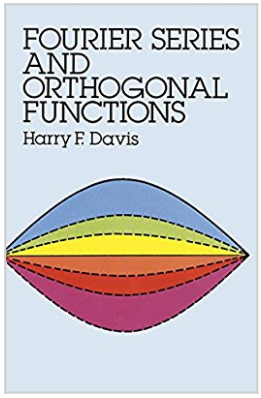


# Fourier Series and Orthogonal Functions (Dover Books on Mathematics)

*By Harry F. Davis*



**Fourier Series and Orthogonal Functions (Dover Books on Mathematics)** By Harry F. Davis

This incisive text deftly combines both theory and practical example to introduce and explore Fourier series and orthogonal functions and applications of the Fourier method to the solution of boundary-value problems. Directed to advanced undergraduate and graduate students in mathematics as well as in physics and engineering, the book requires no prior knowledge of partial differential equations or advanced vector analysis. Students familiar with partial derivatives, multiple integrals, vectors, and elementary differential equations will find the text both accessible and challenging.
The first three chapters of the book address linear spaces, orthogonal functions, and the Fourier series. Chapter 4 introduces Legendre polynomials and Bessel functions, and Chapter 5 takes up heat and temperature. The concluding Chapter 6 explores waves and vibrations and harmonic analysis. Several topics not usually found in undergraduate texts are included, among them summability theory, generalized functions, and spherical harmonics.
Throughout the text are 570 exercises devised to encourage students to review what has been read and to apply the theory to specific problems. Those preparing for further study in functional analysis, abstract harmonic analysis, and quantum mechanics will find this book especially valuable for the rigorous preparation it provides. Professional engineers, physicists, and mathematicians seeking to extend their mathematical horizons will find it an invaluable reference as well.

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