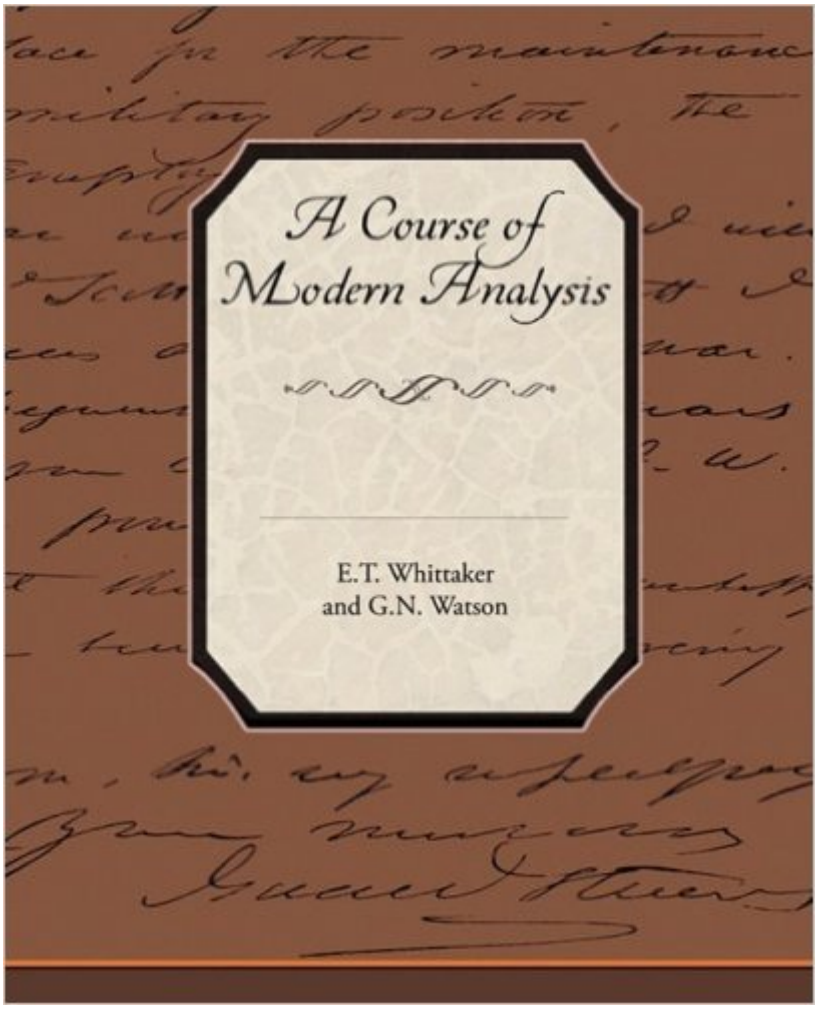
A Course Of Modern Analysis



Synopsis

E T Whittaker was an early 20th century Mathematician. He is credited with pioneering research in special functions. Whittaker was a member of the Royal Society. He was professor of Astronomy at the University of Dublin and Professor of Mathematics at the University of Edinburgh. A Course of Modern Analysis was the first book in English to present the theory of functions of a complex variable at an undergraduate level. This book was instrumental in the study of such functions and their expansions as well as the study of special functions and their related differential equations. --This text refers to an alternate Paperback edition.

Book Information

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Customer Reviews

The DEFINITIVE text for classical AnalysisThis book is the definitive text in classical Mathematical Analysis. It was first published in 1902 and the fact that it is still in print is testimony to it’s wide ranging utility and appeal.It should be noted that this text is not for those who are new to the rigour of Analysis; its presentation is suitable for a final year undergraduate or for the post-graduate student. More importantly, its wide ranging content of proofs and results would also prove useful to the Physicist.The first part of the book covers the "essentials" of analysis: continuity, differentiability, summation of series, convergence and uniform convergence, and the theory of the Riemann integral. Subsequent chapters quickly but comprehensively develop the theory of analytic functions, the theorems of Cauchy, Laurent, and Liouville and the calculus of residues. These chapters knit very well into the earlier presentation of the basic processes of analysis! The pleasing thing is that despite the passage of time and the advent of hundreds of books on Complex Variable Theory,

Whittaker and Watson's treatment still bears a mark of freshness and rigour.Also included is a comprehensive treatment of expanding functions in infinite series and asymptotic expansions and summability of series. For completeness, the text also covers the theory of linear differential equations and Fourier series.The second part of the book is what stands it apart from the rest. The authors provide a comprehensive discussion of the major transcendental functions: Gamma, Zeta, Hypergeometric, Legendre, and Bessel to name the more commonly encountered ones. The treatment is rigorous but the copious number of examples provides opportunity to learn the theory and apply it.

I decided to purchase this title about three months ago after hearing lots of praise about it on the internet and wanting to learn the subject, and I can now see that this praise was not exaggerated. A hundred years after its first publication, this classic still remains the definitive general reference in the field of special functions and is a very solid textbook in its own right.The book is split into two main parts: the first consists of short (but detailed) overviews of the various sub-disciplines of analysis from which results are required to develop later results, and the second part is devoted to developing the theories of the various kinds of special functions. The sheer breadth of topics and material that this book covers is utterly incredible. The major topics covered in the first part of the book are convergence theorems, integration-related theories, series expansions of functions and differential/integral equation theories, each of which are split into two or three chapters. The reader is assumed to be familiar with some of the subjects here and these chapters are intended more as a review, but they are still quite self-contained and will also appeal to those who have not encountered the subjects yet. (I am only 16 and know no more than ODEs and a little real analysis, but I learned some material from this)The second section, which is really the heart of the book, starts off with a detailed treatment of the fundamental gamma and related functions, followed by a chapter on the famous zeta function and its unusual properties. The book then covers the hypergeometric functions - the focus is on the 1F1 and 2F1 types, being ODE solutions - which are perhaps the cornerstone of this field, followed the special cases of Bessel and Legendre functions.

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