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BOOK REVIEW

Classical Banach spaces, by Joram Lindenstrauss and Lior Tzafriri, Springer-Verlag, Lecture Notes in Math., vol. 338, Berlin, 1973. ix+243 pp.

Banach space theory has seen considerable change in recent years and these excellent lecture notes provide a highly readable and up-to-date survey of this area. The authors' objectives are stated in the preface: "The main purpose of these lecture notes is to give an outline of that part of Banach space theory which deals with properties of special and important classes of spaces. We have tried to present the main methods used in the theory, as well as the principal ideas involved in the proofs of the basic results. The lecture notes contain some well known and classical theorems but the main subject matter consists of recent results and research directions. Many open problems are mentioned throughout these notes."

Though mainly directed at Banach space enthusiasts, these lecture notes should appeal to a far wider audience. In particular, much of the recent progress on L_p-spaces is closely connected to various topics in probability theory (infinitely divisible laws, stable laws, martingale inequalities) and harmonic analysis ($\Lambda(p)$-sets, multiplier theory), while the indices of an Orlicz space (introduced by Boyd in connection with interpolation theory) are now known to be intimately related to the subspace structure of these spaces. Techniques are also borrowed from topological dynamics, integral geometry, nonstandard analysis, and other areas. With this in mind, and in view of the fact that an excellent, technical review of these lecture notes has recently been given by G. Köthe [Zentralblatt für Math. **259** (1974), 282–284], I shall aim this review at the nonspecialist. Accordingly, I shall ignore many important, but "hard-core" theorems, and emphasize those that can most easily be described in everyday terms. I hope that in so doing I shall still convey to the reader the spirit and flavor of these important lecture notes.

The notes are divided into two main parts: I. Sequence spaces, II. Function spaces. Both parts begin with an introductory chapter of a rather general nature. The main aim of these introductory sections "is to present the definitions and illustrate some basic notions which are usually not discussed in a standard first course in functional analysis $\cdots$. Because of their nature, these chapters are brief and do not contain many details."