Folland, Gerald B.

Real analysis. Modern techniques and their applications. (English) Zbl 0549.28001

Pure and Applied Mathematics. A Wiley-Interscience Publication. New York etc.: John Wiley & Sons. XIV, 350 p. £40.40 (1984).

An excellent book, particularly for bright and motivated students. The organization of the material and many of the proofs are very efficient, and so the reader is able to cover a lot of ground in a short time. A full description of the most important aspects of measure and integration is accompanied by the elements of point-set topology and functional analysis. These are then applied to topics in Fourier analysis and probability theory. The applications are very interesting and introduce the students to exciting mathematics. Moreover they serve to illustrate the need for the full power of the Lebesgue theory.

The writing is fluid and, with few exceptions, the notation is natural and standard. This enables the reader interested in some particular topic to read the appropriate section without too much chasing after definitions in previous chapters. Each chapter is followed by a very valuable notes and references section. These sections contain interesting historical notes, discussions of alternative points of view and some additional results. One wishes at various points that the book would go further in the applications. On the other hand the author must have limited himself to material which could be covered in a year's (intensive) course. Altogether this is an important and very welcome addition to the literature.

Reviewer: Y.Sagher

MSC:

28-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to measure and integration
28A25 Integration with respect to measures and other set functions

Keywords:

measure and integration; Fourier analysis; probability theory; Lebesgue theory