, Cauchy's theorem, residues, conformal mapping, and harmonic functions by including accessible discussions of intriguing topics that are uncommon in a book at this level. The flexibility afforded by the supplementary topics and applications makes the book adaptable either to a short, one-term course or to a comprehensive, full-year course. Detailed solutions of the exercises both serve as models for students and facilitate independent study. Supplementary exercises, not solved in the book, provide an additional teaching tool.

**Complex Analysis**  
*Springer Science &  
Business Media*

The present book is meant as a text for a course on complex analysis at the advanced undergraduate level, or first-year graduate level. Somewhat more material has been included than can be covered at leisure in one term, to give opportunities for the instructor to exercise his taste, and lead the course in whatever direction strikes his fancy at the time. A large number of routine exercises are included for the more standard portions, and a few harder exercises of striking theoretical interest are also included, but may be omitted in courses addressed to less advanced students. In some sense, I think the classical German prewar texts were the

best (Hurwitz-Courant, Knopp, Bieberbach, etc. ) and I would recommend to anyone to look through them. More recent texts have emphasized connections with real analysis, which is important, but at the cost of exhibiting succinctly and clearly what is peculiar about complex analysis: the power series expansion, the uniqueness of analytic continuation, and the calculus of residues. The systematic elementary development of formal and convergent power series was standard fare in the German texts, but only Cartan, in the more recent books, includes this material, which I think is quite essential, e. g. , for differential equations. I have

written a short text, exhibiting these features, making it applicable to a wide variety of tastes. The book essentially decomposes into two parts.

### **A First Course In Complex Analysis, 2/E**

#### **Introduction to Complex Analysis**

*OUP Oxford*

Complex analysis is a classic and central area of mathematics, which is studied and exploited in a range of important fields, from number theory to engineering.

Introduction to Complex Analysis was first published in 1985, and for this much awaited second edition the text has been considerably expanded, while

retaining the style of the original. More detailed presentation is given of elementary topics, to reflect the knowledge base of current students. Exercise sets have been substantially revised and enlarged, with carefully graded exercises at the end of each chapter. This is the latest addition to the growing list of Oxford undergraduate textbooks in mathematics, which includes: Biggs: Discrete Mathematics 2nd Edition, Cameron: Introduction to Algebra, Needham: Visual Complex Analysis, Kaye and Wilson: Linear Algebra, Acheson: Elementary Fluid Dynamics, Jordan and Smith: Nonlinear Ordinary Differential Equations, Smith: Numerical Solution of

Partial Differential Equations, Wilson: Graphs, Colourings and the Four-Colour Theorem, Bishop: Neural Networks for Pattern Recognition, Gelman and Nolan: Teaching Statistics.

**Visual Complex Analysis** *Oxford University Press*

This radical approach to complex analysis replaces the standard calculational arguments with new geometric ones. Using several hundred diagrams this is a new visual approach to the topic.

**Elementary Theory of Analytic Functions of One or Several Complex Variables** *Courier Corporation*

Basic treatment includes existence

theorem for solutions of differential systems where data is analytic, holomorphic functions, Cauchy's integral, Taylor and Laurent expansions, more. Exercises. 1973 edition.

**Complex Analysis**  
*Springer Science & Business Media*

Complex analysis can be a difficult subject and many introductory texts are just too ambitious for today's students. This book takes a lower starting point than is traditional and concentrates on explaining the key ideas through worked examples and informal explanations, rather than through "dry" theory.

**A First Course in Partial Differential Equations** *Courier*

*Corporation*

Suitable for advanced undergraduate and graduate students, this text presents the general properties of partial differential equations, including the elementary theory of complex variables. Solutions. 1965 edition.

**Complex Analysis with Applications**  
*Springer*

This textbook is intended for a one semester course in complex analysis for upper level undergraduates in mathematics.

Applications, primary motivations for this text, are presented hand-in-hand with theory enabling this text to serve well in courses for students in engineering or applied sciences. The overall aim in designing this

text is to accommodate students of different mathematical backgrounds and to achieve a balance between presentations of rigorous mathematical proofs and applications. The text is adapted to enable maximum flexibility to instructors and to students who may also choose to progress through the material outside of coursework. Detailed examples may be covered in one course, giving the instructor the option to choose those that are best suited for discussion. Examples showcase a variety of problems with completely worked out solutions, assisting students in working through the exercises. The numerous exercises vary in difficulty from

simple applications of formulas to more advanced project-type problems. Detailed hints accompany the more challenging problems. Multi-part exercises may be assigned to individual students, to groups as projects, or serve as further illustrations for the instructor. Widely used graphics clarify both concrete and abstract concepts, helping students visualize the proofs of many results. Freely accessible solutions to every-other-odd exercise are posted to the book's Springer website. Additional solutions for instructors' use may be obtained by contacting the authors directly.

**A First Course in  
Dimensional  
Analysis** MIT Press

An introduction to dimensional analysis, a method of scientific analysis used to investigate and simplify complex physical phenomena, demonstrated through a series of engaging examples. This book offers an introduction to dimensional analysis, a powerful method of scientific analysis used to investigate and simplify complex physical phenomena. The method enables bold approximations and the generation of testable hypotheses. The book explains these analyses through a series of entertaining applications; students will learn to analyze, for example, the limits of world-record weight lifters, the distance an electric submarine can travel, how an upside-down pendulum is similar to a running velociraptor, and the number of Olympic rowers required to double boat speed. The book introduces the approach through easy-to-follow, step-by-step methods that show how to identify the essential variables describing a complex problem; explore the dimensions of the problem and recast it to reduce complexity; leverage physical insights and experimental observations to further reduce complexity; form testable scientific hypotheses; combine experiments and analysis to solve a problem; and collapse and present experimental measurements in a compact form. Each chapter ends with a

summary and problems for students to solve. Taken together, the analyses and examples demonstrate the value of dimensional analysis and provide guidance on how to combine and enhance dimensional analysis with physical insights. The book can be used by undergraduate students in physics, engineering, chemistry, biology, sports science, and astronomy.

**Complex Analysis in one Variable** *Springer Science & Business Media*

This book is based on a first-year graduate course I gave three times at the University of Chicago. As it was addressed to graduate students who intended to specialize in

mathematics, I tried to put the classical theory of functions of a complex variable in context, presenting proofs and points of view which relate the subject to other branches of mathematics. Complex analysis in one variable is ideally suited to this attempt. Of course, the branches of mathematics one chooses, and the connections one makes, must depend on personal taste and knowledge. My own leaning towards several complex variables will be apparent, especially in the notes at the end of the different chapters. The first three chapters deal largely with classical material which is available in the many books on the subject. I have tried to present this material

as efficiently as I could, and, even here, to show the relationship with other branches of mathematics. Chapter 4 contains a proof of Picard's theorem; the method of proof I have chosen has far-reaching generalizations in several complex variables and in differential geometry. The next two chapters deal with the Runge approximation theorem and its many applications. The presentation here has been strongly influenced by work on several complex variables.

**A First Course in Network Science**  
*Cambridge University Press*

A practical introduction to network science for students across

business, cognitive science, neuroscience, sociology, biology, engineering and other disciplines.

**A Course in Complex Analysis and Riemann Surfaces**  
*American Mathematical Society*

Complex analysis is a cornerstone of mathematics, making it an essential element of any area of study in graduate mathematics. Schlag's treatment of the subject emphasizes the intuitive geometric underpinnings of elementary complex analysis that naturally lead to the theory of Riemann surfaces. The book begins with an exposition of the basic theory of holomorphic functions of one complex variable. The first two chapters constitute a fairly

rapid, but comprehensive course in complex analysis. The third chapter is devoted to the study of harmonic functions on the disk and the half-plane, with an emphasis on the Dirichlet problem. Starting with the fourth chapter, the theory of Riemann surfaces is developed in some detail and with complete rigor. From the beginning, the geometric aspects are emphasized and classical topics such as elliptic functions and elliptic integrals are presented as illustrations of the abstract theory. The special role of compact Riemann surfaces is explained, and their connection with algebraic equations is established. The book concludes with three chapters devoted to three major results: the Hodge decomposition theorem, the Riemann-Roch theorem, and the uniformization theorem. These chapters present the core technical apparatus of Riemann surface theory at this level. This text is intended as a detailed, yet fast-paced introduction to those parts of the theory of one complex variable that seem most useful in other areas of mathematics, including geometric group theory, dynamics, algebraic geometry, number theory, and functional analysis. More than seventy figures serve to illustrate concepts and ideas, and the many problems at the end of each chapter give the

reader ample opportunity for practice and independent study.

## **Functions of One Complex Variable**

### **A Friendly Approach to Complex Analysis**

*World Scientific Publishing Company*

The book constitutes a basic, concise, yet rigorous course in complex analysis, for students who have studied calculus in one and several variables, but have not previously been exposed to complex analysis. The textbook should be particularly useful and relevant for undergraduate students in joint programmes with mathematics, as well as engineering students. The aim of the book is to cover

the bare bones of the subject with minimal prerequisites. The core content of the book is the three main pillars of complex analysis: the Cauchy–Riemann equations, the Cauchy Integral Theorem, and Taylor and Laurent series expansions. Each section contains several problems, which are not purely drill exercises, but are rather meant to reinforce the fundamental concepts. Detailed solutions to all the exercises appear at the end of the book, making the book ideal also for self-study. There are many figures illustrating the text. Errata(s) Errata (72 KB)

## **Complex Analysis**

*Princeton University Press*

With this second volume, we enter the

intriguing world of complex analysis. From the first theorems on, the elegance and sweep of the results is evident. The starting point is the simple idea of extending a function initially given for real values of the argument to one that is defined when the argument is complex. From there, one proceeds to the main properties of holomorphic functions, whose proofs are generally short and quite illuminating: the Cauchy theorems, residues, analytic continuation, the argument principle. With this background, the reader is ready to learn a wealth of additional material connecting the subject with other areas of mathematics: the Fourier transform treated by contour integration, the zeta function and the prime number theorem, and an introduction to elliptic functions culminating in their application to combinatorics and number theory. Thoroughly developing a subject with many ramifications, while striking a careful balance between conceptual insights and the technical underpinnings of rigorous analysis, *Complex Analysis* will be welcomed by students of mathematics, physics, engineering and other sciences. The *Princeton Lectures in Analysis* represents a sustained effort to introduce the core areas of mathematical analysis while also illustrating the organic unity between them.

Numerous examples and applications throughout its four planned volumes, of which *Complex Analysis* is the second, highlight the far-reaching consequences of certain ideas in analysis to other fields of mathematics and a variety of sciences. Stein and Shakarchi move from an introduction addressing Fourier series and integrals to in-depth considerations of complex analysis; measure and integration theory, and Hilbert spaces; and, finally, further topics such as functional analysis, distributions and elements of probability theory.

### **An Introduction to Complex Analysis**

*Wiley-Interscience*

Recent decades have

seen profound changes in the way we understand complex analysis. This new work presents a much-needed modern treatment of the subject, incorporating the latest developments and providing a rigorous yet accessible introduction to the concepts and proofs of this fundamental branch of mathematics. With its thorough review of the prerequisites and well-balanced mix of theory and practice, this book will appeal both to readers interested in pursuing advanced topics as well as those wishing to explore the many applications of complex analysis to engineering and the physical sciences. \* Reviews the necessary calculus, bringing

readers quickly up to speed on the material \* Illustrates the theory, techniques, and reasoning through the use of short proofs and many examples \* Demystifies complex versus real differentiability for functions from the plane to the plane \* Develops Cauchy's Theorem, presenting the powerful and easy-to-use winding-number version \* Contains over 100 sophisticated graphics to provide helpful examples and reinforce important concepts

**A First Course in Complex Analysis**  
*Orthogonal Publishing L3c*

A First Course in Complex Analysis was developed from lecture notes for a one-semester

undergraduate course taught by the authors. For many students, complex analysis is the first rigorous analysis (if not mathematics) class they take, and these notes reflect this. The authors try to rely on as few concepts from real analysis as possible. In particular, series and sequences are treated from scratch.

**A First Course in Complex Analysis**

A First Course in Complex Analysis was developed from lecture notes for a one-semester

undergraduate course taught by the authors. For many students, complex analysis is the first rigorous analysis (if not mathematics) class they take, and these notes reflect this. The authors try to rely

on as few concepts from real analysis as possible. In particular, series and sequences are treated from scratch.

**Complex Variables and Analytic Functions: An Illustrated Introduction** *SIAM*

At almost all academic institutions worldwide, complex variables and analytic functions are utilized in courses on applied mathematics, physics, engineering, and other related subjects. For most students, formulas alone do not provide a sufficient introduction to this widely taught material, yet illustrations of functions are sparse in current books on the topic. This is the first primary introductory textbook on complex

variables and analytic functions to make extensive use of functional illustrations. Aiming to reach undergraduate students entering the world of complex variables and analytic functions, this book utilizes graphics to visually build on familiar cases and illustrate how these same functions extend beyond the real axis. It covers several important topics that are omitted in nearly all recent texts, including techniques for analytic continuation and discussions of elliptic functions and of Wiener-Hopf methods. It also presents current advances in research, highlighting the subject's active and fascinating frontier. The primary audience

for this textbook is undergraduate students taking an introductory course on complex variables and analytic functions. It is also geared toward graduate students taking a second semester course on these topics, engineers and physicists who use complex variables in their work, and students and researchers at any level who want a reference book on the subject.

**An Introduction to  
Complex Analysis**  
*Springer Science &  
Business Media*

This textbook introduces the subject of complex analysis to advanced undergraduate and graduate students in a clear and concise manner. Key features

of this textbook: effectively organizes the subject into easily manageable sections in the form of 50 class-tested lectures, uses detailed examples to drive the presentation, includes numerous exercise sets that encourage pursuing extensions of the material, each with an “Answers or Hints” section, covers an array of advanced topics which allow for flexibility in developing the subject beyond the basics, provides a concise history of complex numbers. An Introduction to Complex Analysis will be valuable to students in mathematics, engineering and other applied sciences. Prerequisites include a course in calculus.

**An Introduction to**

**Complex Function Theory** *Springer Science & Business Media*

This book provides a rigorous yet elementary introduction to the theory of analytic functions of a single complex variable. While presupposing in its readership a degree of mathematical maturity, it insists on no formal prerequisites beyond a sound knowledge of calculus. Starting from basic definitions, the text slowly and carefully develops the ideas of complex analysis to the point where such landmarks of the subject as Cauchy's theorem, the Riemann mapping theorem, and the theorem of Mittag-Leffler can be treated without sidestepping any issues of rigor. The

emphasis throughout is a geometric one, most pronounced in the extensive chapter dealing with conformal mapping, which amounts essentially to a "short course" in that important area of complex function theory. Each chapter concludes with a wide selection of exercises, ranging from straightforward computations to problems of a more conceptual and thought-provoking nature.

**A First Course in Quantitative Finance** *Cambridge University Press*

Using stereoscopic images and other novel pedagogical features, this book offers a comprehensive introduction to quantitative finance.

**A First Course in  
Complex Analysis  
with Applications**

*Jones & Bartlett  
Learning*

A First Course In Complex Analysis With Applications Limits Theoretical Coverage To Only What Is Necessary, And Conveys It In A Student-Friendly Style. Its Aim Is To Introduce The Basic Principles And Applications Of Complex Analysis To Undergraduates Who Have No Prior Knowledge Of This Subject. Contents Of The Book Include The Complex Number System, Complex Functions And Sequences, As Well As Real Integrals; In Addition To Other Concepts Of Calculus, And The Functions Of A Complex Variable. This Text Is Written For

Junior-Level Undergraduate Students Who Are Majoring In Math, Physics, Computer Science, And Electrical Engineering.

**A First Course In  
Chaotic Dynamical  
Systems** *CRC Press*

A First Course in Chaotic Dynamical Systems: Theory and Experiment is the first book to introduce modern topics in dynamical systems at the undergraduate level. Accessible to readers with only a background in calculus, the book integrates both theory and computer experiments into its coverage of contemporary ideas in dynamics. It is designed as a gradual introduction to the basic mathematical ideas behind such

topics as chaos, fractals, Newton's method, symbolic dynamics, the Julia set, and the Mandelbrot set, and includes biographies of some of the leading researchers in the field of dynamical systems. Mathematical and computer experiments are integrated throughout the text to help illustrate the meaning of the theorems presented. Chaotic Dynamical Systems Software, Labs 1-6 is a supplementary laboratory software package, available separately, that allows a more intuitive understanding of the mathematics behind dynamical systems theory. Combined with A First Course in Chaotic Dynamical Systems , it leads to a

rich understanding of this emerging field.

### **Guide to Cultivating Complex Analysis**

An introductory course in complex analysis for incoming graduate students. Created to teach Math 5283 at Oklahoma State University. The book has somewhat more material than could fit in a one-semester course, allowing some choices. There are also appendices on metric spaces and some basic analysis background to make for a longer and more complete course for those that have only had an introduction to basic analysis on the real line.

**Schaum's Outline of Complex Variables, 2ed McGraw Hill Professional**

The guide that helps students study faster, learn better, and get top grades. More than 40 million students have trusted Schaum's to help them study faster, learn better, and get top grades. Now Schaum's is better than ever-with a new look, a new format with hundreds of practice problems, and completely updated information to conform to the latest developments in every field of study. Fully compatible with your classroom text, Schaum's highlights all the important facts you need to know. Use Schaum's to shorten your study time-and get your best test scores! Schaum's Outlines-Problem Solved.