

the last chapter. Several appendices give short introductions to mathematical concepts which have been used offhand in the text.

It is difficult to characterize the audience which is likely to profit most from this experimentally-minded introduction to dynamical systems. Like the package's name indicates, it seems to be meant for "everyone". I do think that everyone interested in the subject (except the specialist) will actually find a good deal of stimulating material in some parts of the book, but may perhaps be indifferent to others. In any case, it should guide both mathematicians and application scientists to a hands-on experience with dynamical systems, which would be a very desirable effect.

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3[45-01, 45A05, 65R20].—RAINER KRESS, *Linear Integral Equations*, Applied Mathematical Sciences, Vol. 82, Springer, 1989, xi + 299 pp., 24 cm. Price \$49.00.

This is truly an exciting little textbook on the functional analysis treatment of linear integral equations. In writing this text, the author was careful to select a relatively broad range of topics from the area of linear integral equations which are important to applications and whose numerical solutions are currently sought after and studied. The principles studied in the text are precisely those needed to study the error and convergence of numerical methods for approximating solutions to these problems. Understanding the principles of the text would therefore also assist the reader in selecting a good numerical method for approximating the solution to a linear integral equation problem. It is a pleasure to see these topics treated in a text. His pretty presentation of the material demonstrates the author's love for this type of mathematics.

I believe this would be an excellent contender as a text for the first two quarters of a three-quarter graduate course on the numerical solution of integral equations. The third quarter could be spent illustrating the principles covered in the book on specific problems from applications. I look forward to using this text in a class.

The following list of chapter headings gives a fairly good idea about the topics covered: 1. Normed Spaces; 2. Bounded and Compact Operators; 3. The Riesz Theory; 4. Dual Systems and Fredholm Theory; 5. Regularization in Dual Systems; 6. Potential Theory; 7. Singular Integral Equations; 8. Sobolev Spaces; 9. The Heat Equation; 10. Operator Approximations; 11. Degenerate Kernel Approximations; 12. Quadrature Methods; 13. Projection Methods; 14. Iterative Solution and Stability; 15. Equations of the First Kind; 16. Tikhonov Regularization; 17. Regularization by Discretization; 18. Inverse Scattering Theory.

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